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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	QGS
		Application Number	
Title of Invention	Gesture Recognition		
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Title of the Invention	Gesture Recognition		
Attorney Docket Number	QGS	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	QGS
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Title of Invention	Gesture Recognition	

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ABSTRACT OF THE DISCLOSURE

A state machine gesture recognition algorithm for interpreting streams of coordinates received from a touch sensor. The gesture recognition code can be written in a high level language such as C and then compiled and embedded in a microcontroller chip, or CPU chip as desired. The gesture recognition code can be loaded into the same chip that interprets the touch signals from the touch sensor and generates the time series data, e.g. a microcontroller, or other programmable logic device such as a field programmable gate array.

BACKGROUND OF THE INVENTION

[0001] The invention relates to gesture recognition in particular gesture recognition by processing of time series of positional inputs received by a two-dimensional (2D) touch sensor, such as a capacitive or resistive touch sensor. The invention may also be applied to one-dimensional (1D) touch sensors, and the principles could also be applied to three-dimensional sensors. It may also be applied to proximity sensors, where no physical contact, i.e. touch, with a sensing surface is involved. The invention can be applied to sensing surfaces operable by a human finger, or a stylus.

[0002] 1D and 2D capacitive and resistive touch sensors have been in widespread use for many years. Examples include the screens of personal digital assistants (PDAs), MP3 audio player controls, mobile phone keypads and/or displays, and multimedia devices. The touchpad in notebook computers provided in place of a mouse is another form of 2D capacitive touch sensor. 2D sensors are also provided in many domestic appliances, so-called "white goods", such as ovens and blenders.

[0003] Detailed descriptions of 2D capacitive sensors have been given many times, for example in patents and patent applications with the inventor Harald Philipp such as US 2005/0041018 A1, US 2007/0247443 A1, US 2007/0257894 A1, and US 2007/0279395 A1, the contents of which are incorporated herein in their entirety.

[0004] Other prior art examples of touch screens are as follows.

[0005] US 3,593,115 shows a touch element having triangulated shapes for determining object position. However this scheme requires numerous secondary electrode connections as well as two or more layers of construction, increasing construction costs and reducing transparency.

[0006] US 5,650,597 shows a 2D sensing method which in its active area requires only one layer but requires large numbers of electrode connections. Resistive strips resolve one axis of position, and the accuracy is dependent on the tolerance of large numbers of resistive strips. This method however does suppress hand shadow effects.

[0007] US 6,297,811 describes a touch screen using triangulated wire outline electrode shapes to create field gradients. However this patent suffers from the problem that it is difficult to scale up the screen size, as the number of electrode connections to a sensing circuit is one per triangle. It is desirable to dramatically reduce the number of connections in order to reduce cost and simplify construction. Also it is desirable to use solid shapes rather than wire outlines which are more expensive to construct. This method however does suppress hand shadow effects.

[0008] Gesture recognition has also been used for many years in such devices. An early example is character recognition in PDAs, such as the original machines from Palm Inc. Tracking finger motion, and single and double taps on a notebook touchpad is another long used example. More recently, gesture recognition has been incorporated into handheld devices such as the Apple iPhone (RTM). Prior art patent publications on touch screens that involve gesture recognition are also large in number, with significant numbers of publications from Synaptics, Inc. and also more recently Apple Computer, Inc, for example.

[0009] US 2007/152984 A1 assigned to Apple Computer, Inc. discloses a portable communication device with multi-touch input which detects one or more multi-touch contacts and motions and performs one or more operations on an object based on the one or more multi-touch contacts and/or motions.

[0010] US 2002/015024 A1 assigned to University of Delaware discloses simultaneously tracking multiple finger and palm contacts as hands approach, touch, and slide across a proximity-sensor. Segmentation processing extracts shape, position and surface proximity features for each contact and a persistent path tracker is used to detect individual contact touchdown and liftoff. Combinatorial optimization modules associate each contact's path with a particular fingertip, thumb, or palm of either hand on the basis of biomechanical constraints and contact features. Classification of intuitive hand configurations and motions enables unprecedented integration of typing, resting, pointing, scrolling, 3D manipulation, and handwriting into a versatile, ergonomic computer input device.

[0011] US 5,825,352 discloses a touch panel which is capable of detecting multiple touches simultaneously. In an xy electrode array, maxima and minima are identified in each of the x and y signals, wherein maxima are designated as finger touches. Peak and valley data in the x and

y directions are then interpolated to identify the location of one or more fingers on the sensor array.

[0012] US 6028271, US 6414671 and US 6750852 are related patents assigned to Synaptics, Inc. which disclose gesture recognition of an object on a touch-sensor pad and for cursor motion. Tapping, drags, pushes, extended drags and variable drags gestures are recognized by analyzing the position, pressure, and movement of the conductive object on the sensor pad during the time of a suspected gesture, and signals are sent to a host indicating the occurrence of these gestures.

[0013] US2007/176906 A1 assigned to Synaptics, Inc. discloses a touch sensor having a signal processor adapted to distinguish between three gestures based on different finger motions on the sensing device by providing a workflow with an idle state and three gesture-specific states referred to as first, second and third result states, as illustrated in Figure 5 of US2007/176906 A1.

[0014] Generally, the raw output from the 2D touch sensor will be a time series of x, y coordinates, which are then processed by software, or firmware generated from higher level software, to distinguish the nature of the gesture that has been input. Generally, the raw data is split into contiguous touch segments and then processed to determine what if any gestures can be deduced. The processing of the raw data to identify the gestures may be carried out in the same chip as generates the raw data, or the raw data may be exported to an external chip, for example by transmission over a communication bus to the device's central processing unit (CPU). The former approach is preferred by Synaptics, the latter by Apple as exemplified by US 2006/0066582 A1.

[0015] Most of the patent literature is unspecific about how the raw time series data are converted into gestures. The straightforward approach is to write appropriate high level code, for example in C or another suitable programming language, in which the interpretation of the time series data is analyzed using conditional statements, such as *if .. then .. else*.

[0016] However, it is difficult to reliably and efficiently add code to identify a new gesture into an existing block of code for distinguishing between a significant number of gestures, for example at least 3 or 4, perhaps 10 to 20. Testing of the code is a particular difficulty. This is because in general at any intermediate point in a time series of x,y,t data the input may relate to

a plurality of possible gestures, thereby making the coding for recognizing one gesture generally dependent on or linked to the coding for recognizing another gesture.

SUMMARY OF THE INVENTION

[0017] The invention solves this problem by adopting a state machine approach to designing and writing the gesture recognition algorithm. In particular, the invention relates to a touch sensor device comprising an at least one-dimensional sensor arranged to output a sense signal responsive to proximity of an object, a position processing unit for calculating a position of an interaction with the sensitive area from an analysis of the sense signals and output a time series of data indicative of interaction positions on the sensor, and a gesture processing unit operable to analyze the time series data to distinguish one or more gesture inputs therefrom, wherein the gesture processing unit is coded with gesture recognition code comprising a plurality of linked state modules. The invention also relates to a corresponding signal processing method.

[0018] The gesture recognition code can be written in a high level language such as C and then compiled and embedded in a microcontroller chip, or CPU chip as desired. Preferably, the gesture recognition code is loaded into the same chip that interprets the touch signals from the screen and generates the time series data, e.g. a microcontroller, or other programmable logic device such as a field programmable gate array (FPGA). This approach has been used to create reliable testable code both for single-touch data input screens and also multi-touch data input screens. A single-touch screen is one which assumes only one simultaneous touch of the screen, and is designed to output only one x,y coordinate at any one time. A multi-touch screen is one that can sense multiple simultaneous touches, for example up to 2 or 3 simultaneous touches.

[0019] The state machine includes an idle state module which is the start state, and also the state which is returned to after a gesture interpretation state module has been exited.

[0020] Responsive to a touch, the idle state passes control to a touch state.

[0021] In a multi-touch environment, the state machine is implemented in the second embodiment described below such that there are multiple touch states, one for a single touch, one for a double touch, one for a triple touch etc with control passing to the appropriate touch state based on the number of simultaneous touches defined by the time series data at the time.

[0022] Although the above approach for handling multitouch gestures by having two-touch and three-touch states linked to one touch states operates well, redesigning the state machine to, for example, add a new multitouch gesture is difficult in view of the increasingly complex web of states and transitions. This problem is addressed by a fourth embodiment of the invention described below according to which there is provided a plurality of state machines limited to single-touch gesture recognition. If the gesture recognition code is configured to recognize gestures having up to, say 3 simultaneous touches, then 3 such single-touch state machines are provided. Further state machines are provided for multi-touch gesture recognition, each catering for a certain number of simultaneous touches, so there is a two-touch state machine and optionally a three-touch state machine, and further optionally additional state machines for still higher numbers of simultaneous touches. A key advantage of this approach is that the same code base is used for handling single touches, and each of 2-, 3- or higher numbers of simultaneous touches are processed using separate additional code embodied in separate state machines.

[0023] A touch is usually only output as a valid touch, if certain criteria are satisfied, typically that there are a succession of touch at a stable x,y location or x,y region over multiple time sample increments. If a touch of a duration longer than a threshold duration is sensed in the touch state, then control flow passes to a press state module, wherein the press state is for handling longer touches. The press state is preferably a superstate comprising multiple sub-states to distinguish between different durations of press and/or to allow a very long press to be interpreted as being repeat presses, which may be useful for alphanumeric key entry applications for example.

[0024] The state machine preferably also has a plurality of state modules for interpreting higher level gestures, such as one or more states for interpreting double taps, flicks, drags and any other gestures. The gestures include those specifically described in this document as well as other gestures known in the art, specifically all those disclosed in the above-referenced prior art documents.

[0025] The invention provides in one aspect a touch sensor device comprising: a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area; a position processing unit operable to calculate positions of interactions with the sensitive area from an analysis of the sense signals, and output a time series of data indicative of the interaction positions on the

sensor, and thus touches; and a gesture processing unit operable to analyze the time series data to distinguish one or more gesture inputs therefrom, wherein the gesture processing unit is coded with gesture recognition code comprising a plurality of linked state modules.

[0026] Further aspects of the invention relate to the gesture processing unit on its own and the gesture processing unit in combination with the position processing unit, but without the sensor.

[0027] The plurality of state modules preferably includes an idle state module and a plurality of gesture interpretation state modules, wherein the idle state module is entered at the start of operation, and is returnable to from at least some of the gesture interpretation state modules. The plurality of gesture interpretation state modules may include a touch state module for single touches, and wherein, responsive to a touch, the idle state passes control to the touch state.

[0028] In some embodiments, the plurality of gesture interpretation state modules includes at least one multitouch state module operable to process multiple simultaneous touches, and wherein the gesture processing unit is operable to pass control to the appropriate touch state module based on the number of simultaneous touches defined by the time series data at the time. A multitouch state module for each of two simultaneous touches and three simultaneous touches may be provided, and optionally also higher numbers of touches.

[0029] The plurality of gesture interpretation state modules may advantageously include a press state module to which control can pass from a touch state module if a touch of a duration longer than a threshold duration is sensed in the touch state module. The press state is preferably a superstate comprising multiple sub-states to distinguish between different durations of press.

[0030] In some embodiments, the plurality of gesture interpretation state modules includes a plurality of state modules operable to recognize motion related gestures derived from one or more moving touches. In other embodiments, only static gestures, such as press, tap and double tap are catered for.

[0031] The best mode of implementing multitouch gesture interpretation according to the invention provides gesture recognition code configured to recognize gestures having up to N simultaneous touches, wherein N is at least 2, and comprises N single-touch state machines

operable to recognize only single touch gestures, and N-1 multi-touch state machines each operable to recognize only n-touch gestures, wherein n=2 to N.

[0032] The position processing unit and the gesture processing unit may be accommodated in, and run on, a single integrated circuit, for example a microcontroller. Alternatively, the position processing unit may be accommodated in, and run on, a first integrated circuit, such as a microcontroller, and the gesture processing unit accommodated in, and run on, one or more separate integrated circuits, such as a personal computer or other complex system having its own central processing unit, graphics processing unit and/or digital signal processor with associated memory and bus communications.

[0033] The invention provides in another aspect a method of recognizing gestures from a time series of touch data comprising coordinates of interaction positions on a touch sensor, the method comprising: receiving touch coordinates labeled with, or ordered by, time; analyzing the touch coordinates in a state machine comprising a plurality of linked state modules to recognize any one of a plurality of defined gestures therefrom; and outputting the recognized gestures.

[0034] The invention provides in a still further aspect a single integrated circuit having a memory on which is loaded the above-referenced gesture state machine and which is operable to carry out the method of gesture recognition defined thereby.

[0035] The invention provides in yet another aspect a computer having a memory on which is loaded the above-referenced gesture state machine and which is operable to carry out the method of gesture recognition defined thereby.

[0036] It will be appreciated that the gesture state machine approach for gesture recognition can be applied to any hardware platform. Capacitive touch sensors, in particular one-dimensional and two-dimensional capacitive touch sensors are one important sensor type which can provide a hardware platform for a gesture recognition state machine according to the invention. In particular, the invention is equally applicable to so-called passive or active capacitive sensing techniques.

[0037] Passive capacitive sensing devices rely on measuring the capacitance of a sensing electrode to a system reference potential (earth). The principles underlying this technique are described in US 5,730,165 and US 6,466,036, for example. In broad summary, passive

capacitive sensors employ sensing electrodes coupled to capacitance measurement circuits. Each capacitance measurement circuit measures the capacitance (capacitive coupling) of its associated sensing electrode to a system ground. When there is no pointing object near to the sensing electrode, the measured capacitance has a background or quiescent value. This value depends on the geometry and layout of the sensing electrode and the connection leads to it, and so on, as well as the nature and location of neighboring objects, e.g. the sensing electrodes proximity to nearby ground planes. When a pointing object, e.g. a user's finger, approaches the sensing electrode, the pointing object appears as a virtual ground. This serves to increase the measured capacitance of the sensing electrode to ground. Thus an increase in measured capacitance is taken to indicate the presence of a pointing object. US 5,730,165 and US 6,466,036 are primarily directed to discrete (single button) measurements, and not to 2D position sensor applications. However the principles described in US 5,730,165 and US 6,466,036 are readily applicable to 2D capacitive touch sensors (2DCTs), e.g. by providing electrodes to define either a 2D array of discrete sensing areas, or rows and columns of electrodes in a matrix configuration.

[0038] Active 2DCT sensors are based on measuring the capacitive coupling between two electrodes (rather than between a single sensing electrode and a system ground). The principles underlying active capacitive sensing techniques are described in US 6,452,514. In an active-type sensor, one electrode, the so called drive electrode, is supplied with an oscillating drive signal. The degree of capacitive coupling of the drive signal to the sense electrode is determined by measuring the amount of charge transferred to the sense electrode by the oscillating drive signal. The amount of charge transferred, i.e. the strength of the signal seen at the sense electrode, is a measure of the capacitive coupling between the electrodes. When there is no pointing object near to the electrodes, the measured signal on the sense electrode has a background or quiescent value. However, when a pointing object, e.g. a user's finger, approaches the electrodes (or more particularly approaches near to the region separating the electrodes), the pointing object acts as a virtual ground and sinks some of the drive signal (charge) from the drive electrode. This acts to reduce the strength of the component of the drive signal coupled to the sense electrode. Thus a decrease in measured signal on the sense electrode is taken to indicate the presence of a pointing object.

[0039] It will be appreciated that there are several other touch sensing technologies, such as those based on resistive screens, which typically operate with stylus input, and technologies developed for large areas, such as those based on ultrasonics or other acoustic techniques, and

those based on total internal reflection, or other optical techniques. All of these touch technologies may benefit from the present invention.

[0040] It is noted that the term of art "state machine" is used throughout this document. A synonym is finite state machine (FSM), the acronym FSM appearing in some of the figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0041] For a better understanding of the invention, and to show how the same may be carried into effect, reference is now made by way of example to the accompanying drawings.

[0042] Figure 1 illustrates a gesture recognition state machine according to a first embodiment.

[0043] Figure 2 illustrates a gesture recognition state machine according to a second embodiment.

[0044] Figure 3 illustrates features of a gesture recognition state machine according to a third embodiment.

[0045] Figure 4 illustrates a gesture recognition state machine according to a fourth embodiment for handling N touches.

[0046] Figure 5 illustrates internal states of an N-touch state machine according to the fourth embodiment.

[0047] Figure 6 is an example of the fourth embodiment showing generation of 2-touch events using two 1-touch state machines.

[0048] Figure 7 is an example of 3-touch gesture handling according to the fourth embodiment.

[0049] Figure 8 is a schematic plan view showing parts of an electrode pattern for a two-dimensional capacitive touch screen (2DCT).

[0050] Figure 9 is a plan view of a 2DCT of Figure 8 showing the electrode pattern and a first layer of connections at the periphery of the electrode pattern area to connect to the y-electrodes.

[0051] Figure 10 is a plan view of the 2DCT of Figure 9 showing the electrode pattern and a second layer of connections at the periphery of the electrode pattern area to connect to the x-electrodes and also to connect the y-electrode external feed lines to the y-electrode connections shown in Figure 9.

[0052] Figure 11 is a schematic system level drawing of drive and data acquisition circuitry for the 2DCT of Figures 8-10.

[0053] Figure 12 schematically shows a display monitor and an input device according to the present invention.

[0054] Figure 13 schematically shows a cellular telephone according to the present invention.

DETAILED DESCRIPTION

[0055] Before describing embodiments of the invention, we first define each of the gestures referred to in the detailed description of the embodiments.

[0056] Tap: A tap happens when the user quickly touches and releases the touch surface. No significant movement takes place while the user's finger is on the touch surface. It is characterized by a short touch duration. This could be used, for example, to activate a hyperlink on a displayed web page.

[0057] Double Tap: A double tap happens when the user quickly touches and releases the touch surface twice in quick succession. No significant movement takes place while the user's finger is on the touch surface, or between successive touches. It is characterized by short touch durations, and a short gap between the first release and the second press. This could be used, for example, to select a word in a displayed document.

[0058] Press: A press happens when the user touches and holds the touch surface. No significant movement takes place while the user's finger is on the touch surface. This could be used, for example, to select a number from a displayed numeric keypad. The same mechanism could be used to auto-repeat the selected number if the user continues to press on the displayed number.

[0059] Flick: A flick happens when the user quickly touches the touch surface, moves a short distance, and releases touch. It is characterized by a short touch duration. This could be used, for example, to display the next in a sequence of images.

[0060] Drag: A drag happens when the user touches the touch surface, moves their finger across the surface, and releases touch. It is characterized by a large movement across the touch surface. Depending on the application, multiple drag events may be generated as the user moves their finger. This could be used, for example, to select a sentence in a displayed document.

[0061] Pinch: A pinch happens when the user places two fingers on the touch surface, and then moves them towards each other. This could be used, for example, to zoom out on a displayed image.

[0062] Stretch: A stretch happens when the user places two fingers on the touch surface, and then moves them away from each other. This could be used, for example, to zoom in on a displayed image.

[0063] Rotate: A rotate operation happens when the user places two fingers on the touch surface, and then rotates them relative to each other. This could be used, for example, to rotate a displayed image.

[0064] Before describing embodiments of the invention, we first define each of the events referred to in the detailed description of the embodiments. These events are those acted upon by the state machines embodying the invention described further below. It is noted that in some embodiments the state machine can generate simultaneous multiple events in response to certain user actions.

[0065] Tap: A tap event is generated when the user makes a tap gesture.

[0066] Double Tap: A double tap event is generated when the user makes a double tap gesture.

[0067] Press: A press event is generated when the user touches the touch surface and leaves their finger stationary.

[0068] Short Press: A short press event is generated after a press event, when the user has continued to leave their finger stationary for a period.

[0069] Long Press: A long press event is generated after a short press event, when the user has continued to leave their finger stationary for a period.

[0070] Repeat Press: A repeat press event is generated after a long press event, when the user has continued to leave their finger stationary for a period. If they continue to leave their finger stationary, repeat press events will be generated at regular intervals.

[0071] Release: A release event is generated when the user removes their finger(s) from the touch surface.

[0072] Flick: A flick event is generated when the user makes a flick gesture.

[0073] Drag: A drag event is generated when the user makes a drag gesture.

[0074] Multitouch (or Dual touch): A multitouch (or dual touch) event is generated when the user presses the touch surface with two fingers.

[0075] Pinch: A pinch event is generated when the user makes a pinch gesture.

[0076] Stretch: A stretch event is generated when the user makes a stretch gesture.

[0077] Rotate: A rotate event is generated when the user makes a rotate gesture.

[0078] Figure 1 shows a state machine for gesture recognition according to a first embodiment, which is limited to processing gestures made up of single touches. In other words, multitouch gestures are not catered for in this embodiment. The supported gestures are: tap; press; double tap; flick; and drag. These 5 gestures are recognized in the state machine by traversing 7 states interconnected by approximately 17 transitions, as illustrated in the figure. The states can be further subdivided into those relating to static touches, namely press, tap and double tap in this example, and those related to moving touches, namely flick and drag in this example.

[0079] The Idle state is now described. The Idle state occurs whenever a user is not touching the touch surface. There are no actions triggered by entering this state, and no actions performed while in this state. The Idle state will undergo a transition into a Touched state if the

user presses the touch surface with one finger. The Idle state has no parameters, and there are no timing calculations associated with the Idle state.

[0080] The Touched state is now described. The Touched state occurs when a user has touched the touch surface. When the Touched state is entered a timeout is started, i.e. a timer is set running which expires after a preset time. This is used to distinguish between short duration gestures such as flicks and taps, and long duration gestures such as a press. The initial touch location is stored. This is used to decide if the user has moved their finger. When in the Touched state the timeout expiry is checked, and the distance moved from the initial touch location is calculated. If the timeout expires, the state machine undergoes a transition by generating a press event and then enters the Pressed state. If the user moves by more than a specified distance from the initial touch location, the state machine enters the Flick Pending state. If the user releases their touch, the state machine enters the Second Tap Pending state. Subsequent actions will determine if a tap, double tap, or other gesture is later generated. The timeout parameter in the Touched state determines how long the user has to remove their finger, potentially generating a tap event. The movement parameter in this state determines by how much the user must move their finger to enter the Flick Pending state. The maximum time permitted from the initial touch in order to generate an event in this state is the timeout period.

[0081] The Second Tap Pending state is now described. The Second Tap Pending state occurs after a user has tapped the touch surface. On entry a timeout is started. This is used to decide if the user has made a tap gesture. The initial touch location is stored. This is used to decide if the user is making a double tap gesture. The timeout expiry is checked. If the timeout expires, a tap event is generated and the state machine enters the Idle state. This means that the user had tapped the surface once, but not twice within the allowed time interval. If the user presses the touch surface with one finger, the distance of the second touch from the first is calculated. If it is less than a specified value, the state machine enters the Double Tap Pending state, as the user may be doing a double tap. If the distance between the first and second touches is more than the specified value, the state machine generates a tap event (for the previous tap gesture) and re-enters the Touched state as illustrated. The timeout parameter in the Second Tap Pending state determines how long after the user releases a touch a tap event is generated. If the user touches the surface again before the timeout expires, a double tap event could potentially be generated. The maximum time permitted from initial touch to generate an event in this state is the sum of the timeout periods for the Touch state and the Second Tap Pending state.

[0082] The Double Tap Pending state is now described. The Double Tap Pending state occurs when the user has tapped the touch surface and then pressed it again. On entry into the state, a timeout is started. This is used to decide if the user is making a double tap gesture. The initial touch location is also stored. This is used to decide if the user has moved their finger. While in the state, the timeout expiry is checked and the distance moved from the initial touch location is calculated. If the timeout expires, tap and press events are generated and the state machine enters the Pressed state. If the user moves by more than a specified distance from the initial touch location, the state machine generates a tap event and enters the Flick Pending state. This is because the user has tapped once, and their potential second tap is now a potential flick. If the user releases their touch, the state machine generates a double tap event and enters the Idle state. This is because the user completed both taps inside the specified time and distance limits. The timeout parameter in this state determines how long the user has to remove their finger to generate a double tap event. If the timeout expires, it is assumed that the user tapped and then touched and held the surface. The movement parameter in this state determines by how much the user must move their finger to enter the Flick Pending state. The maximum time permitted from initial touch to generate an event in this state is the sum of the timeout periods for the Touch, Second Tap Pending and Double Tap Pending states.

[0083] The Flick Pending state is now described. The Flick Pending state occurs when the user has pressed the touch surface and moved their finger over the surface. When the state is entered a timeout is started. This is used to decide if the user is making a flick or a drag gesture. The initial touch location is also stored on entry. This will be passed on to the Drag Pending processing if required. While in this state, the timeout expiry is checked. If the timeout expires, a press event is generated and the state machine enters the Drag Pending state. This is because the user has not released touch within the time used to distinguish flick and drag operations. If the user releases their touch, the state machine generates a flick event and enters the Idle state. This is because the user completed their movement inside the specified time limit. The timeout parameter in this state determines how long the user has to remove their finger to generate a flick event. If the timeout expires, it is assumed that the user is performing a drag operation. The maximum time from initial touch to generate an event in this state is the sum of the timeout periods from the Touched state and the Flick Pending states.

[0084] The Drag Pending state is now described. The Drag Pending state occurs when the user has pressed the touch surface and moved their finger over the surface and the movement has lasted longer than a flick duration. On entry into this state, a timeout is started. This is used

to decide if the user has become stationary. The initial touch location is also stored on entry. This is used to decide if the user has moved their finger. While in this state, the timeout expiry is checked and the distance moved from the initial touch location is calculated. If the timeout expires, the state machine enters the Pressed state. This is because the user has been stationary for too long. If the user moves by more than a specified distance from the initial touch location, the state machine generates a drag event. If the user releases their touch, the state machine generates a release event and enters the Idle state. The timeout parameter in this state determines for how long the user's finger must be stationary before moving to the Pressed state. The movement parameter in this state determines by how much the user must move their finger to generate a drag event. The maximum time permitted from initial touch to generate an event in this state is the sum of the timeouts for the Touched, Flick Pending and Drag Pending states.

[0085] The Pressed state is now described. The Pressed state occurs when a user has pressed the touch surface and been stationary for some time. On entry into this state, the initial touch location is stored. This is used to decide if the user has moved their finger. While in this state, the distance moved from the initial touch location is calculated. If the user moves by more than a specified distance from the initial touch location, a drag event is generated and the state machine enters the Drag Pending state. If the user releases their touch, the state machine generates a release event and enters the Idle state. The movement parameter in this state determines by how much the user must move their finger to generate a drag event and enter the Drag Pending state. There is no limit on how long it could take before an event is generated in this state.

[0086] It will be understood that a simplified version of the first embodiment could be envisaged in which the support for the motion related gestures, namely flick and drag, is omitted.

[0087] Figure 2 shows a state machine for gesture recognition according to a second embodiment, which may be viewed as a development of the first embodiment expanded to cater for multitouch gestures. The supported gestures are the same 5 single touch gestures as in the first embodiment, and in addition 3 multi-touch gestures, which are pinch, rotate and stretch. The multitouch capability is provided by one additional state, the Multitouch state, and approximately 11 additional transitions, as illustrated in the figure. This embodiment is now described with reference to its modifications in relation to the first embodiment.

[0088] The additional state of Multitouch (or Dual touch) state is first described. The Multitouch state occurs when the user has put two fingers on the touch surface. On entry, the initial touch locations are stored as well as the angle between the initial touch locations. While in this state, the separation between the two current touch locations is calculated as well as the angle between the touch locations. If the user releases both fingers, the state machine undergoes a transition by generating a release event and enters the Idle state. If the user releases one, or more generally all but one, finger, the state machine enters the Pressed state. If the touch separation increases by more than a specified amount from the initial touch separation, a stretch event is generated. If the touch separation decreases by more than a specified amount from the initial touch separation, a pinch event is generated. If the angle between the touch locations changes by more than a specified amount from the initial angle, a rotate event is generated. It is noted that the state machine can generate multiple events in this state, namely, stretch and rotate, or pinch and rotate. The angle parameter in this state determines by how much the angle between the touch locations must change to generate a rotate event. The stretch threshold parameter in this state determines by how much the separation between the two touch locations must increase to generate a stretch event. The pinch threshold parameter in this state determines by how much the separation between the two touch locations must decrease to generate a pinch event. There is no limit on how long it could take before an event is generated in this state.

[0089] From the Idle state there is an additional transition to the Multitouch state. This occurs if the user presses the touch surface with two fingers, in which case the state machine generates a multitouch event and enters the Multitouch state.

[0090] From the Touched state there is an additional transition to the Multitouch state. This occurs if the user places a second finger on the touch surface, in which case the state machine generates press and multitouch events and enters the Multitouch state.

[0091] From the Second Tap Pending state there is an additional transition to the Multitouch state. This occurs if the user presses the touch surface with two fingers, in which case the state machine generates tap and multitouch events and enters the Multitouch state. This indicates that there was a single tap followed by a multitouch.

[0092] From the Double Tap Pending state there is an additional transition to the Multitouch state. This occurs if the user presses the touch surface with two fingers, in which case the state

machine generates tap, press, and multitouch events and enters the Multitouch state. This indicates that there was a single tap, a press, and then a multitouch.

[0093] From the Flick Pending state there is an additional transition to the Multitouch state. This occurs if the user presses the touch surface with two fingers, in which case the state machine generates flick and multitouch events and enters the Multitouch state. The multitouch is considered to have ended the flick gesture.

[0094] From the Drag Pending state there is an additional transition to the Multitouch state. This occurs if the user presses the touch surface with two fingers, the state machine generates a multitouch event and enters the Multitouch state.

[0095] From the Pressed state there is one additional transition. This occurs if the user presses the touch surface with two, or more, fingers, the state machine generates a multitouch event and enters the Multitouch state. Moreover, as stated above, if the user releases all but one finger, when in the Multitouch state, the state machine enters the Pressed state.

[0096] Figure 3 shows features of a state machine for gesture recognition according to a third embodiment, which may be viewed as a development of the second embodiment in which the Pressed state has been further developed. In this embodiment, the Pressed state is modified to be a superstate containing five states. The additional states are Short Pending, Long Pending, Repeat Pending, Repeat and Press Complete. These additional states allow multiple interpretations of a single touch depending on its duration.

[0097] The Short Pending state is an initial state of the superstate which is the one entered from other states of the state machine when a user has pressed the touch surface and been stationary for some time. On entry into the Short Pending state, a timeout is started, which is used to determine when to generate a short press event. The initial touch location is stored, and is used to decide if the user has moved their finger. While in the Short Pending state timeout expiry is checked, and the distance moved from the initial touch location is calculated. If the timeout expires, a short press event is generated and the state machine enters the Long Pending, Repeat Pending, Repeat, or Press Complete states. If the user moves by more than a specified distance from the initial touch location, a drag event is generated and the state machine enters the Drag Pending state. If the user releases their touch, the state machine generates a release event and enters the Idle state. If the user presses the touch surface with two fingers, the state machine generates a multitouch event and enters the Multitouch state.

The timeout parameter in this state determines for how long the user's finger must be stationary before moving to the Long Pending, Repeat Pending, or Press Complete states. The movement parameter in this state determines by how much the user must move their finger to generate a drag event and enter the Drag Pending state. The maximum time permitted from initial touch to generate an event in this state is the sum of timeouts from the Touched, Flick Pending, Drag Pending and Short Pending states.

[0098] The Long Pending state is for when a user has pressed the touch surface and been stationary for some time. On entry a timeout is started. This is used to determine when to generate a long press event. The initial touch location on entry is stored. This is used to decide if the user has moved their finger. While in the state, the timeout expiry is checked and the distance moved from the initial touch location is calculated. If the timeout expires, a long press event is generated and the state machine enters the Repeat Pending or Press Complete states. If the user moves by more than a specified distance from the initial touch location, a drag event is generated and the state machine enters the Drag Pending state. If the user releases their touch, the state machine generates a release event and enters the Idle state. If the user presses the touch surface with two fingers, the state machine generates a multitouch event and enters the Multitouch state. The timeout parameter in this state determines for how long the user's finger must be stationary before moving to the Repeat Pending or Press Complete states. The movement parameter in this state determines by how much the user must move their finger to generate a drag event and enter the Drag Pending state. The maximum time from initial touch to generate an event in this state is the sum of timeouts from the Touched, Flick Pending, Drag Pending and Short Pending and Long Pending states.

[0099] The Repeat Pending state is for when a user has pressed the touch surface and been stationary for some time. On entry into the state, a timeout is started. This is used to determine when to generate a repeat press event. On entry, the initial touch location is also stored. This is used to decide if the user has moved their finger. While in the state, timeout expiry is checked and the distance moved from the initial touch location is calculated. If the timeout expires, a repeat press event is generated and the state machine enters the Repeat state. If the user moves by more than a specified distance from the initial touch location, a drag event is generated and the state machine enters the Drag Pending state. If the user releases their touch, the state machine generates a release event and enters the Idle state. If the user presses the touch surface with two fingers, the state machine generates a multitouch event and enters the Multitouch state. The timeout parameter in this state determines for how long the user's finger

must be stationary before moving to the Repeat state. The movement parameter in this state determines by how much the user must move their finger to generate a drag event and enter the Drag Pending state. The maximum time from initial touch to generate an event in this state is the sum of timeouts from the Touched, Flick Pending, Drag Pending and Short Pending and Long Pending and Repeat Pending states.

[0100] The Repeat state is for when a user has pressed the touch surface and been stationary for some time. On entry, a timeout is started. This is used to determine when to generate a repeat press event. On entry, the initial touch location is also stored. This is used to decide if the user has moved their finger. While in this state, the timeout expiry is checked and the distance moved from the initial touch location is calculated. If the timeout expires, a repeat press event is generated. If the user moves by more than a specified distance from the initial touch location, a drag event is generated and the state machine enters the Drag Pending state. If the user releases their touch, the state machine generates a release event and enters the Idle state. If the user presses the touch surface with two fingers, the state machine generates a multitouch event and enters the Multitouch state. The timeout parameter in this state determines for how long the user's finger must be stationary before generating a repeat press event. The movement parameter in this state determines by how much the user must move their finger to generate a drag event and enter the Drag Pending state. The maximum time from initial touch to generate an event in this state is the sum of timeouts from the Touched, Flick Pending, Drag Pending and Short Pending and Long Pending, Repeat Pending and Repeat states.

[0101] The Press Complete state is similar to the Pressed state of the first and second embodiments. Namely, on entry, the initial touch location is stored. This is used to decide if the user has moved their finger. While in this state, the distance moved from the initial touch location is calculated. If the user moves by more than a specified distance from the initial touch location, a drag event is generated and the state machine enters the Drag Pending state. If the user releases their touch, the state machine generates a release event and enters the Idle state. If the user presses the touch surface with two fingers, the state machine generates a multitouch event and enters the Multitouch state. The movement parameter in this state determines by how much the user must move their finger to generate a drag event and enter the Drag Pending state. There is no limit on how long it could take before an event is generated in this state.

[0102] It will be understood that all the transitions illustrated in Figure 3 relating to the Pressed superstate will not simultaneously be active. Each of the pressed sub-states can be disabled if

required. The internal paths are then determined by which sub-states are enabled. For instance, if short press and repeat press are enabled, but long press is disabled, then a path into the superstate would go to the short pending sub-state. The long pending sub-state would then be skipped, and the machine would transition to the repeat pending sub-state.

[0103] It will be understood that the first embodiment could also be modified by incorporating a Pressed superstate the same as described above in relation to Figure 3, but omitting the features relating to multitouch.

[0104] The state machines of the first, second and third embodiments are simple and effective, but do not scale well to more complex gesture combinations, in particular those that arise in multitouch. For instance, consider a gesture in which the user holds one finger on the touch surface and taps the surface with a second finger (a 'Press and Tap' gesture). To handle this, the 'multitouch' state in the state machine of the second embodiment would need multiple sub-states to track the position, duration, and movement of two touches.

[0105] It would also be difficult to extend the state machine of the second embodiment to handle gestures involving more than two touches. The state machine complexity would grow rapidly with each additional touch.

[0106] These limitations are overcome by a fourth embodiment of the invention according to which the multitouch state is removed from the state machine of the second embodiment to return to a simple single-touch state machine according to the first embodiment as shown in Figure 1. A single-touch state machine of this kind can track all of the required information from a single touch. Multiple single-touch state machines are then combined to handle multiple touch gestures instead of creating a more complex multi-touch state machine following the approach of the second embodiment.

[0107] Figure 4 shows at its highest conceptual level a state machine according to the fourth embodiment. In this diagram, the 'Touch x' blocks each represent the single-touch state machine in Figure 3. 'N' such state machines are processed by an N-touch state machine to generate N-touch gestures.

[0108] Figure 5 shows internal structure of the N-touch state machine of the second embodiment, which comprises idle and touched states. If all touches are pressed, the state machine is in the N-Touch Touched state, otherwise it is in the N-Touch Idle state. The state

machine can generate events in either state. For instance, when in the N-Touch Touched state, if all of the 1-touch state machines are in the drag pending state, an N-Touch Drag event could be generated when any of them generate a Drag event.

[0109] Figure 6 shows how this approach can be used to give equivalent functionality to the state machine of the second embodiment shown in Figure 2, but with a simpler scalable architecture.

[0110] In this example, Touch 1 and Touch 2 are processed by the 2-touch state machine, which tracks the separation and angle between the touches, and generates stretch, pinch, and rotate events as the distance and/or angle between the touches changes.

[0111] This state machine can also generate more complex gestures, such as the previously-described Press and Tap gesture. This can be done using a combination of the states and generated events of the two input state machines. If one state machine is in state 'Pressed' and the other has just generated a 'Tap' event, then the 2-touch state machine can generate a 'Press and Tap' event.

[0112] Similar combinations can be used to generate events such as:

- Press and Double Tap
- Drag and Tap
- Press and Flick
- Two Finger Drag
- And any other combination of states and events.

[0113] Figure 7 shows how the same approach can be used to handle three touch gestures. The figure shows three possible 3-touch gestures by way of example. When in the 3-Touch Touched state, if all of the 1-touch state machines are in the Drag Pending state, the 3-touch state machine could generate a 3 Touch Drag event when any 1-touch state machine generates a Drag event. The figure also shows how the state machine could detect a situation where the user has two touches on the touch surface, and then taps with a third finger. This could be used, for instance, in an application where two fingers are used to rotate a displayed image, and a tap with a third finger then zooms in on the displayed image. The same state machine could also easily detect a double tap to zoom back out.

[0114] A key advantage of the approach of the fourth embodiment is that the same code base is used for handling single touches, and 2-, 3- or if needed higher numbers of touches are processed using separate additional code. The approach is therefore scalable and modular with the usual benefits that brings in terms of saving of programmer time and reliability.

[0115] A suitable hardware platform for hosting a gesture recognition state machine according to the invention is now described. The hardware platform is taken from US 2007/0279395 A1, which was referred to in the introduction.

[0116] Figure 8 is a schematic plan view showing representative parts of an electrode pattern for a 2DCT, wherein the electrode pattern define a sensitive area for the device. The electrodes are arranged on a substrate which is not expressly shown, but which has an upper surface lying in the plane of the paper. The substrate may conveniently be a flexible transparent plastics material such as polyethylene terephthalate (PET). The substrate will generally be insulating. The electrode pattern is made of indium tin oxide (ITO) having a resistivity of a few hundred ohm/square. This is a transparent material and thus suitable for display applications, or other applications where an underlying button or other template needs to be visible.

[0117] More generally, the electrode pattern can be made by depositing or removing any suitable conductive material. Deposition can be by vapor deposition or screen printing, for example. Removal can be by laser or chemical etching, for example.

[0118] The electrode pattern defines y-electrodes 10, 12 for determining y-position and x-electrodes 14, 16, 18, 20, 22, 24 for determining x-position. As illustrated, both the x-electrodes and the y-electrodes generally extend in the x-direction and are interleaved in the y-direction. The y-electrodes 10, 12 are shaped as simple bars, i.e. elongate rectangles, whereas the x-electrodes 14-24 have tapered triangular shapes.

[0119] The x-electrodes are first described in more detail. A description of the y-electrodes follows.

[0120] The x-electrodes can be classified into three groups. A first group of triangular tapered electrodes 14, 24 is arranged at the left and right hand sides of the sensitive area. A second group of triangular electrodes 16, 22 with double tapers is arranged so that the electrodes extend inwards from the left and right hand sides respectively of the sensitive area towards the centre. A third group of x-electrodes 18, 20 extend outwardly to the left and right respectively

from a central spine 26 which are integrally formed. Adjacent ones of the elements of the first and second groups 14, 16 and 24, 22 co-extend in the x-direction over outer portions I and IV of the sensitive area towards the left and right sides of the sensitive area respectively. Adjacent ones of the elements of the second and third groups 16, 18 and 22, 20 co-extend in the x-direction over inner portions II and III respectively of the sensitive area either side of the central spine.

[0121] In this way each adjacent pair of co-extensive x-electrodes of the first and second or second and third groups forms a so-called slider. It will be appreciated that the electrode elements are suitably shaped and dimensioned in relation to the actuating device, typically a human finger, to provide a ratiometric capacitive signal spanning the length of their mutual extension in the x-direction, i.e. overlap in the x-direction.

[0122] The left-side double-tapered x-electrodes 16 are commonly connected to an external line X1 by a conductive electrical line 30 that runs in the y-direction at the left periphery of the sensitive area close to the leftmost edge of the x-electrodes 16. It is noted that the double-taper electrodes have a bonding pad areas 33 at their leftmost ends to facilitate this external connection.

[0123] The left-side tapered x-electrodes 14 are commonly connected to an external line X2 by a conductive electrical line 32 that runs in the y-direction at the left periphery of the sensitive area close to the leftmost edge of the x-electrodes 14.

[0124] The tapered x-electrodes 18 and 20 that depend from the central spine 26 are of course commonly connected by the spine and have electrical contact to the periphery of the sensitive area through the spine 26. An external line X3 connects to the central spine through an electrical line 34 contacted to the base of the spine 26.

[0125] The right-side tapered x-electrodes 24 are commonly connected to an external line X4 by a conductive electrical line 36 that runs in the y-direction at the right periphery of the sensitive area close to the rightmost edge of the x-electrodes 24 in similar fashion to the corresponding left-side x-electrodes 14.

[0126] The right-side double-tapered x-electrodes 22 are commonly connected to an external line X5 by a conductive electrical line 38 that runs in the y-direction at the right periphery of the

sensitive area close to the rightmost edge of the x-electrodes 22 in similar fashion to the corresponding left-side x-electrodes 16 with the aid of enlarged bonding pad areas 39.

[0127] In this way, the x-electrodes 14-24 are externally contacted to five external lines X1-X5 for read out.

[0128] The y-electrodes are split into two sets 10 and 12 to the left and right of the central spine 26. As already mentioned, they have a simple bar shape and are arranged between each adjacent set of x-electrodes 14, 16, 18 on the left and 20, 22, 24 on the right. The y-electrodes 10 and 12 are connected in vertically adjacent sets by conductive electrical lines, so the y-resolution of the sensitive area is limited to a vertical distance corresponding to the vertical extent of the interconnected y-electrodes. This ganging together of the y-electrodes reduces the y-resolution, but is done to keep down the number of external lines needed for the y-electrodes. In the illustrated example, the bottom set of y-electrodes, consisting of four pairs of y-electrodes, are commonly connected to an electrically conducting track 50 that forms part of an external line Y1. Although not evident from this figure, each pair of y-electrodes at the same height are commonly connected by an external run-around track. The next set up consists of three pairs of y-electrodes, although only the first pair is visible, and is connected to a track 52 for a further external line Y2. In total there are seven sets of y-electrodes connected to respective external lines Y1-Y7 through associated conductive tracks. The y-value is taken from these seven external lines providing only 7 units of y-resolution for a simple control algorithm, although possibly additional y-resolution could be achieved with interpolation between adjacent y lines.

[0129] To summarize, the 2DCT provides quasi-continuous x-resolution through sliders arranged in four overlap regions I-IV in the x-direction spanning across the width of the sensitive area in combination with step-like y-resolution through horizontally extending electrode bars commonly connected in vertically adjacent sets of 3 and 4. In total 12 external lines are used, 5 for X and 7 for Y.

[0130] The combination of the central spine and the double-taper electrodes allows a large extent of the sensitive area in the x-direction to provide a large sensitive area that can be made transparent and free of external connections except at the periphery. Moreover, the electrode pattern design means that handshadow effects are not significant, since any shift in the centroid of the capacitive signal from the physical location of the finger is bounded by the lateral extent of

the electrodes. For example, a device with a 6 inch (150 mm) diagonal sensitive area can be made to this design.

[0131] Figure 9 is a plan view to scale, with an approximate scale of 1:1 - i.e. real size - of a 2DCT showing the electrode pattern and a first layer of connections at the periphery of the electrode pattern area to connect to the y-electrodes. For ease of reference, the area covered by the previous schematic figure is shown by the dotted rectangle at the bottom of the figure. A finger outline roughly to scale is also shown.

[0132] The general ITO electrode pattern is evident that covers the main part of the substrate 40. The pattern in this example covers a rectangular area which matches the area of the touch screen or other device which it is to form the sensing part. The previously described four overlap regions I-IV of the x-electrodes are also marked. The substrate 40, which is generally rectangular, also has a neck tab 42 mid way up the left side of the substrate. The neck tab 42 is used for external contacting as described with reference to a subsequent figure. On the left hand side of the substrate 40, the side adjacent the neck tab 42, it will be seen that there are seven groups of conducting tracks 50-62 forming external lines Y1-Y7 for the y-electrodes, with lines Y2-Y7 each being connected to three y-electrodes via the tracks 52-62 and Y1 connecting four y-electrodes via track 50, there being 22 y-electrodes in total on this left half of the device, i.e. the half to the left of the central spine 26. On the right hand side there is an exactly corresponding arrangement with 22 y-electrodes ganged in three's apart from at the bottom where four are ganged together. The tracks 50-62 of the external lines Y1-Y7 on the right hand side of the substrate run around the top of the substrate to the left hand side of the substrate so that the left and right side corresponding pairs, and commonly connected groups of pairs, of y-electrodes are joined by a single conductive track.

[0133] Figure 10 is a plan view of the 2DCT prototype of Figure 9 showing the electrode pattern and a second layer of connections at the periphery of the electrode pattern area to connect to the x-electrodes and also to connect the y-electrode external feed lines to the y-electrode connections shown in Figure 9. In between the first and second layers of Figures 9 and 10, there is interposed an insulating layer which provides insulating areas to prevent electrical contact between certain parts of the first and second connection layers and open areas to ensure electrical contact between certain other parts of the first and second connection layers.

[0134] The y-electrode connections are described first. Seven conductive tracks 44 extend in parallel in the x-direction along the upper part of the neck tab 42 onto the left side part of the main area of the substrate 40. They then fan out and terminate with an enlarged contact pad 46 directly above a part of the tracks 50-62 in the first connection layer of Figure 9 for each of the y-electrode connections Y1-Y7 so that signals to and from each of the y-electrode groups can be fed in and out through the external contact tracks 44. There are open areas in the insulating layer at each contact pad 46 to ensure electrical contact between each of the Y1-Y7 tracks 44 on the second connection layer and the Y1-Y7 electrical line tracks 50-62 in the first connection layer. There are also insulating areas in the insulating layer covering each of the Y1-Y7 tracks where they overlie the ITO pattern to contact the y-electrodes both on the left and right hand sides of the substrate.

[0135] The x-electrode connections are now described. The five electrical lines 30-38 for external connections X1-X5 were already described with reference to Figure 8 and can be seen in the second connection layer of the prototype in Figure 11. As can be seen, the x-electrode connections are entirely provided for on the second connection layer, in contrast to the y-electrode connections which are distributed between the first and second connections layers. Namely, the tracks 30-38 run around the bottom side of the substrate 40 and then come together in 5 parallel tracks that are directed to the neck tab 42 where they join the 7 parallel y-electrode connections. It is noted that the x-electrode connection tracks and pads that run vertically up each side of the ITO area to contact the x-electrodes are electrically isolated from the y-electrode connection tracks by the insulating layer.

[0136] Figure 11 is a schematic system level drawing of a multi-channel sensor circuit 140 for use with the touch screen. In this figure the sensor circuit 140 is depicted as having five capacitive electrode inputs X1, X2, X3, X4 and X5 from the x-electrodes, and a single capacitive electrode input Y_n representative of the seven y-electrode inputs. In reality there will be seven such lines, one for each y-electrode input to provide the required 12 lines in total. A charging control line 157 is used to simultaneously charge all the capacitive inputs X1-X5 and Y1-Y7 using charging switches 156 connected to a reference voltage rail 158.

[0137] The channels X1-X5 and Y1-Y7 act simultaneously when transferring charge to the charge detectors, as indicated in the figure, by the use of a single discharging control line 163 actuating discharge switches 162 to discharge all the charged electrodes. After the transfer, or

burst of transfers, has occurred, an analogue multiplexer 182 selects which of the charge detector capacitor outputs is to be fed to the amplifier 184 and ADC 186.

[0138] Additionally, an array of reset switches 188 controlled by a reset control line 190 is activated after each pulse or burst of pulses to reset the capacitive inputs to a known reference (e.g., to ground). In respect of the x-channels X1-X5, these will need to be driven and the signals processed to take account of the ratiometric information that needs to be obtained from these signals.

[0139] Data processing then takes place on the digitized charge detector capacitor outputs. These outputs are input into a processing unit 188, which will include a microprocessor and optionally also a microcontroller for the lower level processing.

[0140] In a first processing stage or unit 190, referred to as the touch coordinate determination stage or unit, the digitized charge detector capacitor outputs are collated and interpreted as no, one or multiple simultaneous touches at defined x,y positions on the 2DCT for each repeat acquisition, frame or sampling interval. The touch coordinate determination stage or unit 190 has an output operable to control the analogue multiplexer 182 in order to cycle through the charge detector capacitor outputs, and thereby acquire the raw data from each of the x,y sensor node combinations. These data, i.e. the touch coordinates of each sample, are referred to as the touch data sets.

[0141] In a second processing stage or unit 192, referred to as the touch tracking stage or unit, the touch data sets for successive samples are analyzed, so that inputs that result from a single touch moving from sample-to-sample are identified as such, and distinguished from new touches and touches that have ceased. The data output from the touch tracking stage or unit are streams of x,y coordinates collated by time and particular touch tracked over time. These may conveniently be stored and/or represented in tabular form.

[0142] It is these data that are the input for a third processing stage or unit 194, referred to as the gesture recognition stage or unit, gesture recognition processing is carried out using the state machine code of the invention. The data output from the gesture recognition stage or unit are recognized gestures (including simple touches) and the times at or over which they occur.

[0143] In a fourth processing stage or unit 196, the recognized gesture data from the third stage is used in higher level code, typically at the application level, but in some cases at lower

levels of the coding hierarchy. These gestures will be used to trigger higher level functionality, such as for the graphical user interface of the device, and to jump between code blocks of an application.

[0144] Further suitable capacitive touch sensing hardware platforms are described in US 2005/0041018 A1, US 2007/0247443 A1, and US 2007/0257894 A1, for example, which provide examples of passive capacitive sensors. Only one example is reproduced in this document for the sake of brevity.

[0145] Figure 12 schematically shows the display monitor 901 and an input device 902 of a personal computer. In this example the input device 902 includes an alpha-numeric keyboard 903 for the user to input characters into the personal computer and a touchpad 904. It will be appreciated that the touchpad 904 could be a separate device to the keyboard 903. A conventional computer touchpad might also include a number of 'mouse-buttons' so that the user can operate a cursor, and select items by clicking one of said mouse-buttons. Although a conventional touchpad offers the possibility of moving a cursor on the display monitor by moving a finger over the touchpad's surface or as a mouse-button by tapping the touchpad's surface with a finger, the conventional touchpad cannot be used to perform both of these functions simultaneously. It will be appreciated that the personal computer could be contained within the display monitor 901 or the touchpad 904 could be one of the input devices of a laptop computer.

[0146] The touchpad 904 allows the user to use two separate fingers to operate two different functions of the personal computer. For example the user can move a cursor displayed on the display monitor 901 using one finger on the touchpad's surface, while using a separate finger to tap the surface of the touchpad 904, like a mouse-button, to select items. This could be used to organize data files, by first moving the cursor displayed on the display monitor 901 with a first finger on the touchpad's surface, until it is positioned over the required data file. The data file is selected by placing a second finger on the touchpad's surface. The data file is then moved to a different location by moving the first finger across the touchpad's surface, while the second finger is kept in contact with the touchpad's surface. When the data file is in the new desired location the second finger is removed from the touchpad's surface and the data file is deselected. It will be appreciated that in the above description, the second finger could also be moved at the same time as the first finger thus, allowing the user to carry out this function with one hand.

[0147] A further function which could be implemented is the ability to 'paint' using a personal computer, using a first finger as a brush and a second finger to select the required color from an on-screen palette. The first finger is used on the surface of the touchpad 904 to control a conventional primary cursor to draw an image on the computer, which is displayed on the display monitor 901. Implemented within the software and displayed on the display monitor 901 would be a palette of colors that can be readily selected. The user would move a secondary cursor over the required color of the palette, which could be selected using a 'tap' on the touchpad 904 using the second finger. The user could also use the secondary cursor to change the type of brush or the size of brush, in addition to the color in the method described above. This would allow the user more freedom when drawing an image, because the user could keep the primary cursor (brush) on the image at all times.

[0148] Figure 13 schematically shows a cellular telephone 905 incorporating a touchpad sensor 907 according to the present invention. The touchpad sensor is incorporated in front of the display screen 906 such that the display screen can still be viewed by the user, while still allowing capacitive coupling between the user's finger or stylus and the touchpad sensor 907. In this example, the user can select and move items displayed on the display screen by using a finger or stylus on the touchpad. The touchpad is incorporated with the display screen therefore, the 'cursor' will follow the movement of the user's finger or stylus. The same functions as those described for Figure 12 above, could be applied to this example shown in Figure 13.

[0149] Alternatively the touchpad 907 area could be divided up such that an area of the sensor was used to only view the display screen 906 and an area of the sensor was used only as a conventional touchpad sensor, whereby the user could move a cursor and select items, in the same manner described above.

[0150] A further function which could be implemented with the present invention is the control of a game on the cellular telephone 905. Although the touchpad 907 covers the same area as the display screen 906, it could be divided up such that there are user controls on the left and right of a central display area. The user would be able to use two fingers or thumbs, one on each of the left and right sides of the touchpad 907, such that he or she could control two different functions of a game. For example the left portion of the touchpad 907 could be a movement control including up, down, left and right and the right control portion of the touchpad 907 could be a series of buttons. For example this could be used in a driving game where the left and right movement controls on the left of the touchpad 907 are used to steer and the

buttons on the right of the touchpad 907 are used to accelerate and slow down the vehicle in the game.

[0151] It will be appreciated that the personal computer and cellular telephone examples described above are described by way of example only, and that the invention can be applied to a wide variety of devices in the fields of consumer electronics, telecommunications, domestic appliances and automotive, for example.

[0152] In summary, it will be understood from the above that a capacitive touch panel can be provided which is capable of detecting multiple simultaneous touches which can be input into a gesture state machine according to the present invention.

What is claimed is:

1. A touch sensor device comprising:
 - a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area;
 - a position processing unit operable to calculate positions of interactions with the sensitive area from an analysis of the sense signals, and output a time series of data indicative of the interaction positions on the sensor, and thus touches; and
 - a gesture processing unit operable to analyze the time series data to distinguish one or more gesture inputs therefrom, wherein the gesture processing unit is coded with gesture recognition code comprising a plurality of linked state modules.
2. The device of claim 1, wherein the plurality of state modules includes an idle state module and a plurality of gesture interpretation state modules, wherein the idle state module is entered at the start of operation, and is returnable to from at least some of the gesture interpretation state modules.
3. The device of claim 2, wherein the plurality of gesture interpretation state modules includes a touch state module for single touches, and wherein, responsive to a touch, the idle state passes control to the touch state.
4. The device of claim 2, wherein, the plurality of gesture interpretation state modules includes at least one multitouch state module operable to process multiple simultaneous touches, and wherein the gesture processing unit is operable to pass control to the appropriate touch state module based on the number of simultaneous touches defined by the time series data at the time.
5. The device of claim 4, wherein there is a multitouch state module for each of two simultaneous touches and three simultaneous touches.
6. The device of claim 2, wherein the plurality of gesture interpretation state modules includes a press state module to which control can pass from a touch state module if a touch of a duration longer than a threshold duration is sensed in the touch state module.

7. The device of claim 6, wherein the press state is a superstate comprising multiple sub-states to distinguish between different durations of press.
8. The device of claim 2, wherein the plurality of gesture interpretation state modules includes a plurality of state modules operable to recognize motion related gestures derived from one or more moving touches.
9. The device of claim 1, wherein the gesture recognition code is configured to recognize gestures having up to N simultaneous touches, wherein N is at least 2, and comprises N single-touch state machines operable to recognize only single touch gestures, and N-1 multi-touch state machines each operable to recognize only n-touch gestures, wherein $n=2$ to N.
10. The device of claim 1, wherein the position processing unit and the gesture processing unit are accommodated in, and run on, a single integrated circuit.
11. The device of claim 1, wherein the position processing unit is accommodated in, and runs on, a first integrated circuit, and the gesture processing unit is accommodated in, and runs on, one or more separate integrated circuits.
12. A method of recognizing gestures from a time series of touch data comprising coordinates of interaction positions on a touch sensor, the method comprising:
 - receiving touch coordinates labeled with, or ordered by, time;
 - analyzing the touch coordinates in a state machine comprising a plurality of linked state modules to recognize any one of a plurality of defined gestures therefrom; and
 - outputting the recognized gestures.
13. A single integrated circuit having a memory on which is loaded the state machine of claim 12 and which is operable to carry out the method of claim 12.
14. A computer having a memory on which is loaded the state machine of claim 12 and which is operable to carry out the method of claim 12.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	Gesture Recognition
---------------------------	---------------------

As the below named inventor(s), I/we declare that:

This declaration is directed to:

- The attached application, or
 Application No. _____ filed on _____
 As amended on _____ (if applicable);

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.

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Inventor one: <u>Alan Bowens</u>	Date: <u>20/10/08</u>
Signature: <u>Alan Bowens</u>	Citizen of: <u>GB</u>
Inventor two: <u>n/a</u>	Date: _____
Signature: _____	Citizen of: _____
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Application Number:				
Filing Date:				
Title of Invention:	Gesture Recognition			
First Named Inventor/Applicant Name:	Alan Bowens			
Filer:	David A. Kiewit			
Attorney Docket Number:	QGS			
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	330	330
Utility Search Fee	1111	1	540	540
Utility Examination Fee	1311	1	220	220
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1090

Electronic Acknowledgement Receipt

EFS ID:	4137792
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	20191
Filer:	David A. Kiewit
Filer Authorized By:	
Attorney Docket Number:	QGS
Receipt Date:	20-OCT-2008
Filing Date:	
Time Stamp:	10:09:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 1090
RAM confirmation Number	6557
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Authorized User	KIEWIT,DAVID

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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Warnings:					
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2	Abstract	qgsABST.pdf	6038 15b7b3324c2867b4e8a56ea3cdc827658bf3a2ac	no	1
Warnings:					
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3	Specification	qgsSPEC.pdf	156950 18680d0f08605df83b4575d77fbaa344a3ae4cf	no	30
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4	Claims	qgsCLAIM.pdf	11586 f988eef53cd367f48d1c3cff06e301de2c9c6355	no	2
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5	Drawings-only black and white line drawings	qgsLDWG.pdf	2587953 1f237db98a27756459110decba4e7e7e6fe81c5d1	no	11
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6	Oath or Declaration filed	qgsDECL.pdf	72783 c587765623ee3098fe4a69250284e505f8b04866	no	1
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	Filing Date		2008-10-20
	First Named Inventor	Bowens	
	Art Unit		
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	3	6297811		2001-10-02	Kent et al		
	4	5825352		1998-10-20	Bisset et al		
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	7	6750852	B2	2004-06-15	Gillespie et al		
	8	5730165	A	1998-03-24	Philipp		

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9	6466036	B1	2002-10-15	Philipp	
10	6452514	B1	2002-09-17	Philipp	
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	4	20070279395	A1	2007-12-06	Philipp et al	
	5	20070152984	A1	2007-07-05	Ording et al	
	6	20020015202	A1	2002-02-07	Westerman et al	

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7	20070176906	A1	2007-08-02	Warren	
8	20060066582	A1	2006-03-30	Lyon et al	
9	20080165514	A1	2008-07-10	Christie	
10	20060097991	A1	2006-05-11	Hotelling et al	
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Application Number	12254043		
Filing Date	2008-10-20		
First Named Inventor	Bowens		
Art Unit			
Examiner Name			
Attorney Docket Number	QGS		

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See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David A Kiewit, Reg. 34640/	Date (YYYY-MM-DD)	2008-10-20
Name/Print	David Kiewit	Registration Number	34640

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EFS ID:	4138809
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	20191
Filer:	David A. Kiewit
Filer Authorized By:	
Attorney Docket Number:	QGS
Receipt Date:	20-OCT-2008
Filing Date:	
Time Stamp:	11:55:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed (SB/08)	qgsUS_IDS_Form__SB_08a.pdf	608669 <small>1c90d424f288d3f367364e2201732fb3255173b0</small>	no	6

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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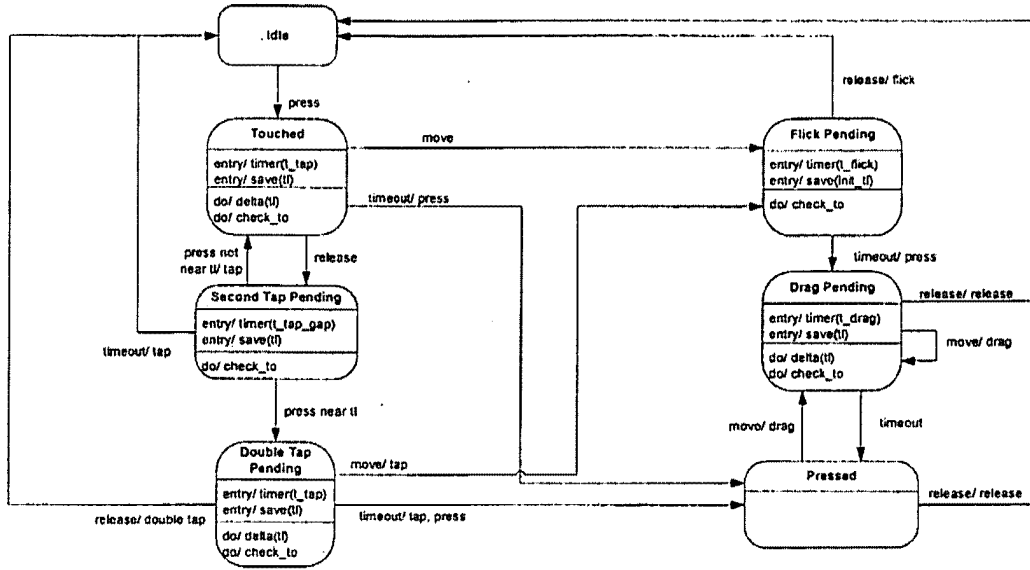


Figure 1

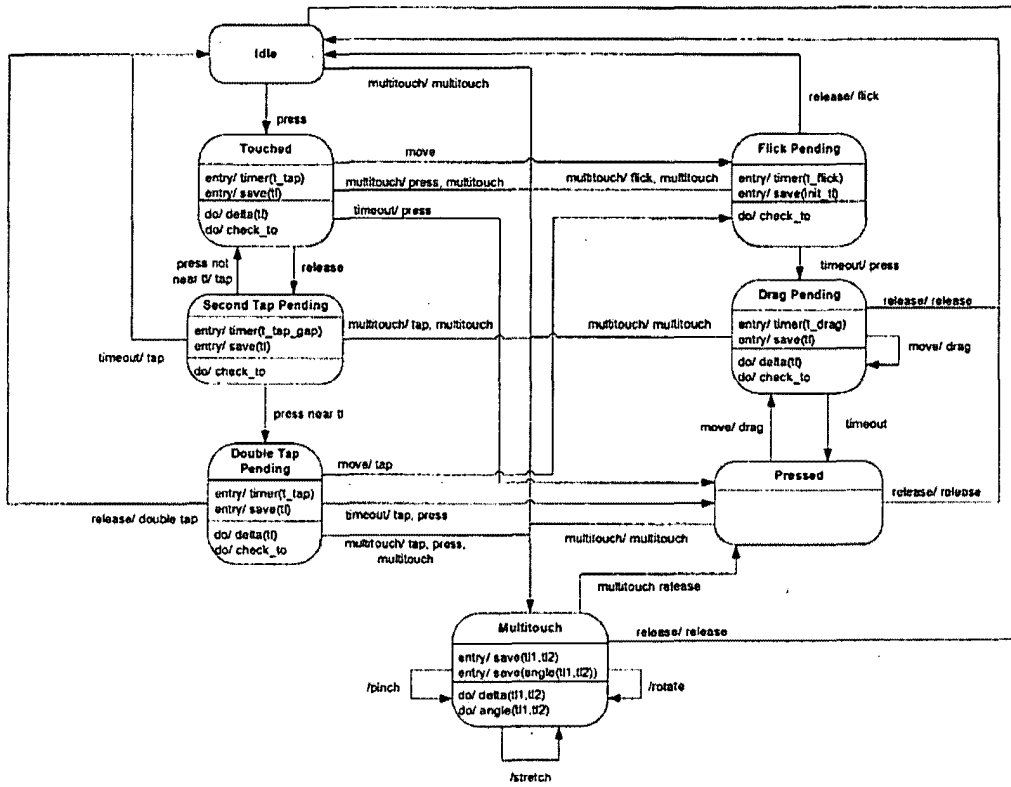


Figure 2

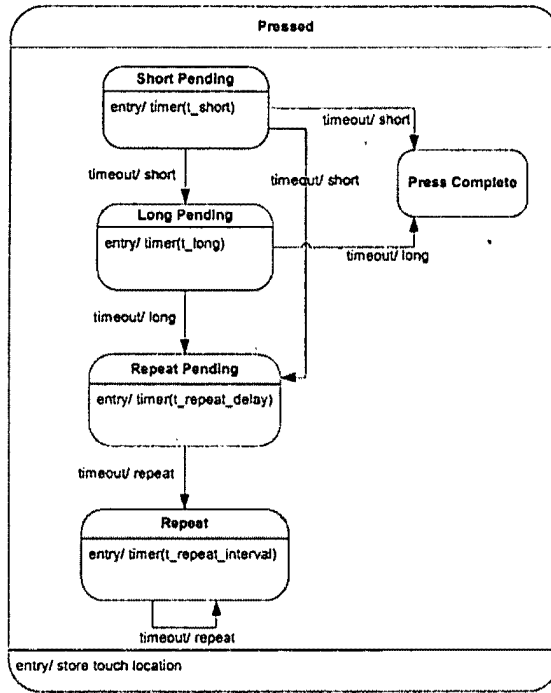


Figure 3

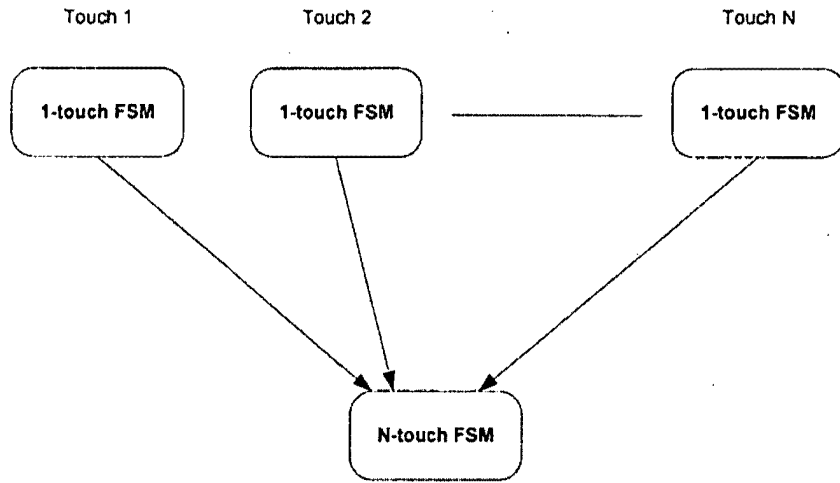


Figure 4

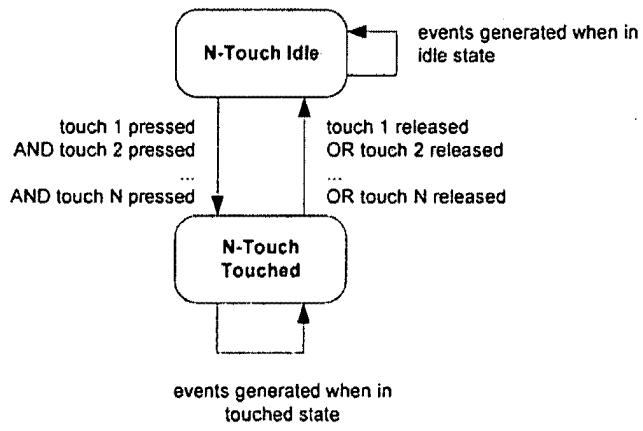


Figure 5

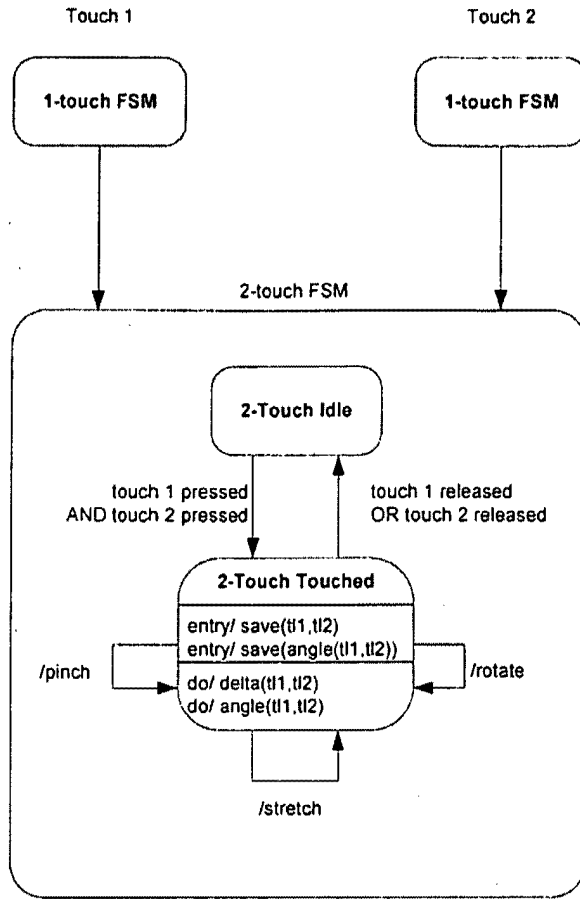


Figure 6

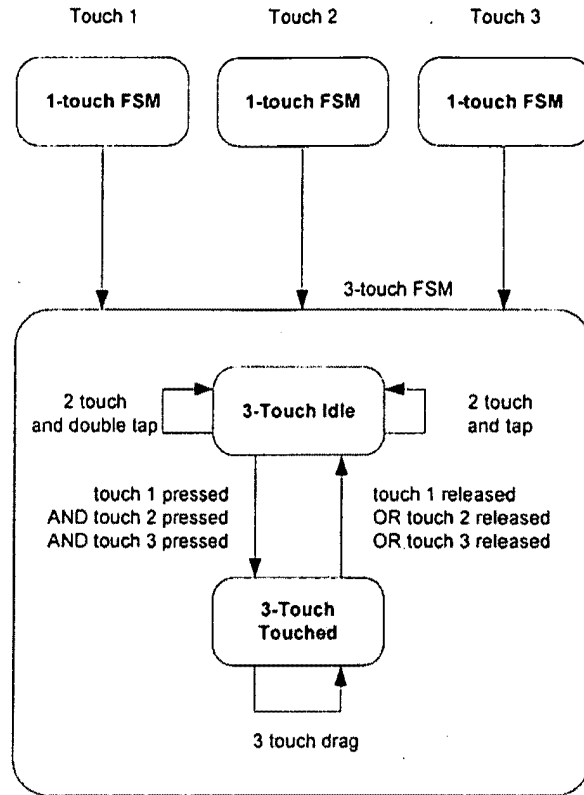
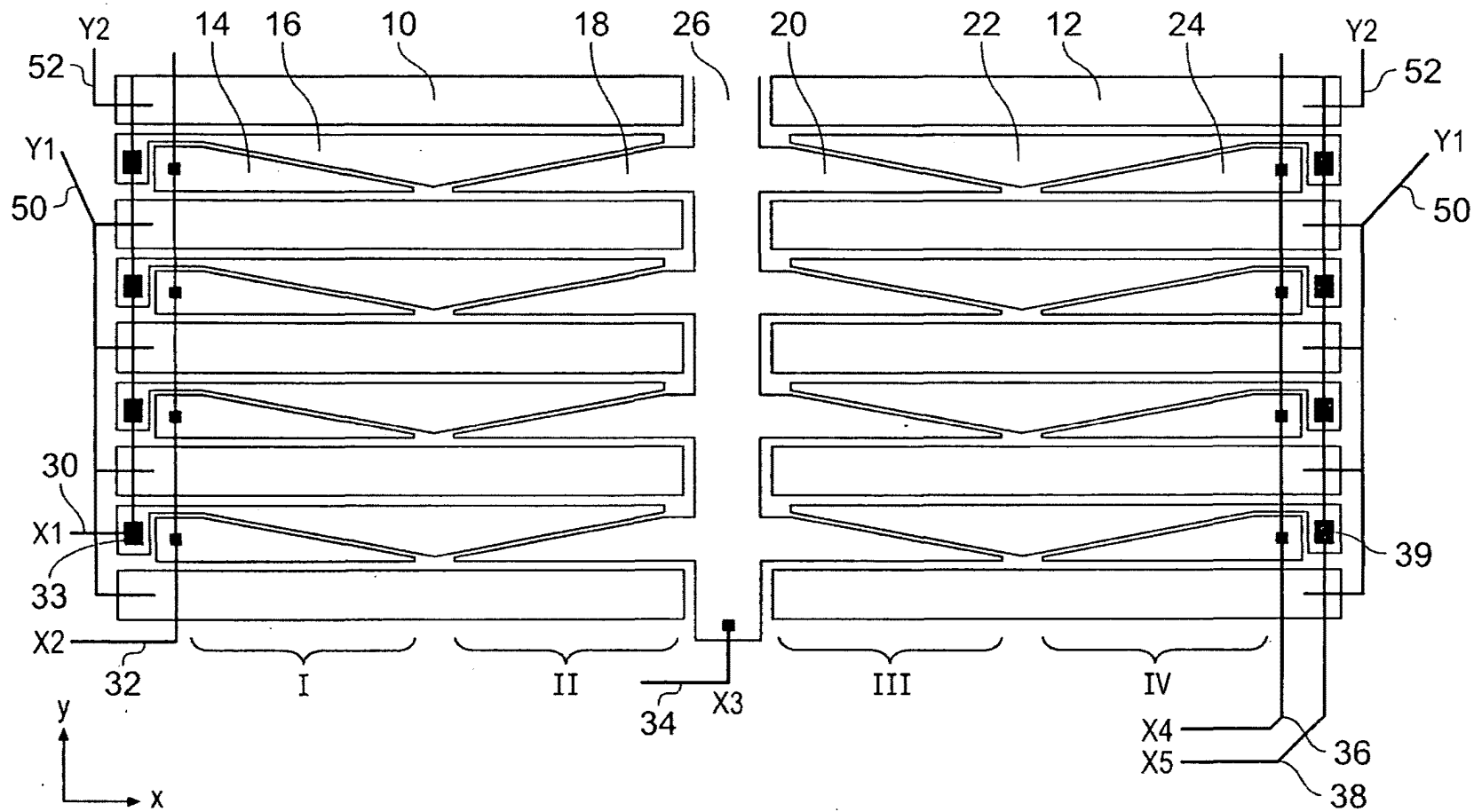


Figure 7



11/7

Fig. 8

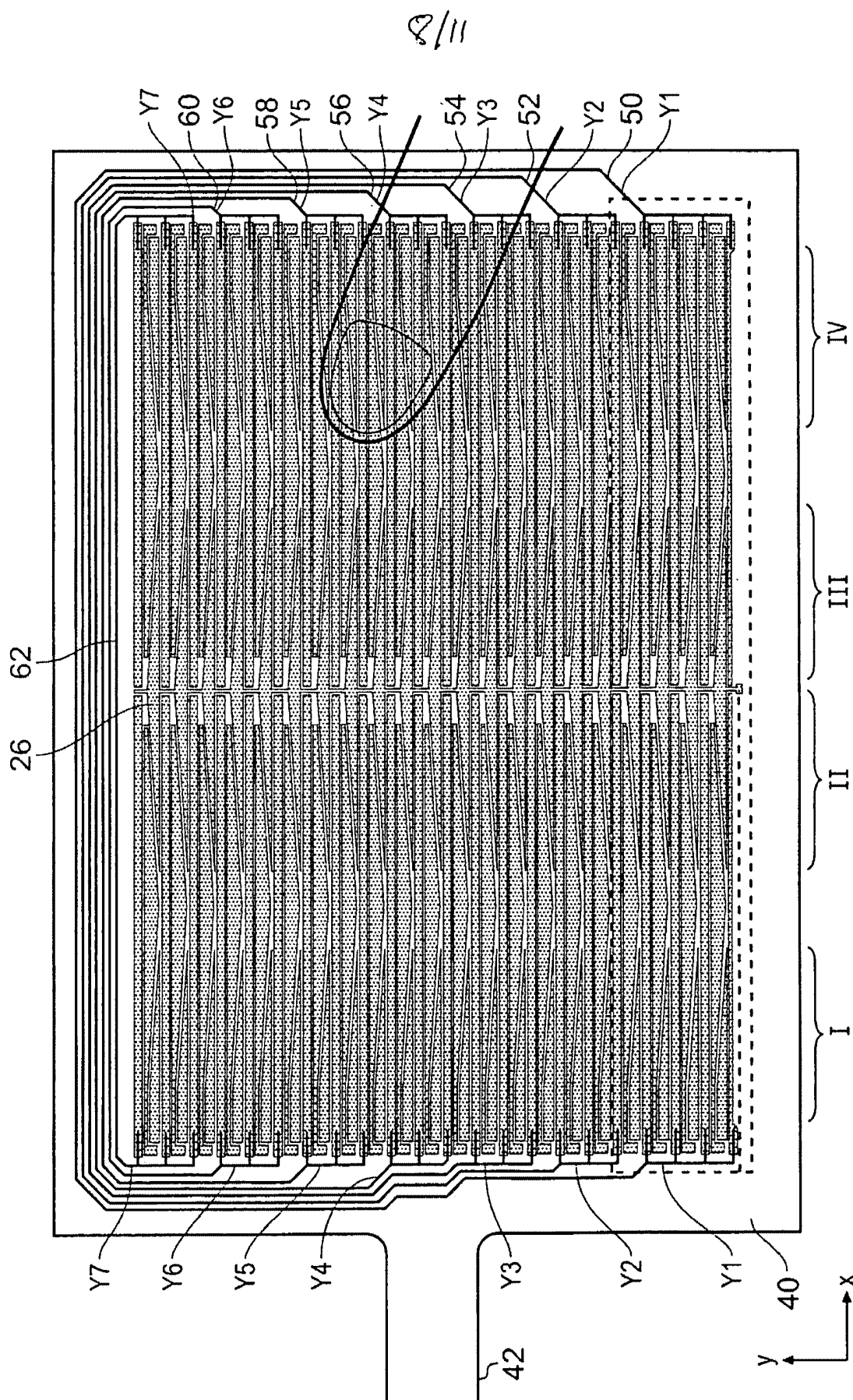


Fig. 3

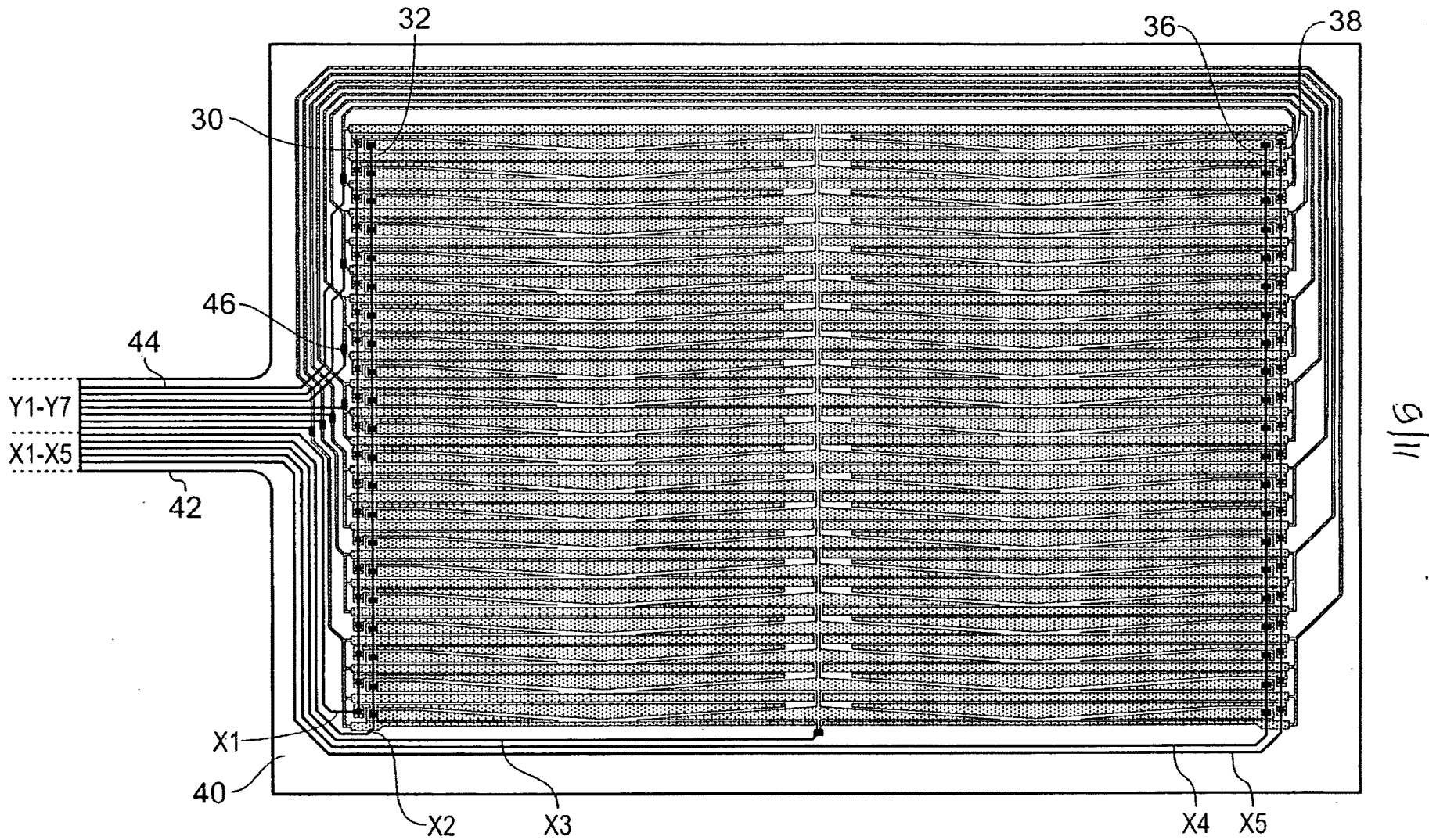
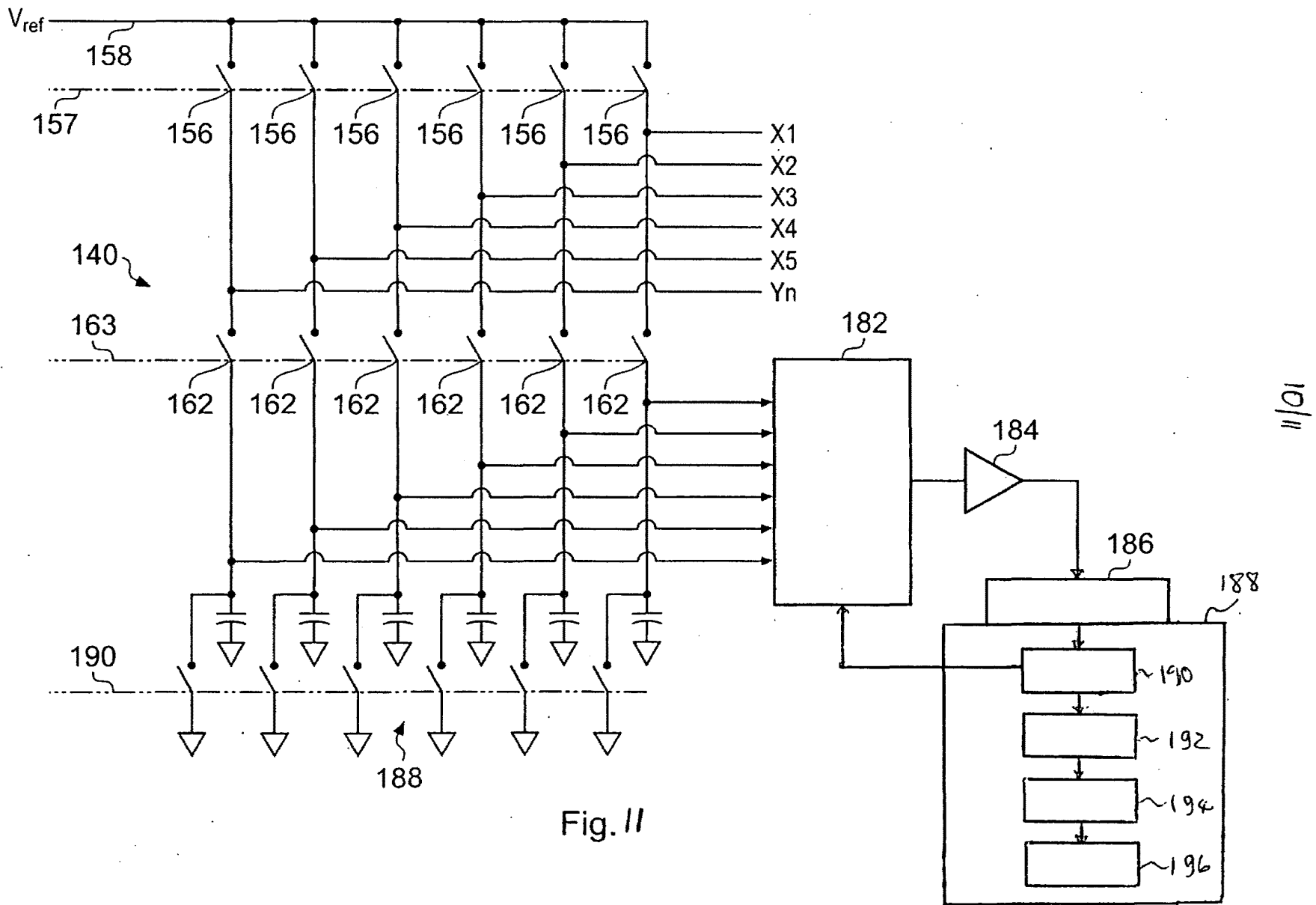


Fig. 10



11/11

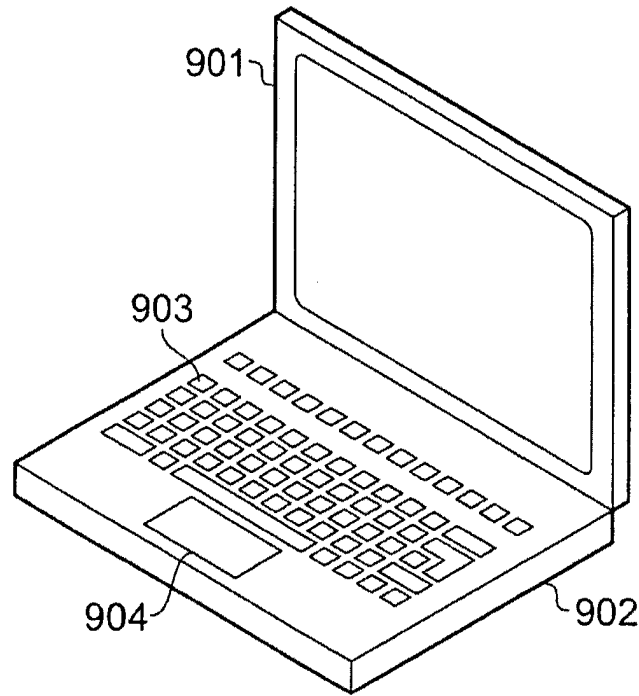


FIG. 12

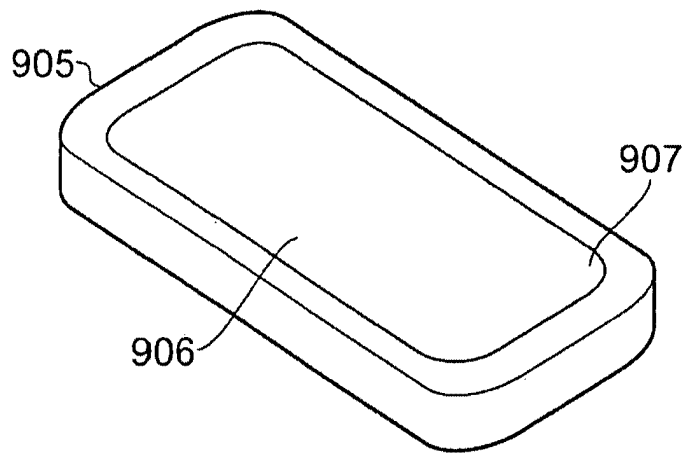


FIG. 13

Filing Date: 10/20/08

Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/254,043
---	---

APPLICATION AS FILED – PART I			SMALL ENTITY		OTHER THAN SMALL ENTITY	
	(Column 1)	(Column 2)				
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A	330
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A	540
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A	220
TOTAL CLAIMS (37 CFR 1.16(j))	14	minus 20 =	x\$26		x\$52	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x\$110		x\$220	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			195		390	
			TOTAL		TOTAL	1090

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II					SMALL ENTITY		OTHER THAN SMALL ENTITY		
	(Column 1)	(Column 2)	(Column 3)						
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus **	=	X =		X =		
	Independent (37 CFR 1.16(h))	*	Minus ***	=	X =		X =		
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
					N/A		N/A		
					TOTAL ADD'T FEE		TOTAL ADD'T FEE		

	(Column 1)	(Column 2)	(Column 3)						
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus **	=	X =		X =		
	Independent (37 CFR 1.16(h))	*	Minus ***	=	X =		X =		
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
					N/A		N/A		
					TOTAL ADD'T FEE		TOTAL ADD'T FEE		

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

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CONFIRMATION NO. 1663

20191
DAVID KIEWIT
5901 THIRD ST SOUTH
ST PETERSBURG, FL 33705

FILING RECEIPT



Date Mailed: 10/30/2008

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Applicant(s)

Alan Bowens, Southampton, UNITED KINGDOM;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/049,453 05/01/2008

Foreign Applications

If Required, Foreign Filing License Granted: 10/30/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/254,043

Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

Early Publication Request: No

Title

Gesture Recognition

Preliminary Class

345

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Table with 4 columns: APPLICATION NUMBER (12/254,043), FILING OR 371(C) DATE (10/20/2008), FIRST NAMED APPLICANT (Alan Bowens), ATTY. DOCKET NO./TITLE (QGS)

CONFIRMATION NO. 1663

FORMALITIES LETTER

20191
DAVID KIEWIT
5901 THIRD ST SOUTH
ST PETERSBURG, FL 33705



Date Mailed: 10/30/2008

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
• The drawings have a line quality that is too light to be reproduced (weight of all lines and letters must be heavy enough to permit adequate reproduction) or text that is illegible (reference characters, sheet numbers, and view numbers must be plain and legible) see 37 CFR 1.84(l) and (p)(1)); See Figure(s) 1-10.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043
	Filing Date		2008-10-20
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		QGS

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	3593115	A	1971-07-13	Dym et al.		
	2	5650597	A	1997-07-22	Redmayne		
	3	6297811	A	2001-10-02	Kent et al.		
	4	5825352	A	1998-10-30	Bissett		
	5	6028271	A	2000-02-22	Gillespie et al.		
	6	6414671	A	2002-07-02	Gillespie et al.		
	7	6750852		2004-06-15	Gillespie et al.		
	8	5730165	A	1998-03-24	Philipp		

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12254043
Filing Date	2008-10-20
First Named Inventor	Bowens
Art Unit	
Examiner Name	
Attorney Docket Number	QGS

9	6466036	A	2002-10-15	Philipp	
10	6452514	A	2002-09-17	Philipp	
11	6888536	B2	2005-05-03	Westerman et al.	

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	2	20070247443	A1	2007-10-25	Philipp	
	3	20070257894	A1	2007-11-08	Philipp	
	4	20070279395	A1	2007-12-06	Philipp	
	5	20070152984	A1	2007-07-05	Ording et al.	
	6	20020015024	A1	2002-02-07	Westerman et al.	

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STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12254043
Filing Date	2008-10-20
First Named Inventor	Bowens
Art Unit	
Examiner Name	
Attorney Docket Number	QGS

7	20070176906	A1	2007-08-02	Warren	
8	20060066582	A1	2006-03-30	Lyon et al.	
9	20080165141	A1	2008-07-10	Christie	
10	20060067991	A1	2006-05-11	Hotelling	
11	20060250377	A1	2006-11-09	Zadesky et al.	
12	20070152979	A1	2007-07-05	Jobs et al.	
13	20070177804	A1	2007-08-02	Elias et al.	
14	20070257890	Aq	2007-11-08	Hotelling et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12254043
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	Examiner Name	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12254043
	Filing Date	2008-10-20
	First Named Inventor	Bowens
	Art Unit	
	Examiner Name	
	Attorney Docket Number	QGS

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David A Kiewit, Reg. 34640/	Date (YYYY-MM-DD)	2008-11-28
Name/Print	David Kiewit	Registration Number	34640

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	4367948
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	20191
Filer:	David A. Kiewit
Filer Authorized By:	
Attorney Docket Number:	QGS
Receipt Date:	28-NOV-2008
Filing Date:	20-OCT-2008
Time Stamp:	20:39:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed (SB/08)	qgsIDS_08a.pdf	608891 <small>82a18a8d40db883489bc3250ca7fee768a9267e5</small>	no	6

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

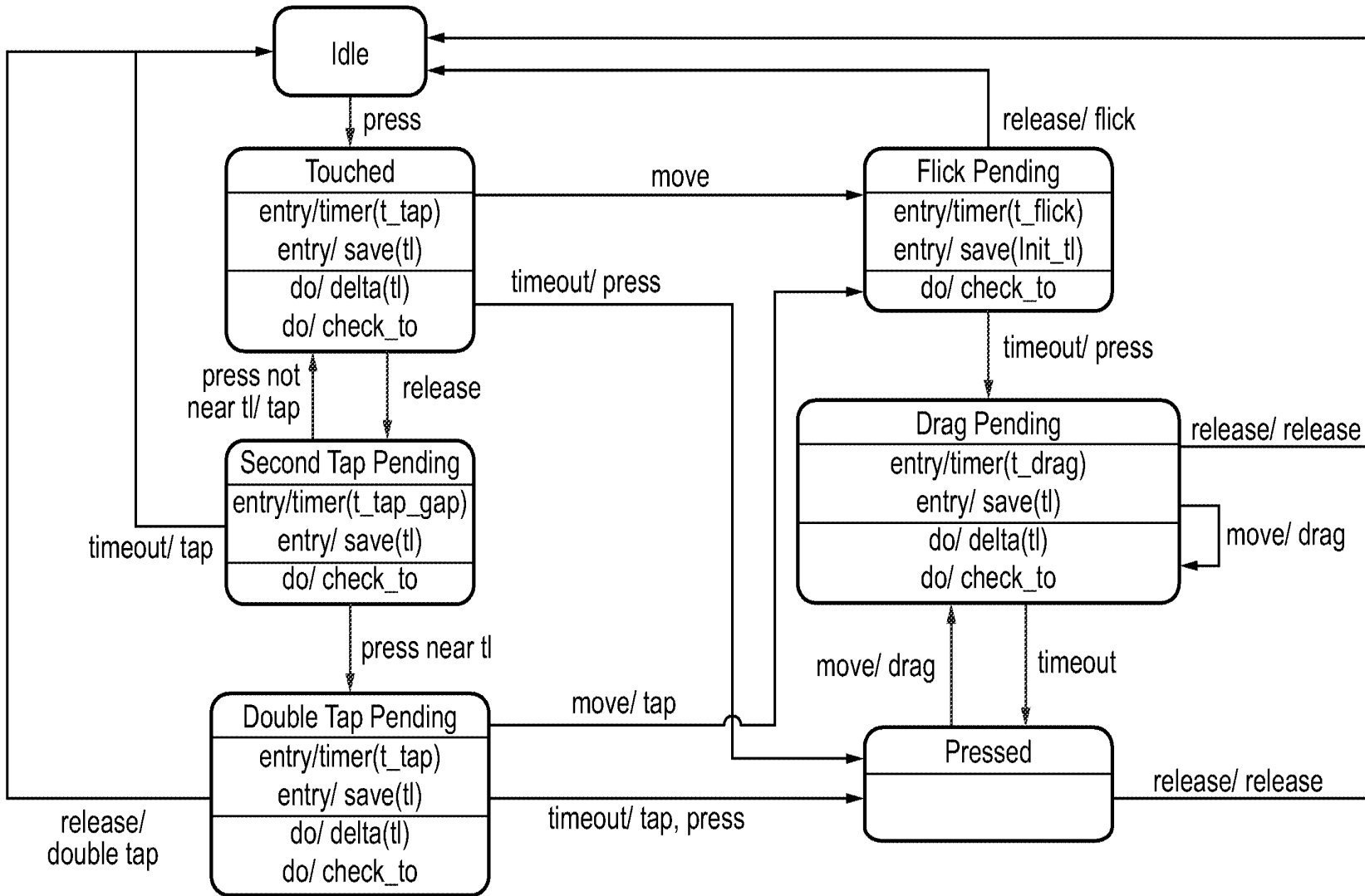


FIG. 1

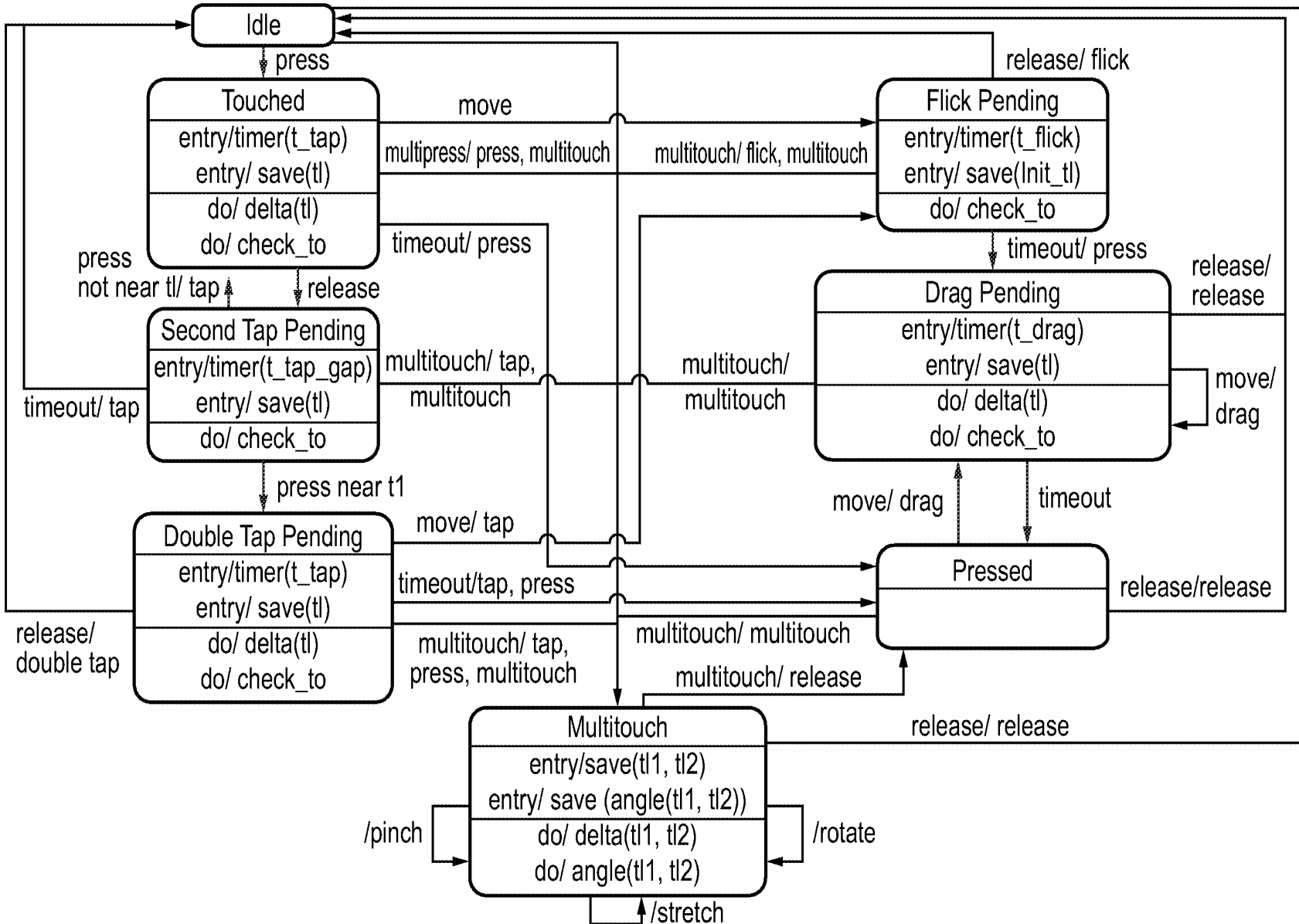


FIG. 2

Replacement Sheet 3/11

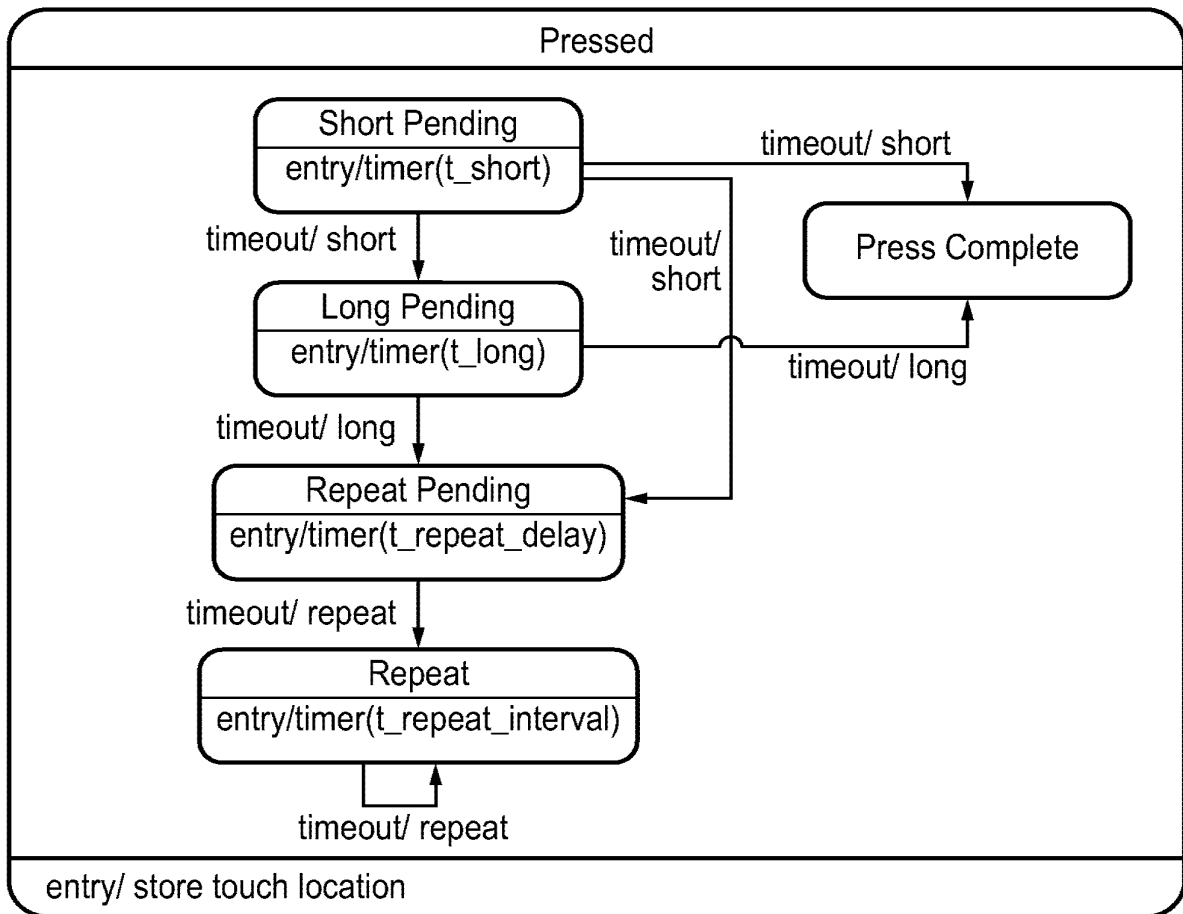


FIG. 3

Replacement Sheet 4/11

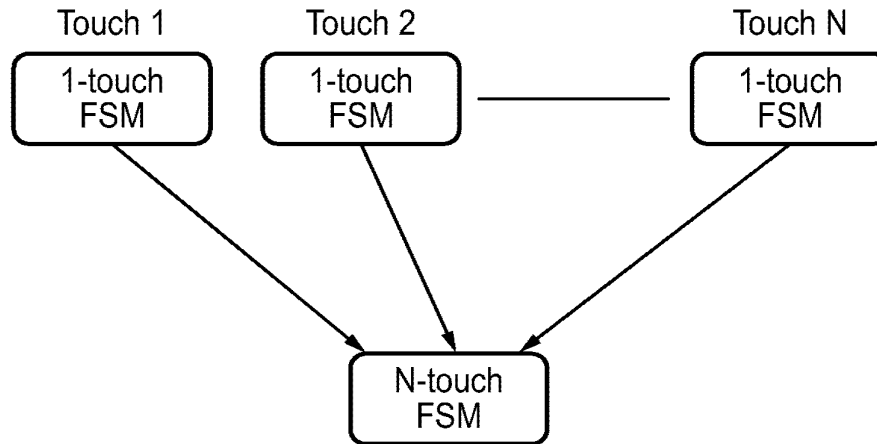


FIG. 4

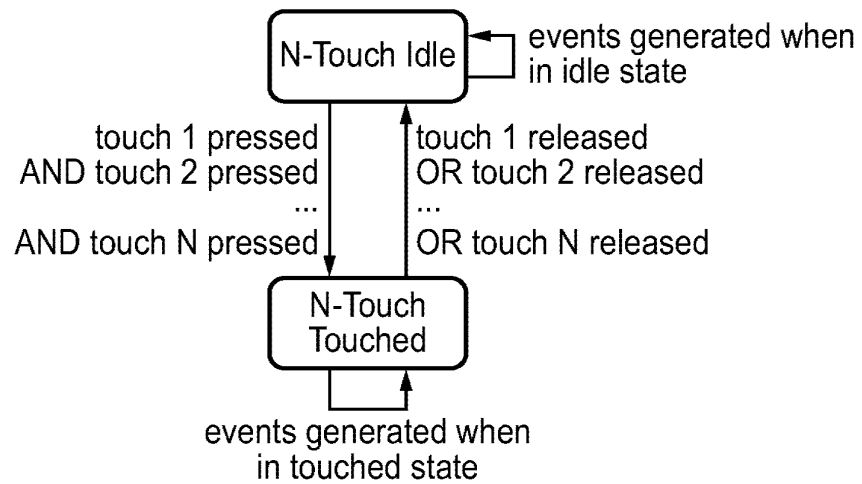


FIG. 5

Replacement Sheet 5/11

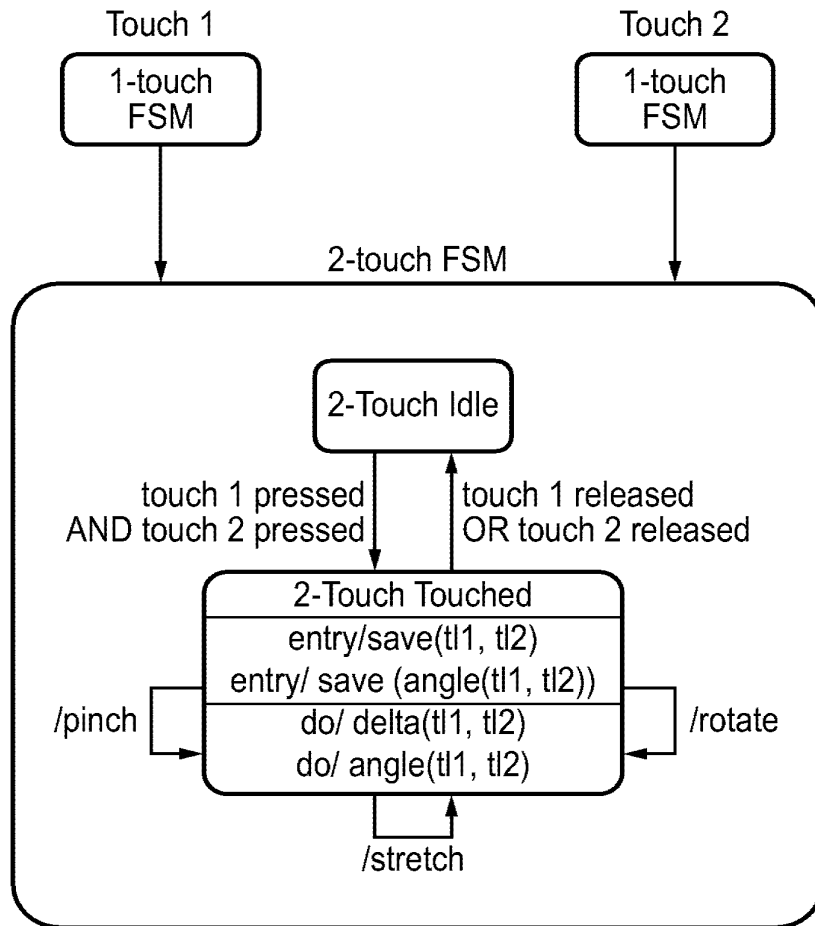


FIG. 6

Replacement Sheet 6/11

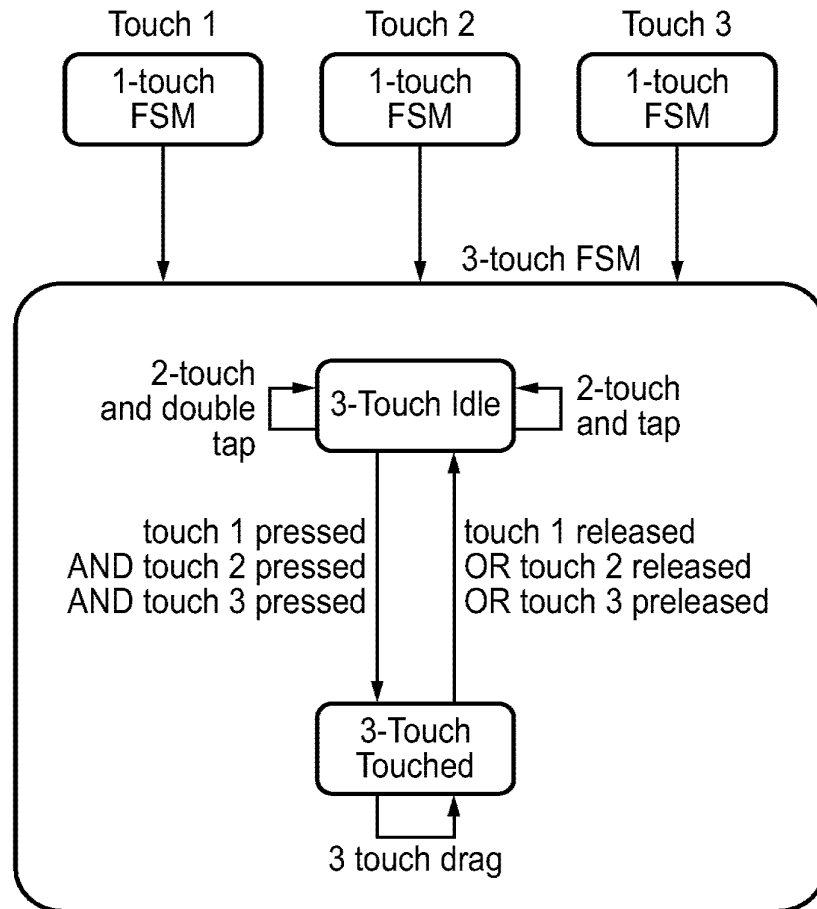


FIG. 7

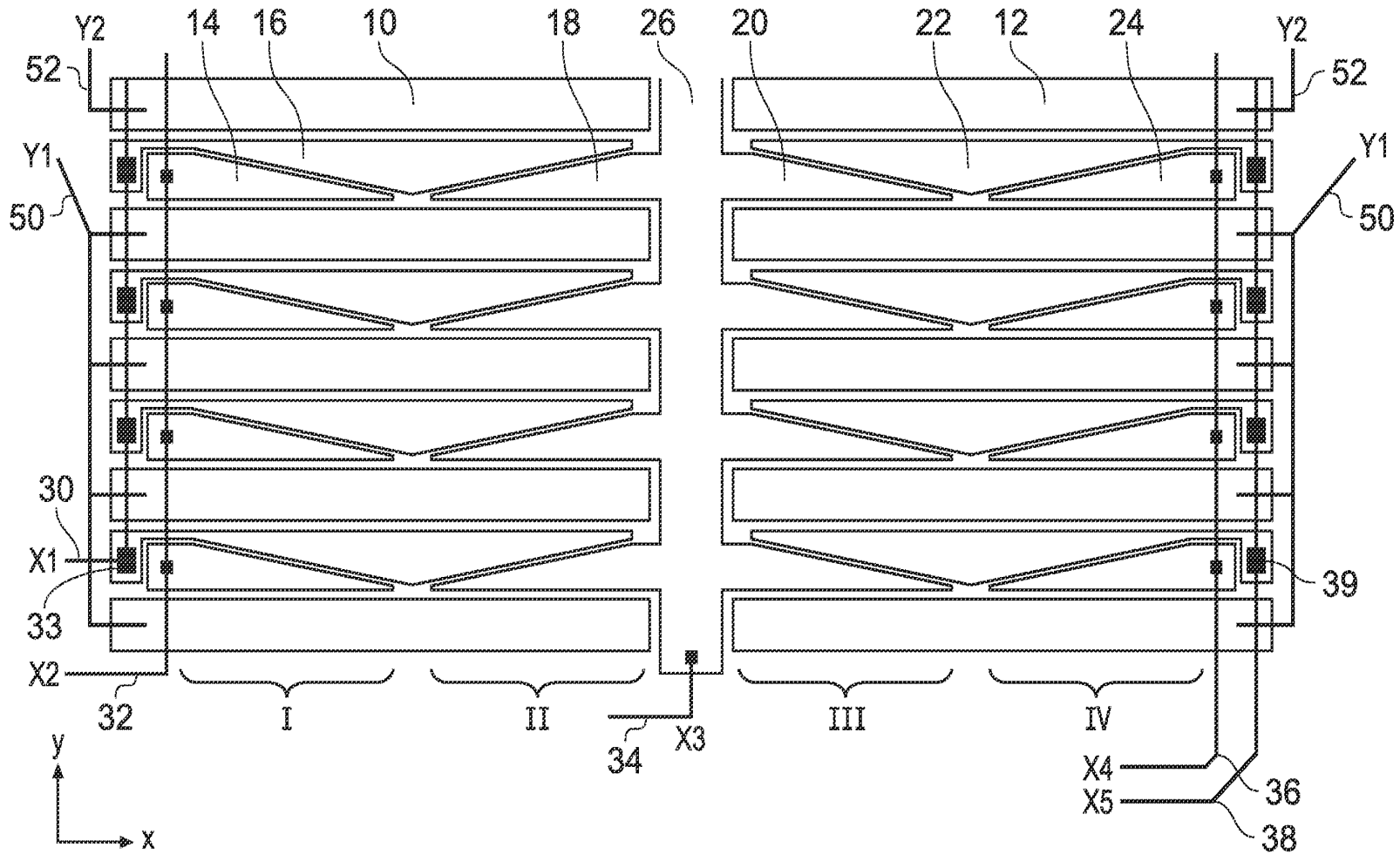


FIG. 8

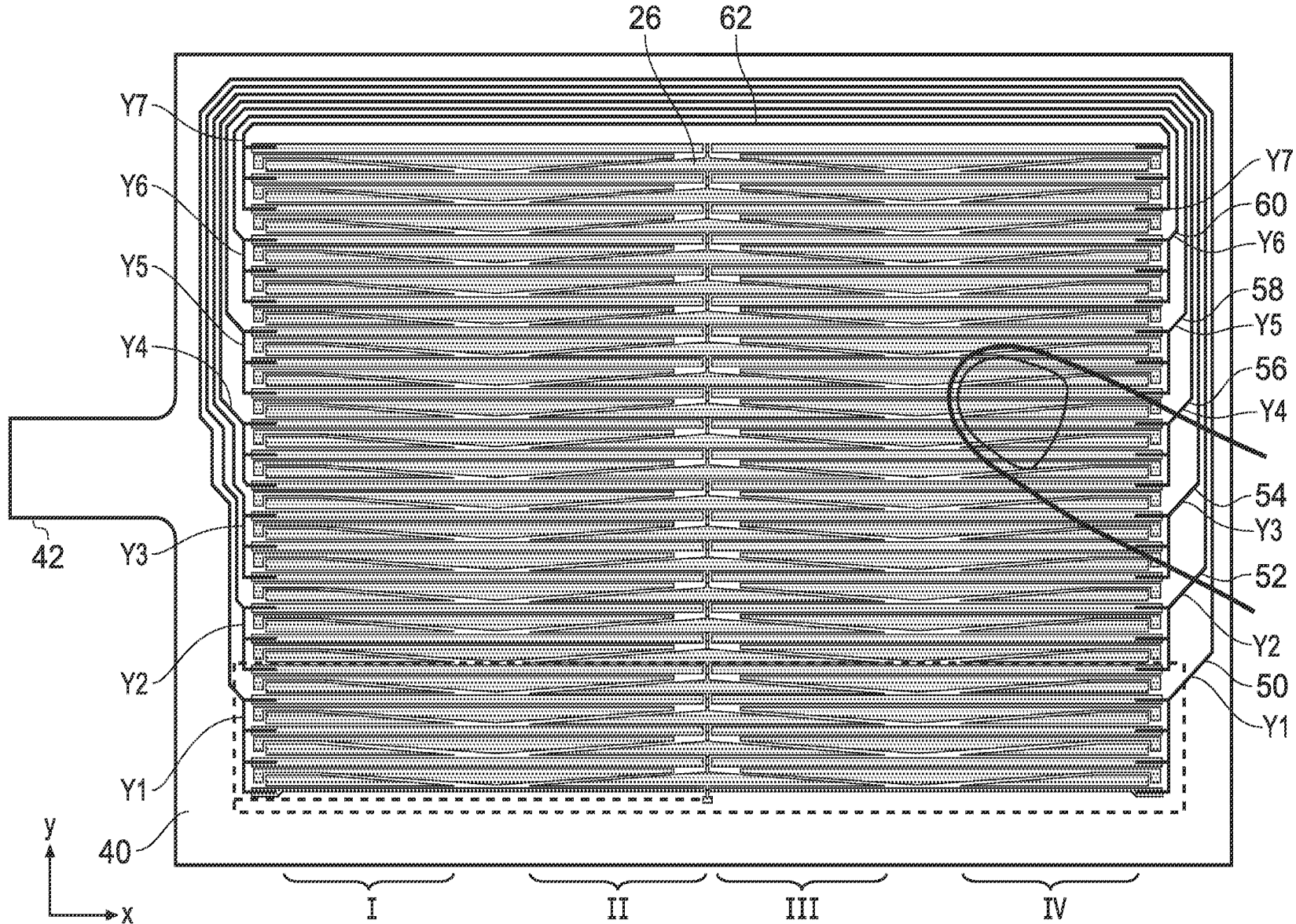


FIG. 9

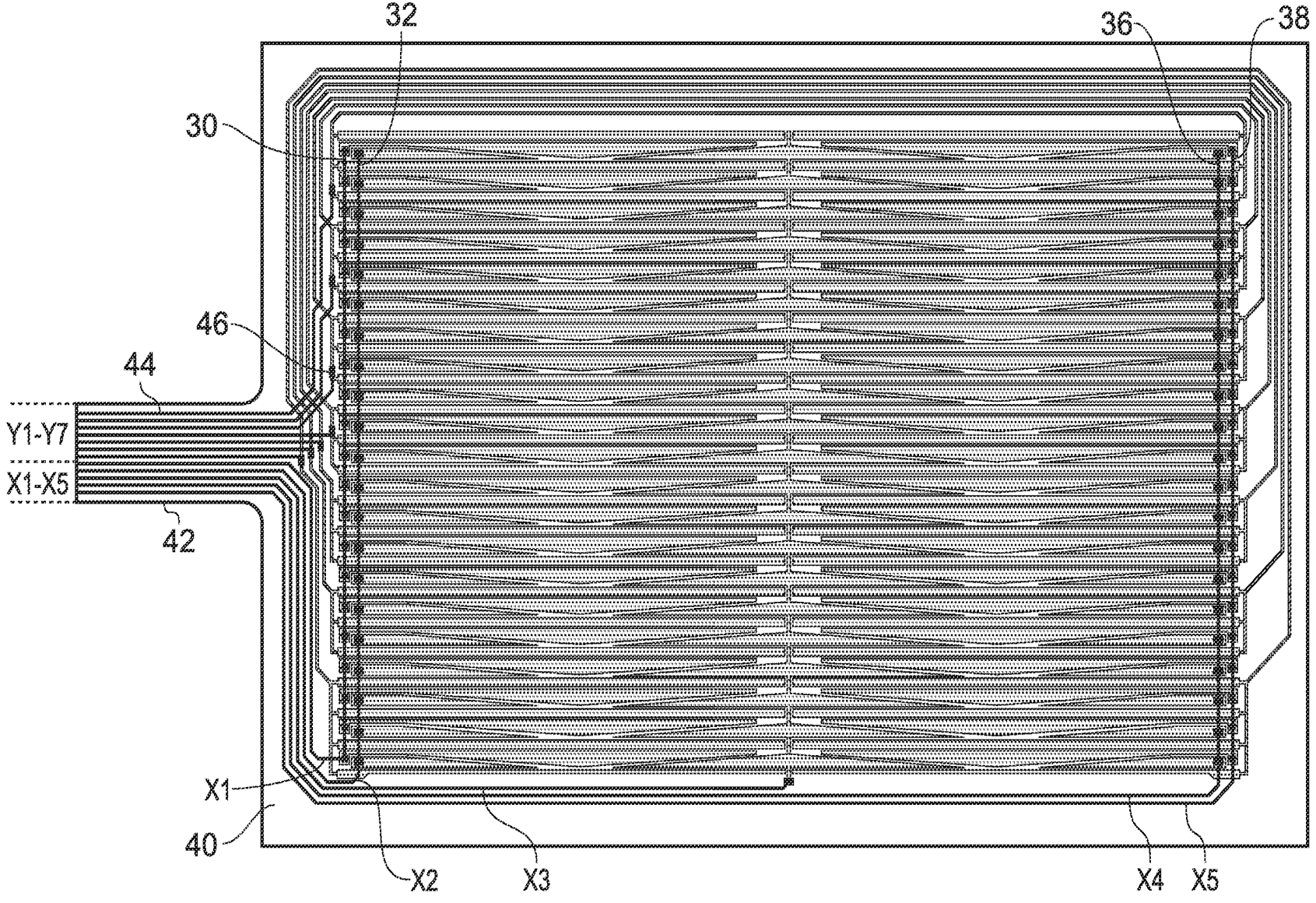


FIG. 10

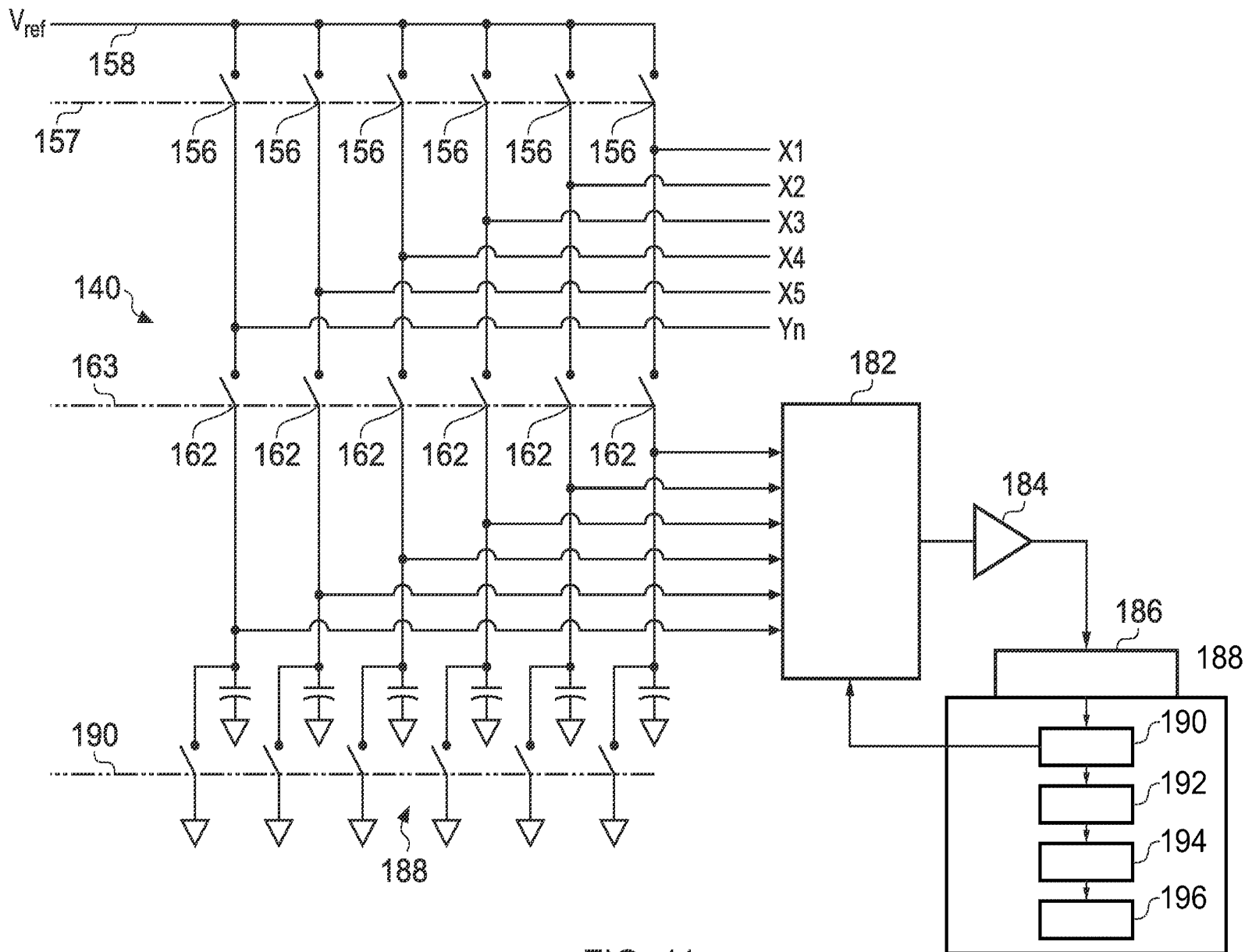


FIG. 11

Replacement Sheet 11/11

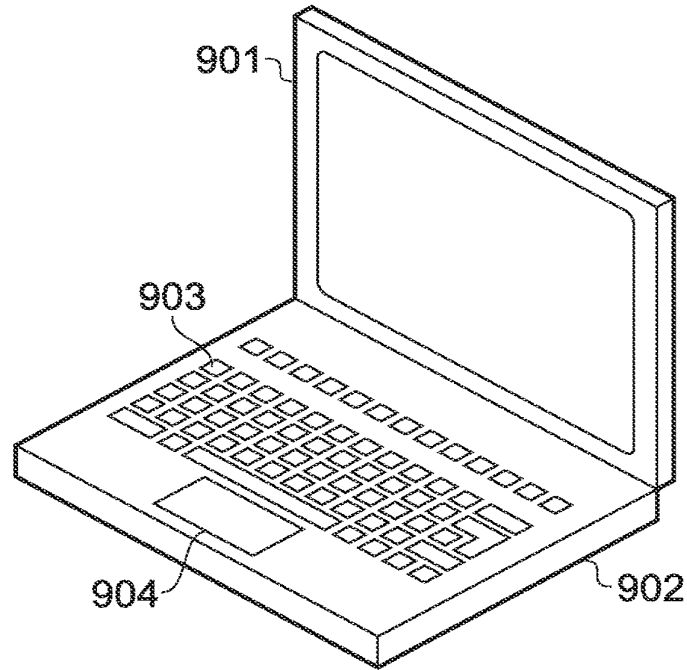


FIG. 12

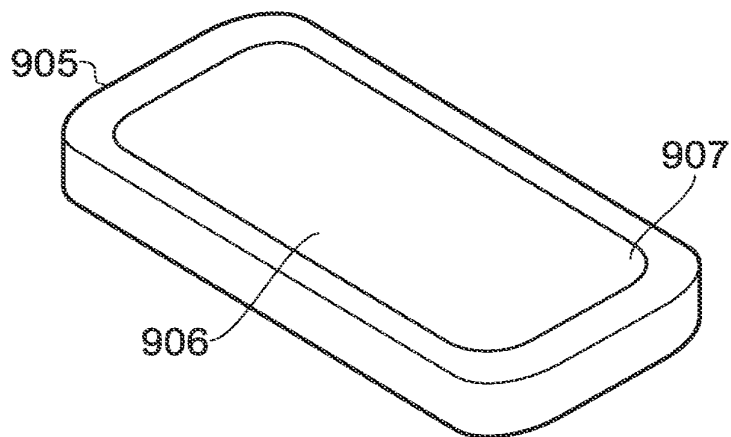


FIG. 13

Electronic Acknowledgement Receipt

EFS ID:	4370301
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	20191
Filer:	David A. Kiewit
Filer Authorized By:	
Attorney Docket Number:	QGS
Receipt Date:	01-DEC-2008
Filing Date:	20-OCT-2008
Time Stamp:	13:00:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Drawings-other than black and white line drawings	qgsFDWGcute.pdf	197814 <small>4546bf362f8fd8695b224b0cdf2a905e62c20ac</small>	no	11

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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New International Application Filed with the USPTO as a Receiving Office

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SCORE Placeholder Sheet for IFW Content

Application Number: 12254043 Document Date: 12/1/2008 1:00:14 PM

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

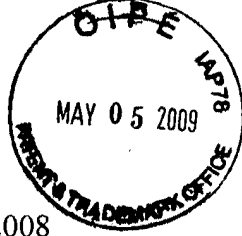
To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (<http://es/ScoreAccessWeb/>).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Alan Bowens
Title: Gesture Recognition



Docket No.: 3050.025US1
Filed: October 20, 2008
Examiner: Unknown
Customer No.: 21186

Serial No.: 12/254,043
Due Date: December 30, 2008
Group Art Unit: Unknown
Confirmation No.: 2629


Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the attached:

- Communication Re: Corrected Application Papers (1 pg.)
- Notice to File Corrected Application Papers (1pg.)
- Petition for Extension of Time (1 pg.).
- Authorization to charge deposit account 19-0743 in the amount of \$1,730.00 to cover the Extension of Time Fee.
- Formal Drawings (11 pgs.).
- Return Postcard.

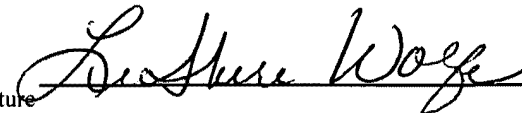
If not provided in a separate paper filed herewith, please consider this a **PETITION FOR EXTENSION OF TIME** for sufficient number of months to enter these papers and please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Schwegman, Lundberg & Woessner, P.A.
Customer No: 21186
BAF:CMG:lrw

By: 
Bradley A. Forrest
Reg. No. 30,837

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 30th day of April, 2009.

LeShere Wolfe
Name

Signature 



S/N 12/254,043

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Alan Bowens	Examiner:	Unknown
Serial No.:	12/254,043	Group Art Unit:	Unknown
Filed:	October 20, 2008	Docket:	3050.025US1
Customer No.:	21186	Confirmation No.:	2629
Title:	Gesture Recognition		

COMMUNICATION RE: CORRECTED APPLICATION PAPERS


Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Notice to File Corrected Application Papers in the above-identified application (see attached copy), Formal Drawings are attached.

Applicants assume the application is now in proper order and in condition for examination. Please direct any inquiries to the undersigned attorney at (612) 373-6972. If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

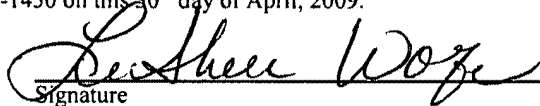
Schwegman, Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6972

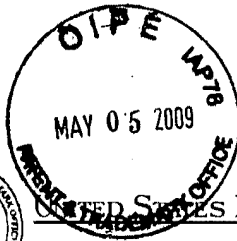
Date 4/30/2009 By 
Bradley A. Forrest
Reg. No. 30,837

BAF:CMG:lrw

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 30th day of April, 2009.

LeShere Wolfe
Name


Signature



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/254,043	10/20/2008	Alan Bowens	QGS

CONFIRMATION NO. 1663

FORMALITIES LETTER

20191
DAVID KIEWIT
5901 THIRD ST SOUTH
ST PETERSBURG, FL 33705



Date Mailed: 10/30/2008

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings have a line quality that is too light to be reproduced (weight of all lines and letters must be heavy enough to permit adequate reproduction) or text that is illegible (reference characters, sheet numbers, and view numbers must be plain and legible) see 37 CFR 1.84(l) and (p)(1)); See Figure(s) 1-10.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

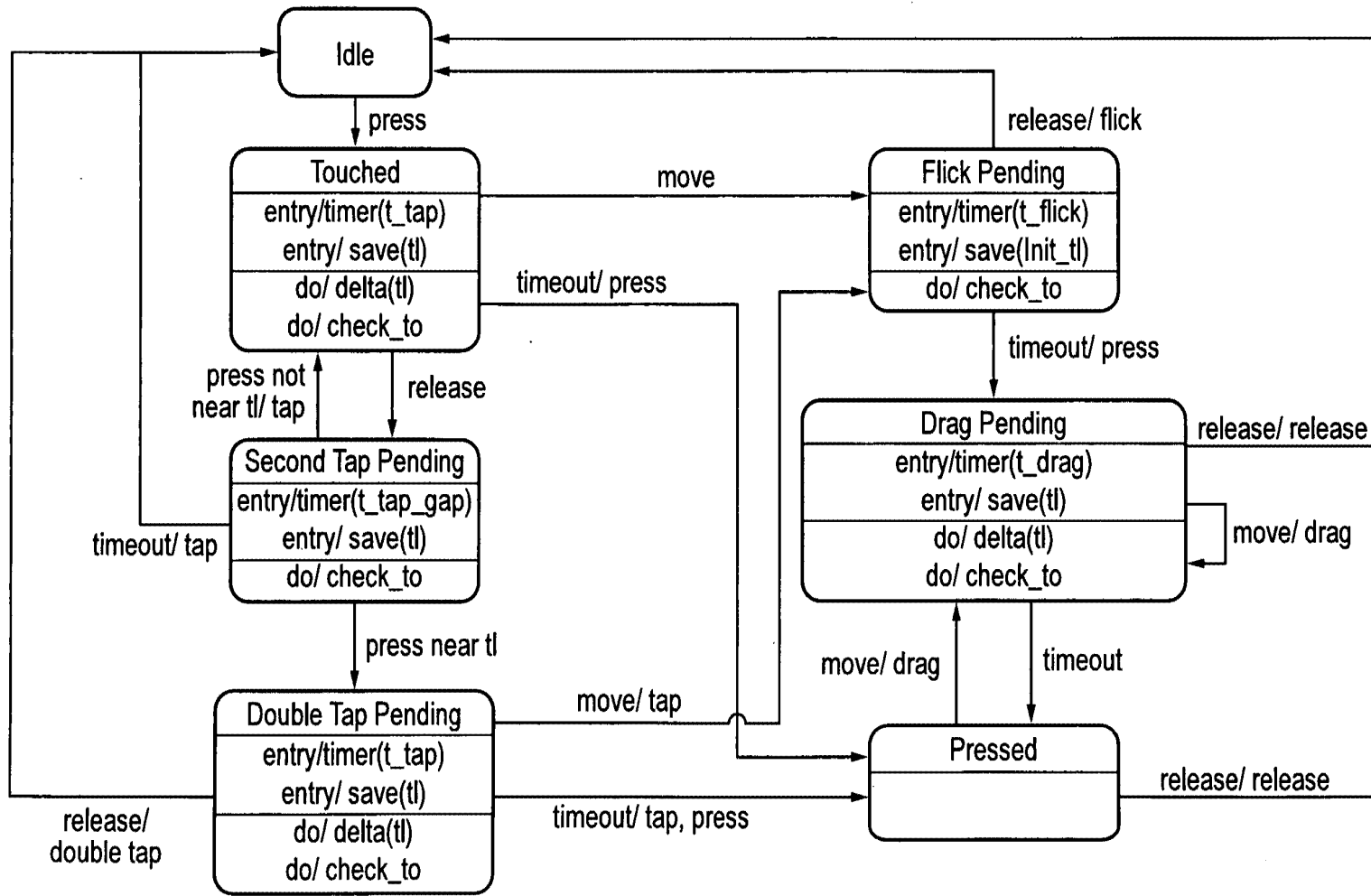


FIG. 1

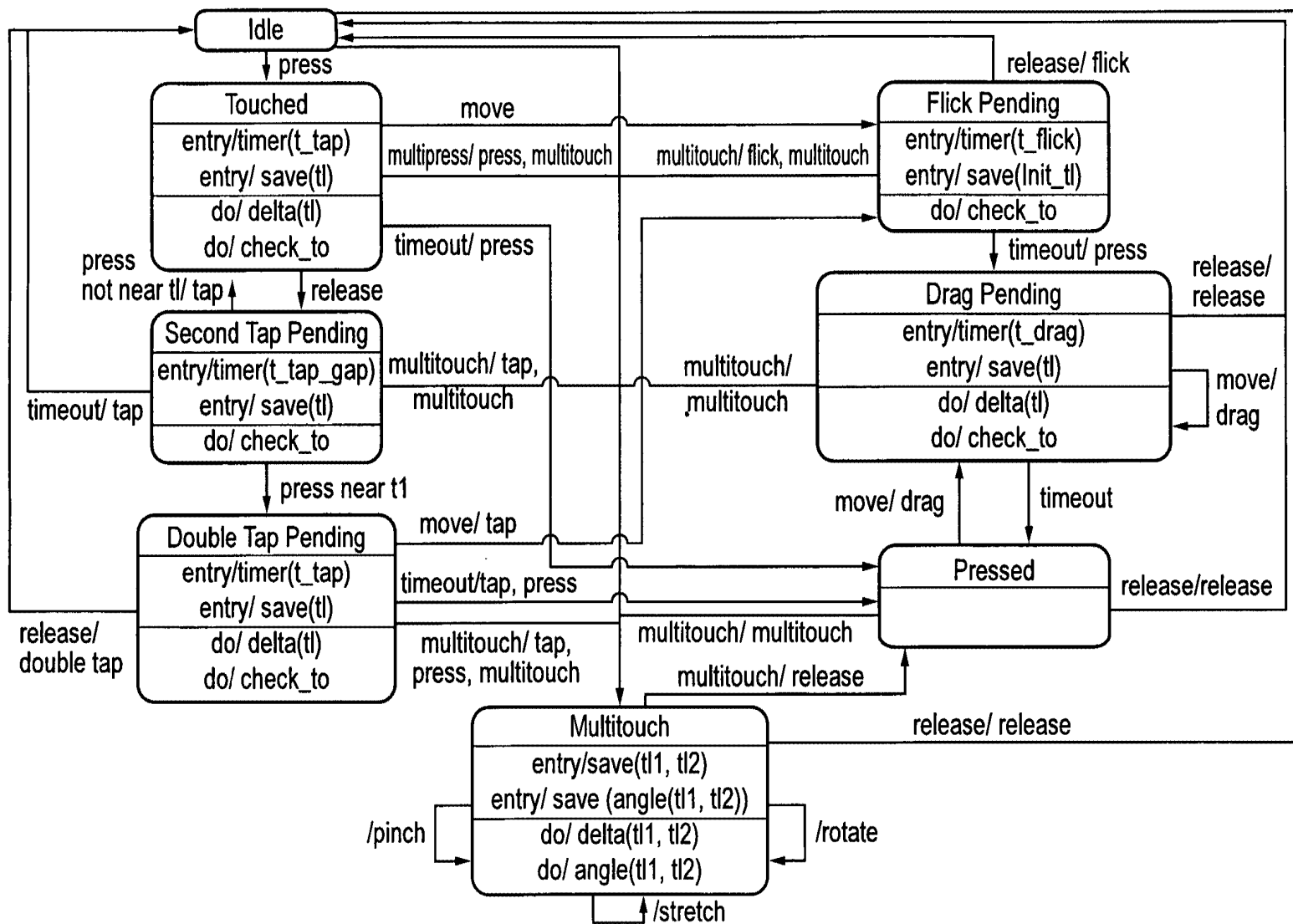


FIG. 2

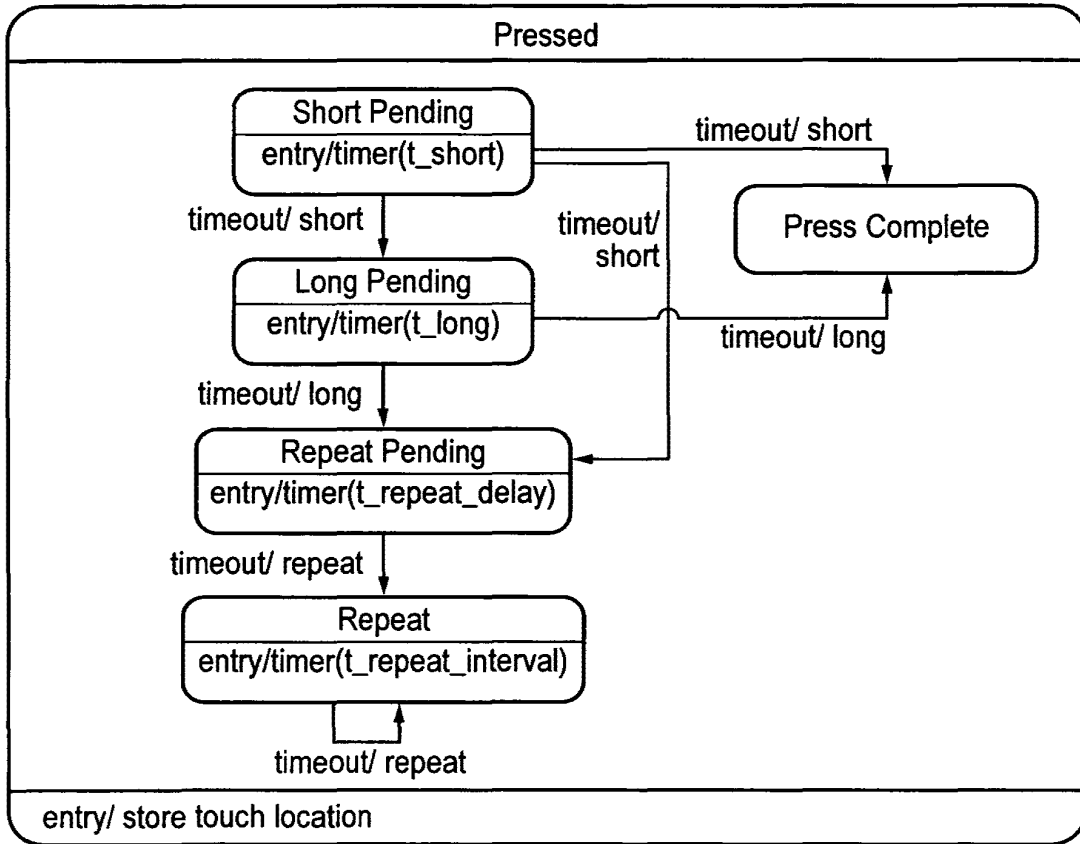


FIG. 3

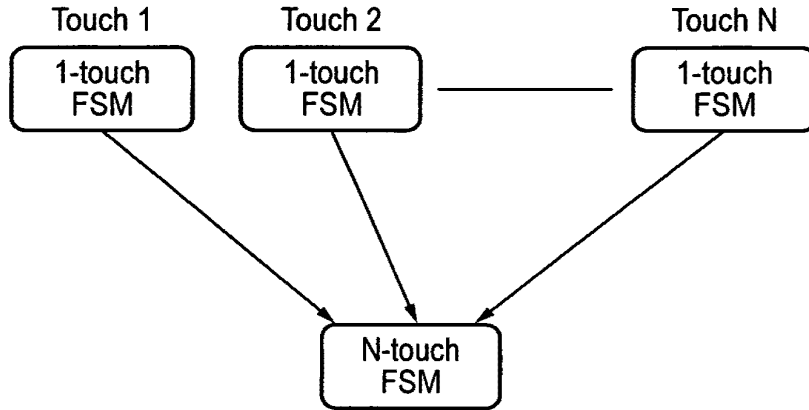


FIG. 4

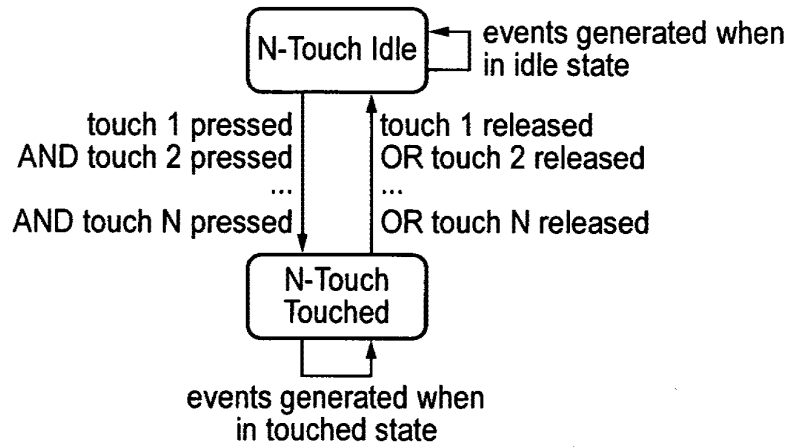


FIG. 5

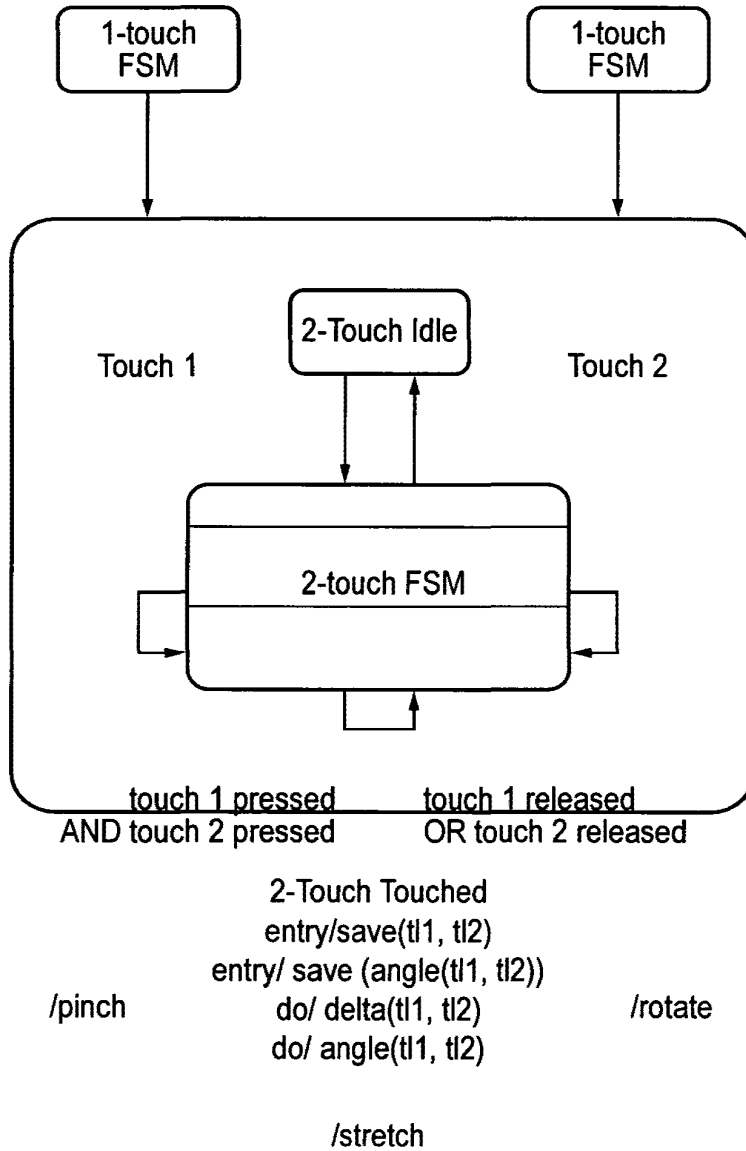


FIG. 6

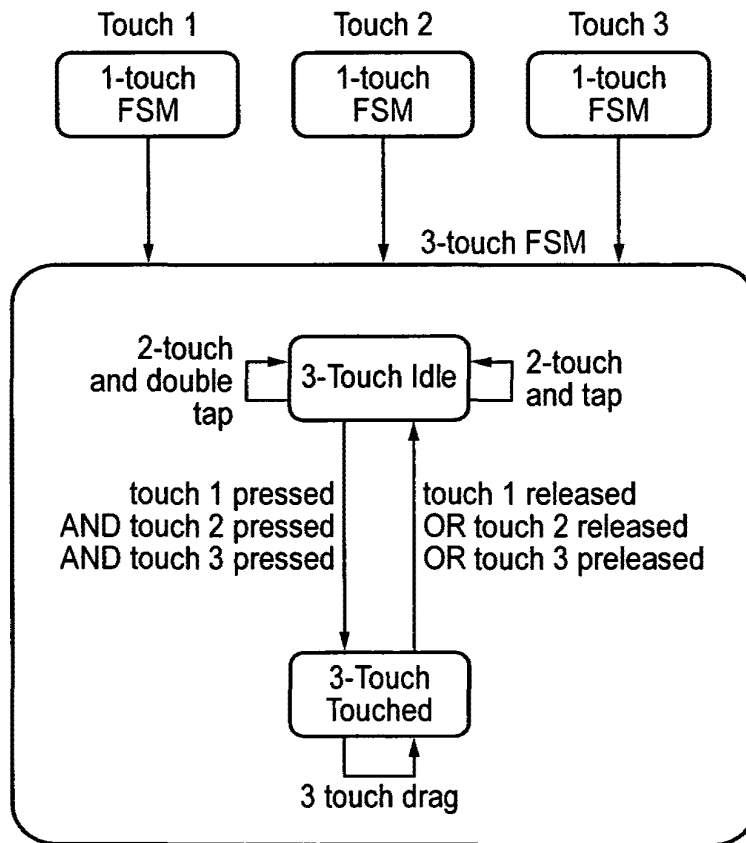


FIG. 7

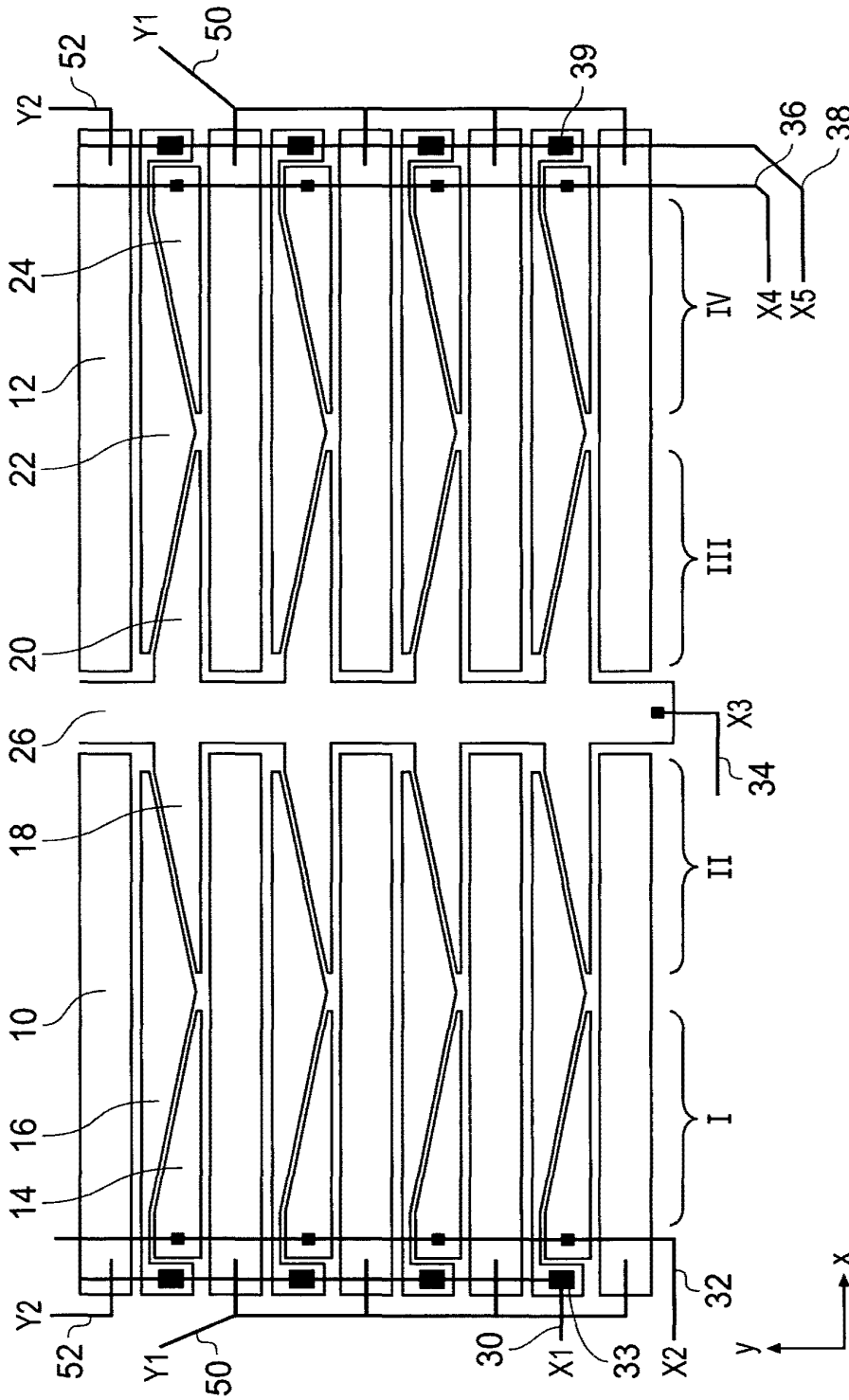


FIG. 8

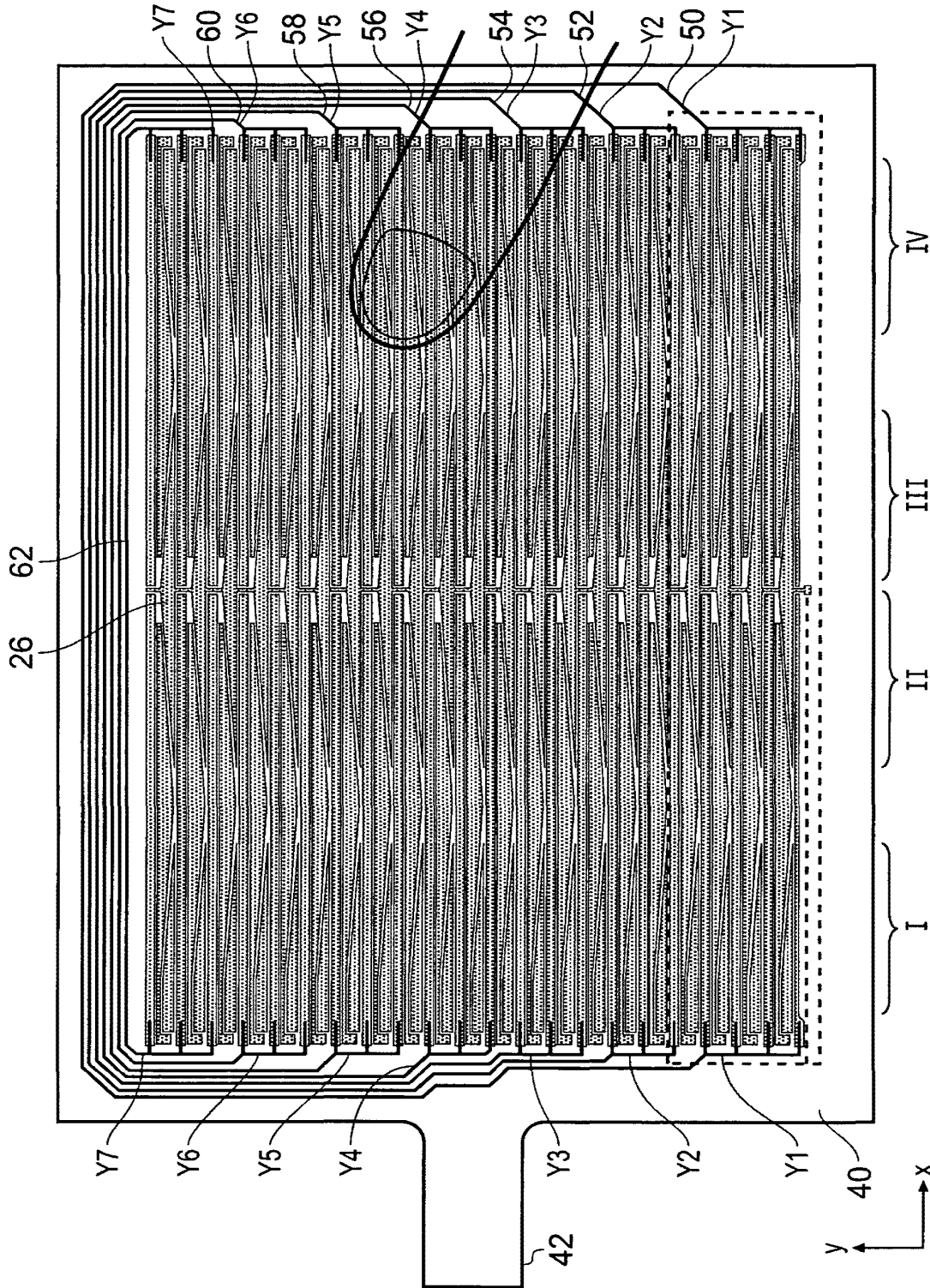


FIG. 9

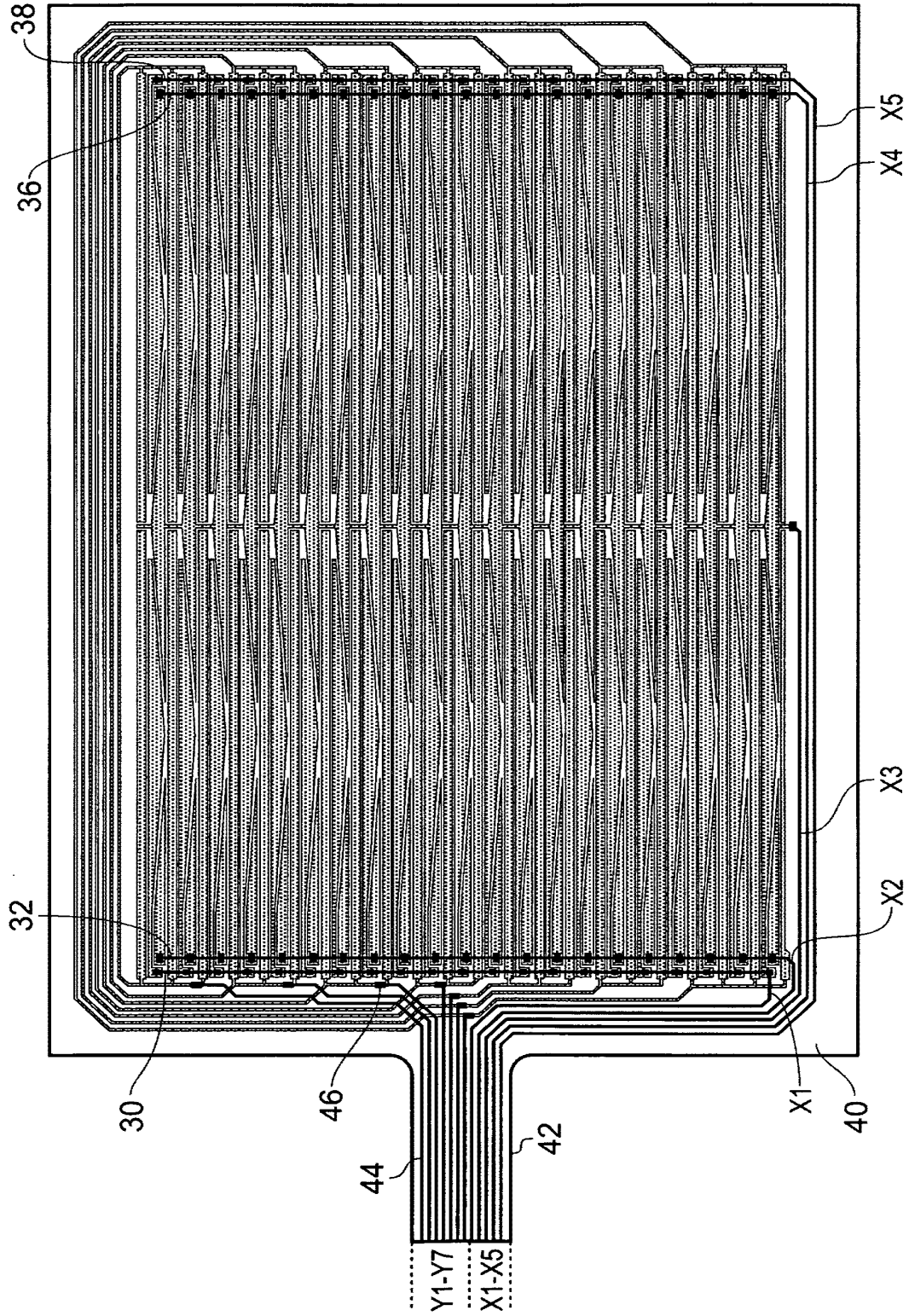


FIG. 10

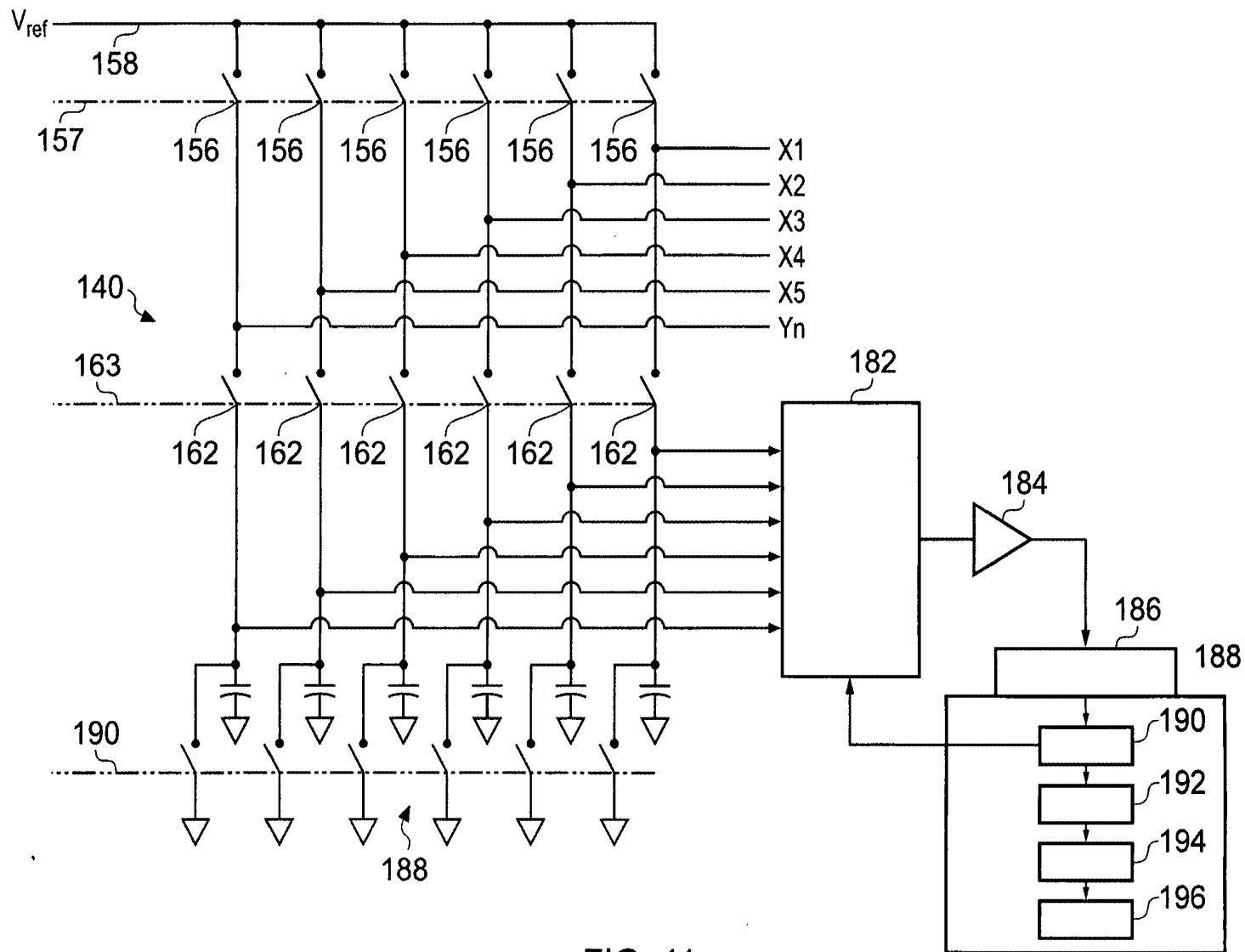


FIG. 11

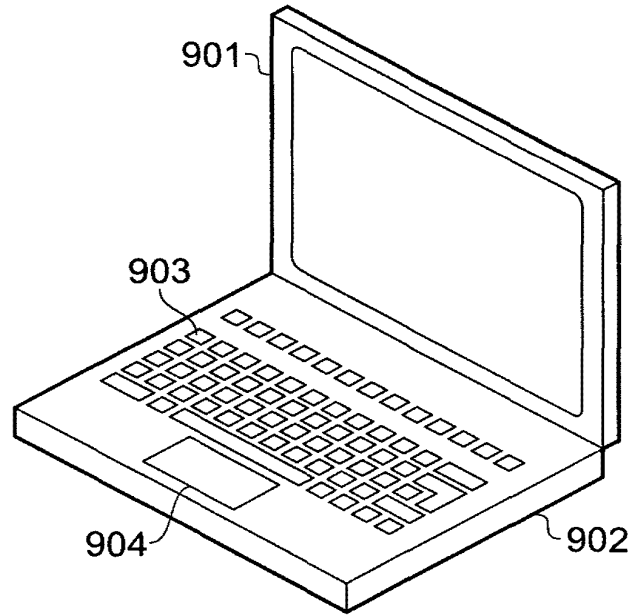


FIG. 12

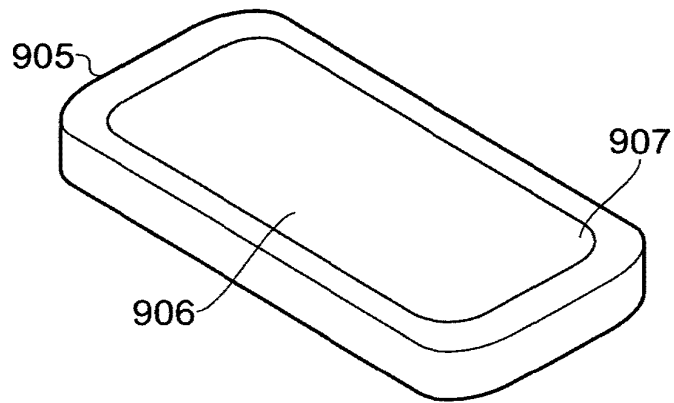
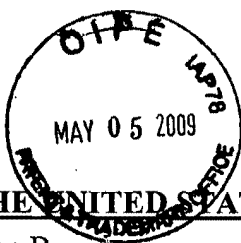


FIG. 13



EFW

S/N 12/254,043

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Alan Bowens	Examiner:	Unknown
Serial No.:	12/254,043	Group Art Unit:	Unknown
Filed:	October 20, 2008	Docket:	3050.025US1
Customer No.:	21186	Confirmation No.:	2629
Title:	Gesture Recognition		

PETITION FOR A FOUR-MONTH EXTENSION OF TIME

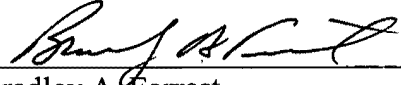
Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In accordance with the provision of 37 C.F.R § 1.136(a), it is respectfully requested that a four-month extension of time be granted in which to respond to the Corrected Application Papers mailed October 30, 2008, said period of response being extended from December 30, 2008 to April 30, 2009.

Please charge Deposit Account No. 19-0743 in the amount of \$1,730.00 to cover the required extension fee. Please charge any additional fees or credit overpayment to deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6972

Date 4/30/2009 By 
Bradley A. Forrest
Reg. No. 30,837

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 30th day of April, 2009.

LeShere Wolfe
Name 
Signature

05/05/2009 NNGUYEN1 00000065 190743 12254043
01 FC:1254 1730.00 DA



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 7 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 12/254,043, 10/20/2008, 2629, 1090, 3050.025US1, 14, 2

CONFIRMATION NO. 1663

UPDATED FILING RECEIPT

20191
DAVID KIEWIT
5901 THIRD ST SOUTH
ST PETERSBURG, FL 33705



Date Mailed: 05/20/2009

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Applicant(s)

Alan Bowens, Southampton, UNITED KINGDOM;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/049,453 05/01/2008

Foreign Applications

If Required, Foreign Filing License Granted: 10/30/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/254,043

Projected Publication Date: 11/05/2009

Non-Publication Request: No

Early Publication Request: No

Title

Gesture Recognition

Preliminary Class

345

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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AUG 26 2009

IN THE UNITED STATES PATENT AND TRADEMARK OFFICEREVOCATION AND POWER OF ATTORNEY
CERTIFICATE UNDER 37 CFR § 3.73(b)

&

CHANGE OF CORRESPONDENCE ADDRESSCommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In accordance with 37 C.F.R. Section 1.36, M.P.E.P. Section 402.05 and 402.07, please revoke any existing Powers of Attorney, if any, for the below listed patents and patent applications, and appoint the following attorneys and/or patent agents to prosecute these patents and patent applications and to transact all business in the Patent and Trademark Office in connection therewith:

Customer Number: 76287

<u>Patent No.</u> (or Appl. Serial No.)	<u>Issue Date</u> (or Filing Date)	<u>Attorney</u> Docket No.	<u>Applicant</u>	<u>Reel / Frame</u>	<u>Recordation</u> Date
61/049,453	05/01/2008	3050.025PRV	Bowens	022890 / 0315	06/29/2009
12/254,043	10/20/2008	3050.025US1	Bowens	022890 / 0640	06/29/2009
61/106,294	10/17/2008	3050.042PRV	Sleeman	023031 / 0483	07/31/2009
61/107,388	10/22/2008	3050.043PRV	Yilmaz et al.	022927 / 0464	07/08/2009
12/395,880	03/02/2009	3050.054US1	Dubery	022933 / 0021	07/08/2009
12/395,896	03/02/2009	3050.055US1	Easter	022930 / 0404	07/08/2009
12/421,713	04/10/2009	3050.056US1	Yilmaz et al.	022927 / 0514	07/08/2009
61/044,038	04/10/2008	3050.057PRV	Sleeman et al.	022927 / 0450	07/08/2009
12/421,705	04/10/2009	3050.057US1	Sleeman et al.	022927 / 0458	07/08/2009
29/276,533	01/29/2007	3050.058US1	Bennett et al.	022990 / 0059	07/22/2009
D559,862	01/15/2008	3050.074US1	Bennett et al.	022990 / 0059	07/22/2009
D560,227	01/22/2008	3050.075US1	Bennett et al.	022990 / 0059	07/22/2009
7,295,190	11/13/1997	3050.077US1	Philipp	022783 / 0804	04/29/2009
5,730,165	03/24/1998	3050.079US1	Philipp	022783 / 0804	04/29/2009
5,682,032	10/28/1997	3050.080US1	Philipp	022783 / 0804	04/29/2009
6,452,514	09/17/2002	3050.081US1	Philipp	022783 / 0804	04/29/2009
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6,993,607	01/31/2006	3050.083US1	Philipp	022783 / 0804	04/29/2009
7,256,714	08/14/2007	3050.083US2	Philipp	022783 / 0804	04/29/2009
7,148,704	12/12/2006	3050.084US1	Philipp	022783 / 0804	04/29/2009
7,279,647	10/09/2007	3050.086US1	Philipp	022783 / 0804	04/29/2009
7,515,140	04/07/2009	3050.092US1	Philipp	022783 / 0804	04/29/2009
6,188,228	02/13/2001	3050.096US1	Philipp	022783 / 0804	04/29/2009

- 1 -

CERTIFICATE UNDER 37 CFR § 3.73(b)

Atmel Corporation hereby certifies that it is the assignee of the entire right, title and interest in the patents and patent applications identified above by virtue of assignments recorded for the patents and patent applications identified above. To the best of my knowledge and belief, titles are in Atmel Corporation, the assignee.

Pursuant to 37 C.F.R. § 3.73(b), I hereby declare that I am empowered to sign this certificate on behalf of Atmel Corporation, the assignee.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true.

Please direct all correspondence in the above cases to:

Schwegman, Lundberg & Woessner, P.A.
Customer No. 76287

Date August 7, 2009

By Patrick Reutens
Name: Patrick Reutens
Title: Chief Legal Officer

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AUG 26 2009

SCHWEGMAN ■ LUNDBERG ■ WOESSNER
PATENT, TRADEMARK & COPYRIGHT ATTORNEYS
P.O. Box 2938
Minneapolis, MN 55402
Telephone (612) 373-6900 Facsimile (612) 339-3061

August 26, 2009

Time: 1:30 pm
(Minneapolis, Minn.)

TO: Commissioner for Patents
Patent Examining Corps
Facsimile Center
P.O. Box 1450
Alexandria, VA 22313-1450

FROM: Bradley A. Forrest
OUR REF: 3050.025US1

FAX NUMBER 571-273-8300

*** Please deliver to Art Unit 2629. ***

Document(s) Transmitted: **Revocation and Power of Attorney, Certificate Under 37 C.F.R. 3.73(b) and Change of Correspondence Address (2 pgs.)**

Total pages of this transmission, including cover letter: 3

If you do NOT receive all of the pages described above, please telephone us at 612-373-6900 or fax us at 612-339-3061.

In re. Patent Application of: Alan Bowens

Examiner: Unknown

Serial No.: 12/254,043


Group Art Unit: 2629

Filed: October 20, 2008

Docket No.: 3050.025US1

Title: Gesture Recognition

Please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

By: 
Name: Bradley A. Forrest
USPTO Reg. No. 30,837

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on the date shown below.

/Peter Rebuffoni/
Peter Rebuffoni

08/26/2009
Date of Transmission



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UNITED STATES DEPARTMENT OF COMMERCE
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P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/254,043	10/20/2008	Alan Bowens	3050.025US1

CONFIRMATION NO. 1663

POA ACCEPTANCE LETTER

76287
SCHWEGMAN, LUNDBERG & WOESSNER / ATMEL
P.O. BOX 2938
MINNEAPOLIS, MN 55402



Date Mailed: 09/04/2009

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/26/2009.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/hchristian/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 4 columns: APPLICATION NUMBER (12/254,043), FILING OR 371(C) DATE (10/20/2008), FIRST NAMED APPLICANT (Alan Bowens), ATTY. DOCKET NO./TITLE (3050.025US1)

CONFIRMATION NO. 1663

PUBLICATION NOTICE

76287
SCHWEGMAN, LUNDBERG & WOESSNER / ATMEL
P.O. BOX 2938
MINNEAPOLIS, MN 55402



Title:Gesture Recognition

Publication No.US-2009-0273571-A1

Publication Date:11/05/2009

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

12323

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

12323

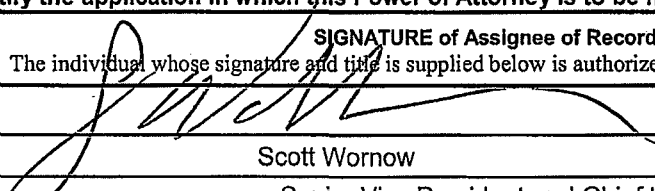
OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

Assignee Name and Address:

Atmel Corporation
2325 Orchard Parkway
San Jose, CA 95131**A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.****SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	1/15/11
Name	Scott Wornow	Telephone	408-436-4229
Title	Senior Vice President and Chief Legal Officer		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Alan Bowen 080900.0181

Application No./Patent No.: 12/2554043 Filed/Issue Date: October 20, 2008

Titled: Gesture Recognition

Atmel Corporation, a Delaware corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

- 1. the assignee of the entire right, title, and interest in;
 - 2. an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or
 - 3. the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)
- the patent application/patent identified above, by virtue of either:

A. An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Alan Bowen To: Atmel Corporation

The document was recorded in the United States Patent and Trademark Office at Reel 022890, Frame 0640, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

Additional documents in the chain of title are listed on a supplemental sheet(s).

As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/travis w. thomas/ REG. NO. 48667
Signature

February 21, 2011
Date

Travis W. Thomas
Printed or Typed Name

Attorney of Record
Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Acknowledgement Receipt

EFS ID:	9486307
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	76287
Filer:	David Osborn Taylor/Glenda Orrantia
Filer Authorized By:	David Osborn Taylor
Attorney Docket Number:	3050.025US1
Receipt Date:	21-FEB-2011
Filing Date:	20-OCT-2008
Time Stamp:	16:52:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	0809000181POA.PDF	140526 <small>ecacb65fad9cc7d04326d127dd5ed1861c5140d4</small>	no	2

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/254,043	10/20/2008	Alan Bowens	3050.025US1

CONFIRMATION NO. 1663

POA ACCEPTANCE LETTER

12323
Baker Botts L.L.P.
2001 Ross Avenue, 6th Floor
Dallas, TX 75201



Date Mailed: 03/04/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/21/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/tnnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/254,043	10/20/2008	Alan Bowens	3050.025US1

CONFIRMATION NO. 1663

POWER OF ATTORNEY NOTICE

76287
SCHWEGMAN, LUNDBERG & WOESSNER / ATMEL
P.O. BOX 2938
MINNEAPOLIS, MN 55402



Date Mailed: 03/04/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/21/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tnnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/254,043	10/20/2008	Alan Bowens	080900.0181	1663
12323	7590	01/26/2012	EXAMINER	
Baker Botts L.L.P. 2001 Ross Avenue, 6th Floor Dallas, TX 75201			NAKHJAVAN, SHERVIN K	
			ART UNIT	PAPER NUMBER
			2624	
			NOTIFICATION DATE	DELIVERY MODE
			01/26/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail1@bakerbotts.com
ptomail2@bakerbotts.com

Office Action Summary	Application No. 12/254,043	Applicant(s) BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 October 2008.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) Claim(s) 1-14 is/are pending in the application.
- 5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) Claim(s) _____ is/are allowed.
- 7) Claim(s) 1-14 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on 05 May 2009 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the Title and Cross-Reference to related Applications are missing in the disclosure as set out in the content of specification below. Appropriate correction is required.

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and

Art Unit: 2624

descriptive, preferably from two to seven words may not contain more than 500 characters.

- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.
- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in

Art Unit: 2624

- general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

35 U.S.C. 112, Sixth Paragraph

3. Claim 1 reciting limitation “a gesture processing unit operable to analyze the time series data to distinguish one or more gesture inputs therefrom, wherein the gesture processing unit is coded with gesture recognition code comprising a plurality of linked state modules” that has been interpreted under 35 U.S.C. 112, sixth paragraph, because it uses a non-structural term “a gesture processing unit” coupled with functional language “operable to analyze the time series data to distinguish one or more gesture inputs therefrom, wherein the gesture processing unit is coded with gesture recognition code comprising a plurality of linked state modules” without reciting sufficient structure to achieve the function. Furthermore, the non-structural term is not preceded by a structural modifier. E.g. a sensor unit, or a filter unit.

Since this claim limitation invokes 35 U.S.C. 112, sixth paragraph, claims 1-11 interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112, sixth paragraph limitation: the gesture processing unit 194 is a programming step stored in the microprocessor 188 as disclosed in paragraphs [0144] and [0147] of the instant published Application.

If applicant wishes to provide further explanation or dispute the examiner’s interpretation of the corresponding structure, applicant must identify the corresponding

Art Unit: 2624

structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does **not** wish to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant may amend the claim so that it will clearly not invoke 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112, sixth paragraph.

For more information, see *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. § 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Claim Rejections - 35 USC § 112

The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

A claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Claim 13 and 14 are rejected under 35 U.S.C. 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends, or for failing to include all the limitations of the claim upon which it depends. Specifically, claim 13 depends from claim 12 and recite "A single integrated circuit . . ." and claim 14 is also depend from claim 12 and recite a "A computer having a memory . . . ". Neither of the structures, "A single integrated circuit" or "A computer" is found in the claim 12. Applicant may cancel the claim(s), amend the claim(s) to place

Art Unit: 2624

the claim(s) in proper dependent form, rewrite the claim(s) in independent form, or present a sufficient showing that the dependent claim(s) complies with the statutory requirements.

As discussed above with regards to overcome this rejection, Applicant may rewrite the claims 13 and 14 to include all of the limitations of claim 12 as proper independents without reference to claim 12.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2007/0046643 A1 to Hillis et al (hereinafter 'Hillis').

Regarding claim 1, Hillis discloses a touch sensor device comprising: a sensor (Para [0024, touch sensor 500) having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area (Para [0024], wherein the touch sensor 500 comprises touch sensitive surface); a position processing unit operable to calculate positions of interactions with the sensitive area from an analysis of the sense signals (Para [0029], wherein the gesture identification module may store the contact information reported by

Art Unit: 2624

the touch sensor at successive updates, wherein the interaction position sensing is inherently performed), and output a time series of data indicative of the interaction positions on the sensor, and thus touches (Para [0028], wherein the contact information is updated over time at discrete, regular intervals and the touch sensor provides contact information for up to two contacts at each update); and a gesture processing unit (Para [0029], gesture identification module 100) operable to analyze the time series data to distinguish one or more gesture inputs therefrom (Para [0028], wherein the gesture identification module identifies gestures based on the initiation, termination, position, and motion of the up to two contacts), wherein the gesture processing unit is coded with gesture recognition code comprising a plurality of linked state modules (Para [0032], wherein the behavior of the gesture identification module is best considered as a series of program or coded transitions between a set of possible states).

Regarding claim 2, Hillis discloses wherein the plurality of state modules includes an idle state module and a plurality of gesture interpretation state modules (Para [0033], wherein the gesture identification module comprises at least an Idle state module 3000 and tracking module 3010), wherein the idle state module is entered at the start of operation, and is returnable to from at least some of the gesture interpretation state modules (Figure 3, wherein the code starts with the idle module state 3000, and wherein the process returns back to Idle module from at least the states 3020 or 3080).

Regarding claim 3, Hillis discloses wherein the plurality of gesture interpretation state modules includes a touch state module for single touches, and wherein, responsive to a touch, the idle state passes control to the touch state touches (Para

Art Unit: 2624

[0033], wherein the gesture identification module remains in the Idle state until the initiation D1 of a first contact C1, upon which the gesture identification module enters the Tracking One state 3010).

Regarding claim 4, Hillis discloses wherein, the plurality of gesture interpretation state modules includes at least one multitouch state module operable to process multiple simultaneous touches, and wherein the gesture processing unit is operable to pass control to the appropriate touch state module based on the number of simultaneous touches defined by the time series data at the time (Para [0034], wherein the gesture identification module continues to monitor the contact C1 and if motion M1 of the first contact is detected, the gesture identification module enters the Awaiting Click state 3030, wherein when a second contact D2 is detected, the gesture identification module enters the Tracking Two state 3060).

Regarding claim 5, Hillis discloses wherein there is a multitouch state module for each of two simultaneous touches and three simultaneous touches (Para [0028 and [0039], wherein upon detecting two contacts the gesture identification module can enter the Zooming state 3070 and wherein for touch sensors more than two contacts, the gesture identification module may simply ignore additional contacts initiated when two current contacts are presently reported by the touch sensor).

Regarding claim 6, Hillis discloses wherein the plurality of gesture interpretation state modules includes a press state module to which control can pass from a touch state module if a touch of a duration longer than a threshold duration is sensed in the touch state module (Para [0035], wherein if the first contact is terminated U1 within a

Art Unit: 2624

predetermined time period, the gesture identification module enters the Clicking state, wherein the clicking state is inherently a press state since the surface needs to be pressed before a clicking action acknowledgement can occur based on Para [0027], wherein a resistive touch pad, such as those commonly used in laptop computers, may be placed beneath a flexible display surface, comprises two layers of plastic that are separated by a compressible insulator).

Regarding claim 7, Hillis discloses wherein the press state is a superstate comprising multiple sub-states to distinguish between different durations of press (Para [0035] and Fig. 3, wherein if the first contact is terminated U1 within a predetermined time period 66, the gesture identification module enters the Clicking state, and if a second contact is initiated D2 within the predetermined time period, the gesture identification module enters the Tracking Two state as the superstate).

Regarding claim 8, Hillis discloses wherein the plurality of gesture interpretation state modules includes a plurality of state modules operable to recognize motion related gestures derived from one or more moving touches (Para [0039], wherein the gesture identification module determines if the motions of the first and second contact points M1 and M2, as motion states, are aligned or opposed).

Regarding claim 9, Hillis discloses wherein the gesture recognition code is configured to recognize gestures having up to N simultaneous touches, wherein N is at least 2, and comprises N single-touch state machines operable to recognize only single touch gestures, and N-1 multi-touch state machines each operable to recognize only n-touch gestures, wherein $n=2$ to N (Para [0028], wherein the contact information is

Art Unit: 2624

updated over time at discrete, regular intervals, and wherein the touch sensor provides contact information for up to two contacts at each update, and the gesture identification module identifies gestures based on the initiation, termination, position, and motion of the up to two contacts).

Regarding claim 12, Hillis discloses a method of recognizing gestures from a time series of touch data comprising coordinates of interaction positions on a touch sensor (This preamble is not given a patentable weight and is treated as conveying the intended use of the claim), the method comprising: receiving touch coordinates labeled with, or ordered by, time (Para [0035], wherein if the first contact C1 is terminated U1 within a predetermined time period, the gesture identification module enters the clicking state, and if a second contact C2 is initiated D2 within the predetermined time period the gesture identification module enters the Tracking Two state); analyzing the touch coordinates in a state machine comprising a plurality of linked state modules to recognize any one of a plurality of defined gestures therefrom (Para [0038] and Fig. 3, wherein hierarchy of figure 3 is followed , and wherein the pan command specifies that the imagery be translated a distance proportional to the distance the first contact has moved M1 between the previous and current updates of the first contact position C1); and outputting the recognized gestures (Para [0038] and Fig. 3, wherein in the Panning state, the gesture identification module identifies a panning gesture and issues a pan command to the display control module that, when executed by the display control module, translates the displayed imagery).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillis in view of US 2007/0291009 A1 to Wright et al (hereinafter 'Wright').

Regarding claim 10, Hillis does not explicitly disclose wherein the position processing unit and the gesture processing unit are accommodated in, and run on, a single integrated circuit. Wright discloses wherein the position processing unit and the gesture processing unit are accommodated in, and run on, a single integrated circuit (Para [0052] and [0115], wherein capacitance sensor 201 may be integrated into the IC of the processing device 210, or alternatively, in a separate IC). Hillis and Wright are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the position processing unit and the gesture processing unit are accommodated in, and run on, a single integrated circuit, of Wright's device with Hillis' in order for a behavioral level code, describing capacitance sensor, or portions thereof, to be stored in a machine-accessible medium (Para [0056]).

Regarding claim 11, Hillis does not explicitly disclose wherein the position processing unit is accommodated in, and runs on, a first integrated circuit, and the

Art Unit: 2624

gesture processing unit is accommodated in, and runs on, one or more separate integrated circuits. Wright discloses wherein the position processing unit is accommodated in, and runs on, a first integrated circuit, and the gesture processing unit is accommodated in, and runs on, one or more separate integrated circuits. (Para [0052] and [0115], wherein the capacitance sensor 201 may be integrated into the IC of the processing device 210, or alternatively, integrated in a separate IC). Hillis and wright are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the position processing unit is accommodated in, and runs on, a first integrated circuit, and the gesture processing unit is accommodated in, and runs on, one or more separate integrated circuits, of Wright's device with Hillis' in order for a behavioral level code, describing capacitance sensor, or portions thereof, to be stored in a machine-accessible medium (Para [0056]).

Regarding claim 13, Hillis does not explicitly disclose a single integrated circuit having a memory on which is loaded the state machine in which is operable to carry out the method. Wright discloses a single integrated circuit having a memory on which is loaded the state machine of claim 12 and which is operable to carry out the method of claim 12 (Para [0052] and [0115], wherein processing device 210 may be a Programmable System on a Chip (PSoC.TM.) processing device, manufactured by Cypress Semiconductor Corporation, San Jose, Calif.). Hillis and wright are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine a

Art Unit: 2624

single integrated circuit having a memory on which is loaded the state machine in which is operable to carry out the method of Wright's method with Hillis' in order for a behavioral level code, describing capacitance sensor, or portions thereof, to be stored in a machine-accessible medium (Para [0056]).

Regarding claim 14, Hillis does not explicitly disclose a computer having a memory on which is loaded the state machine to carry out the method the method. Wright discloses a computer having a memory on which is loaded the state machine to carry out the method (Para [0138] and [0115], wherein a computer program product that may include instructions stored on a machine-readable medium). Hillis and wright are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine a computer having a memory on which is loaded the state machine to carry out the method, of Wright's device with Hillis' in order for a behavioral level code, describing capacitance sensor, or portions thereof, to be stored in a machine-accessible medium (Para [0056]).

Other Prior Art Cited

6. The US Patent 6,608,619; US Patent 5,396,443; US Patent 5,133,076; US Patent Publication 2007/0265081; US Patent Publication 2006/0132460; US Patent Publication 2003/0214481 and US Patent 5,570,113 are related to Applicant's invention as claimed.

Contact Information

Art Unit: 2624

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERVIN NAKHJAVAN whose telephone number is (571) 272-5731. The examiner can normally be reached on 8:30-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Repko can be reached on (571)272-8624. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON M REPKO/
Supervisory Patent Examiner, Art
Unit 2624

/Shervin Nakhjavan/
Examiner, Art Unit 2624

Notice of References Cited	Application/Control No. 12/254,043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-5,133,076 A	07-1992	Hawkins et al.	708/141
*	B US-5,396,443 A	03-1995	Mese et al.	713/321
*	C US-5,570,113 A	10-1996	Zetts, John M.	345/173
*	D US-6,608,619 B2	08-2003	Omura et al.	345/175
*	E US-2003/0214481 A1	11-2003	Xiong, Yongming	345/157
*	F US-2006/0132460 A1	06-2006	Kolmykov-Zotov et al.	345/173
*	G US-2007/0046643 A1	03-2007	Hillis et al.	345/173
*	H US-2007/0265081 A1	11-2007	SHIMURA et al.	463/37
*	I US-2007/0291009 A1	12-2007	Wright et al.	345/173
	J US-			
	K US-			
	L US-			
	M US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
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	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
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	V				
	W				
	X				

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043
	Filing Date		2008-10-20
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		QGS

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	3593115	A	1971-07-13	Dym et al.		
	2	5650597	A	1997-07-22	Redmayne		
	3	6297811	A	2001-10-02	Kent et al.		
	4	5825352	A	1998-10-30	Bissett		
	5	6028271	A	2000-02-22	Gillespie et al.		
	6	6414671	A	2002-07-02	Gillespie et al.		
	7	6750852		2004-06-15	Gillespie et al.		
	8	5730165	A	1998-03-24	Philipp		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12254043	12254043 - GAU: 2624
	Filing Date	2008-10-20	
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	QGS	

	9	6466036	A	2002-10-15	Philipp	
	10	6452514	A	2002-09-17	Philipp	
	11	6888536	B2	2005-05-03	Westerman et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20050041018	A1	2005-02-24	Philipp	
	2	20070247443	A1	2007-10-25	Philipp	
	3	20070257894	A1	2007-11-08	Philipp	
	4	20070279395	A1	2007-12-06	Philipp	
	5	20070152984	A1	2007-07-05	Ording et al.	
	6	20020015024	A1	2002-02-07	Westerman et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12254043	12254043 - GAU: 2624
Filing Date	2008-10-20	
First Named Inventor	Bowens	
Art Unit		
Examiner Name		
Attorney Docket Number	QGS	

7	20070176906	A1	2007-08-02	Warren	
8	20060066582	A1	2006-03-30	Lyon et al.	
9	20080165141	A1	2008-07-10	Christie	
10	20060067991	A1	2006-05-11	Hotelling	
11	20060250377	A1	2006-11-09	Zadesky et al.	
12	20070152979	A1	2007-07-05	Jobs et al.	
13	20070177804	A1	2007-08-02	Elias et al.	
14	20070257890	Aq	2007-11-08	Hotelling et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12254043	12254043 - GAU: 2624
	Filing Date	2008-10-20	
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	QGS	


NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
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EXAMINER SIGNATURE			
Examiner Signature	/Shervin Nakhjavan/	Date Considered	01/14/2012

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Index of Claims 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	01/14/2012							
	1	✓							
	2	✓							
	3	✓							
	4	✓							
	5	✓							
	6	✓							
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	10	✓							
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	12	✓							
	13	✓							
	14	✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S5	161	S4 and (wallpaper or (wall paper)).ab.	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 19:02
S6	1	(12/254043).APP.	US-PGPUB; USPAT	OR	OFF	2012/01/12 20:50
S7	1085	(382/312,314,315).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/12 22:04
S8	208	(348/14.03).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/12 22:04
S9	2973	(715/700,719).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/12 22:04
S10	14975	(345/157,173-177,181).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/12 22:04
S11	19082	S7 or S8 or S9 or S10	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:05
S12	2710	S11 and gestur\$3	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:06
S13	1503	S12 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:10
S14	1290	S13 and touch\$3	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:12
S15	1049	S14 and ((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:14
S16	574	S15 and (((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3)) same (time\$2 or timing))	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:15
S17	44	S16 and (gesture\$2 near5 (stor\$2 or prestor\$2 or table or database or (data base\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:16
S18	62	S16 and ((pattern\$2 or gesture\$2) near5 (stor\$2 or prestor\$2 or table or database or (data base\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:17
S19	59	S18 and recogni\$6	US-PGPUB; USPAT	ADJ	OFF	2012/01/12 22:17
S20	1085	(382/312,314,315).CCLS.	US-PGPUB;	OR	OFF	2012/01/13 12:55

			USPAT			
S21	208	(348/14.03).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/13 12:55
S22	2973	(715/700,719).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/13 12:55
S23	14975	(345/157,173-177,181).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/01/13 12:55
S24	19082	S20 or S21 or S22 or S23	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S25	2710	S24 and gestur\$3	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S26	1503	S25 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S27	1290	S26 and touch\$3	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S28	1049	S27 and ((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S29	574	S28 and (((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3)) same (time\$2 or timing))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S30	222	S29 and ((pattern\$2 or gesture\$2 or code\$2) near5 (stor\$2 or prestor\$2 or table or database or (data base\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:55
S31	91	S28 and (((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3)) same series)	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:57
S32	36	S31 and ((pattern\$2 or gesture\$2 or code\$2) near5 (stor\$2 or prestor\$2 or table or database or (data base\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 12:57
S33	17	S32 and (finger\$ or hand\$2 or touch\$3 or press\$3).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 13:06
S34	0	("14and(standbyor(standby)oridle\$2)").FN.	US-PGPUB; USPAT	OR	OFF	2012/01/13 14:12
S35	7	S33 and (standby or (stand by) or idle\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 14:12
S36	125039	((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 15:10
S37	100621	S36 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 15:10
S38	10468	S37 and ((pattern\$2 or gesture\$2 or code\$2) near5 (stor\$2 or prestor\$2 or table or database or (data base\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 15:10
S39	3153	S38 and (finger\$ or hand\$2 or touch\$3 or press\$3).clm.	US-PGPUB;	ADJ	OFF	2012/01/13 15:10


			USPAT			
S40	559	S39 and (standby or (stand by) or idle\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 15:11
S41	29	S40 and (((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3)) same series)	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 15:12
S42	543536	((pen\$2 or stylus\$ or finger\$2) and (touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 17:56
S43	458926	S42 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 17:56
S44	26070	S43 and (standby or (stand by) or idle\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 18:03
S45	10125	S44 and (finger\$ or hand\$2 or touch\$3 or press\$3).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 18:04
S46	2174	S45 and ((pen\$2 or stylus\$ or finger\$2 or touch\$3 or press\$3 or strok\$2) same series)	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 18:10
S47	394	S46 and ((pattern\$2 or gesture\$2 or code\$2) near5 (stor\$2 or prestor\$2 or table or database or (data base\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 18:11
S48	22	S47 and (standby or (stand by) or idle\$2).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/01/13 18:12
S49	8	(US-20080211779-\$ or US-20020011990-\$ or US-20020008692-\$).did. or (US-6608619-\$ or US-6141688-\$ or US-5996082-\$ or US-5396443-\$ or US-5133076-\$).did.	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:27
S50	1	S49 and (standby or (stand by) or idle\$2).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:28
S51	6	S49 and (standby or (stand by) or idle\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:28
S52	4	S51 and ((contact\$3 or touch\$3) same (standby or (stand by) or idle\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:31
S53	4	S52 and (contact\$3 or touch\$3)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:33
S54	39018	((contact\$3 or touch\$3) same (standby or (stand by) or idle\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:39
S55	42378	((contact\$3 or touch\$3) same (standby or (stand by) or idl\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:39
S56	320	S55 and gestur\$3	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:40
S57	126	S56 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:40

S58	98	S57 and (pen\$2 or stylus\$ or finger\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:44
S59	98	S58 and gestur\$	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:45
S60	17	S59 and (gestur\$ same (standby or (stand by) or idl\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 14:45
S61	42378	((contact\$3 or touch\$3) same (standby or (stand by) or idl\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 17:39
S62	320	S61 and gestur\$3	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 17:39
S63	126	S62 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 17:39
S64	98	S63 and (pen\$2 or stylus\$ or finger\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 17:39
S65	98	S64 and gestur\$	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 17:39
S66	17	S65 and (gestur\$ same (standby or (stand by) or idl\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 17:39
S67	10	S66 and (IC\$2 or (integrated circuit\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:00
S68	74	S65 and (IC\$2 or (integrated circuit\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:03
S69	59	S68 and @ad<"20070501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:03
S70	49	S69 and (IC\$1 or (integrated circuit\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:04
S71	2	S70 and ((touch\$3 or pad or tablet or gestur\$3) same (IC\$1 or (integrated circuit\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:35
S72	76	S65 and (IC\$2 or (integrated circuit\$2) or chip\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:36
S73	7	S72 and ((touch\$3 or pad or tablet or gestur\$3) same (IC\$1 or (integrated circuit\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:37
S74	777111	(pen\$2 or stylus\$ or finger\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:38
S75	12778	S74 and gestur\$	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:38
S76	6388	S75 and (IC\$1 or (integrated circuit\$2) or chip\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:39

S77	1527	S76 and ((touch\$3 or pad or tablet or gestur\$3 or sens\$3) same (IC\$1 or (integrated circuit\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:39
S78	903	S77 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:39
S79	660	S77 and @ad<"20070501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:39
S80	412	S79 and ((touch\$3 or pad or tablet or gestur\$3 or sens\$3) with (IC\$1 or (integrated circuit\$2)))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:40
S81	3310	S76 and ((touch\$3 or pad or tablet or gestur\$3 or sens\$3) same (IC\$1 or (integrated circuit\$2) or chip\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:40
S82	1674	S81 and @ad<"20070501"	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:41
S83	2	S82 and (gestur\$ same (standby or (standby) or idl\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:41
S84	1190	S82 and ((touch\$3 or pad or tablet or gestur\$3 or sens\$3) with (IC\$1 or (integrated circuit\$2) or chip\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:47
S85	63	S84 and (gestur\$3 with (IC\$1 or (integrated circuit\$2) or chip\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/01/14 18:48

1/14/2012 10:29:26 PM

C:\Users\snakhjavan1\Documents\EAST\Workspaces\Workspaces\12254043.wsp

Search Notes 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

SEARCHED			
Class	Subclass	Date	Examiner
382	312, 314, 315	1/12/12	SN
348	14.03	1/12/12	SN
715	700, 719	1/12/12	SN
345	157, 173-177, 181	1/12/12	SN

SEARCH NOTES			
Search Notes	Date	Examiner	
EAST (USPAT, PGPUB)	1/12 - 1/14/12	SN	

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
382	315	1/12/12	SN

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043
	Filing Date		2008-10-20
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		QGS

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	3593115	A	1971-07-13	Dym et al		
	2	5650597	A	1997-07-22	Redmayne		
	3	6297811		2001-10-02	Kent et al		
	4	5825352		1998-10-20	Bisset et al		
	5	6025271		2000-02-22	Gillespie et al		
	6	6414671	B1	2002-07-02	Gillespie et al		
	7	6750852	B2	2004-06-15	Gillespie et al		
	8	5730165	A	1998-03-24	Philipp		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043	12254043 - GAU: 2624	
	Filing Date		2008-10-20		
	First Named Inventor	Bowens			
	Art Unit				
	Examiner Name				
	Attorney Docket Number		QGS		

	9	6466036	B1	2002-10-15	Philipp	
	10	6452514	B1	2002-09-17	Philipp	
	11	6888536	B2	2005-05-03	Westerman et al	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20050041018	A1	2005-02-25	Philipp	
	2	20070247443	A1	2007-10-25	Philipp	
	3	20070257894	A1	2007-11-08	Philipp	
	4	20070279395	A1	2007-12-06	Philipp et al	
	5	20070152984	A1	2007-07-05	Ording et al	
	6	20020015202	A1	2002-02-07	Westerman et al	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12254043	12254043 - GAU: 2624
Filing Date	2008-10-20	
First Named Inventor	Bowens	
Art Unit		
Examiner Name		
Attorney Docket Number	QGS	

7	20070176906	A1	2007-08-02	Warren	
8	20060066582	A1	2006-03-30	Lyon et al	
9	20080165514	A1	2008-07-10	Christie	
10	20060097991	A1	2006-05-11	Hotelling et al	
11	20060250377	A1	2006-11-09	Zadesky et al	
12	20070152979	A1	2007-07-05	Jobs et al	
13	20070177804	A1	2007-08-02	Elias et al	
14	20070257890	A1	2007-11-08	Hotelling et al	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							<input type="checkbox"/>

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12254043	12254043 - GAU: 2624
	Filing Date	2008-10-20	
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	QGS	

NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		<input type="checkbox"/>

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EXAMINER SIGNATURE			
Examiner Signature	/Shervin Nakhjavan/	Date Considered	01/14/2012

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Alan Bowens
Application No: 12/254,043
Filed: October 20, 2008
Art Unit: 2624
Confirmation No.: 1663
Examiner: Shervin K. Nakhjavan
Title: *Gesture Recognition*

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Response Under 37 C.F.R. § 1.111

In response to the non-final Office Action dated January 26, 2012, Applicant respectfully requests the Examiner to reconsider this Application in view of the following amendments and remarks. Please amend the Application as follows.

In the Specification

Please add the following TITLE OF THE INVENTION immediately preceding the below-added section entitled CROSS-REFERENCES TO RELATED APPLICATIONS:

Gesture Recognition

Please add the following CROSS-REFERENCES TO RELATED APPLICATIONS immediately following the currently added TITLE OF THE INVENTION and immediately before the existing BACKGROUND OF THE INVENTION:

CROSS-REFERENCES TO RELATED APPLICATIONS

This application claims the benefit under 35 U.S.C. § 119(e) of U.S. Provisional Application Serial No. 61/049,453 filed May 1, 2008.

In the Claims

1. (Currently amended) A touch sensor device comprising:
a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area;

a processor operable to execute position-processing unit logic stored in one or more tangible media, the position-processing logic, when executed by the processor, configured operable to:

calculate positions of interactions with the sensitive area from an analysis of the sense signals; and

output a times series of data indicative of the interaction positions on the sensor, and thus the interaction positions corresponding to touches; and

a processor operable to execute gesture-processing unit logic stored in one or more tangible media, the gesture-processing logic, when executed by the processor, configured operable to analyze the time series of data to distinguish one or more gesture inputs therefrom from the time series of data, wherein the gesture-processing unit is logic being coded with gesture-recognition code comprising a plurality of linked state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures.

2. (Currently amended) The device of claim 1, wherein each of the plurality of state-machine modules includes an idle-state module and a plurality of gesture-interpretation-state modules, wherein the idle-state module is being entered at the start of operation, and is being able to be returned to from at least some of the gesture-interpretation-state modules.

3. (Currently amended) The device of claim 2, ~~wherein each of the plurality of gesture-interpretation-state modules for each of the plurality of one-touch state-machine modules including~~es a touch-state module ~~for single touches, and wherein, responsive to a touch,~~ the idle-state module passages, responsive to a touch, control to the touch-state module.

4. (Currently amended) The device of claim ~~12,~~ ~~wherein,~~ the plurality of gesture-interpretation-state modules for a multi-touch state-machine module ~~including~~es at least one multi-touch state-module operable to process multiple simultaneous touches based on output from multiple of the plurality of one-touch state-machine modules, and ~~wherein~~ the gesture-processing ~~unit logic is~~being operable to pass control to the appropriate ~~touch~~ multi-touch state-machine module based on the number of simultaneous touches defined by the time series of data at the time.

5. (Currently amended) The device of claim 4, wherein there is a multi-touch state-machine module for each of two simultaneous touches and three simultaneous touches.

6. (Currently amended) The device of claim ~~32,~~ ~~wherein~~ the plurality of gesture-interpretation-state modules for each of the plurality of one-touch state-machine modules ~~including~~es a press-state module to which control can pass from a touch-state module if a touch of a duration longer than a threshold duration is sensed in the touch-state module.

7. (Currently amended) The device of claim 6, ~~wherein~~ the press-state ~~is~~being a super-state comprising multiple sub-states to distinguish between different durations of press.

8. (Currently amended) The device of claim 2, ~~wherein~~ the plurality of gesture-interpretation-state modules ~~including~~es a plurality of state modules operable to recognize motion-related gestures derived from one or more moving touches.

9. (Currently amended) The device of claim 1, ~~wherein~~ the gesture_recognition code isbeing configured to recognize gestures having up to N simultaneous touches, ~~wherein~~ N isbeing at least 2, and comprising ~~ges~~ N ~~singleone-touch state-machines~~ modules operable to recognize only ~~singleone-touch gestures;~~ and N-1 multi-touch state-machine-s modules each operable to recognize only n-touch gestures, wherein n=2 to N.

10. (Currently amended) The device of claim 1, ~~wherein~~ the position_processing ~~unit_logic~~ and the gesture_processing ~~unit_logic~~ arebeing accommodated in, and run on, a single integrated circuit.

11. (Currently amended) The device of claim 1, ~~wherein~~ the position_processing ~~unit_logic~~ isbeing accommodated in, and runnings on, a first integrated circuit, and the gesture_processing ~~unit_logic~~ isbeing accommodated in, and runnings on, one or more separate integrated circuits.

12. (Currently amended) A method of ~~recognizing gestures from a time series of touch data comprising coordinates of interaction positions on a touch sensor, the method comprising:~~

receiving a touch coordinates labeled with, or ordered by, time times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;

analyzing the touch coordinates in a state machine comprising a plurality of linked state modules to recognize any one of a plurality of defined gestures therefrom time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and

outputting the recognized multi-touch gestures.

13. (Currently amended) A single integrated circuit ~~having a memory on which is loaded the state machine of claim 12 and which is operable to carry out the method of claim 12~~comprising:

a memory element;

a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:

receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;

analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and

output the recognized multi-touch gestures.

14. (Currently amended) ~~A computer having a memory on which is loaded the state machine of claim 12 and which is operable to carry out the method of claim 12~~comprising:

a memory element;

a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:

receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;

analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and

output the recognized multi-touch gestures.

Remarks

This Application has been reviewed carefully in light of the non-final Office Action dated January 26, 2012. Applicant appreciates the Examiner's consideration of the Application. Although Applicant believes all claims are allowable without amendment, to advance prosecution Applicant has made clarifying amendments to Claims 1-14. At least certain of these amendments are not considered narrowing and none are considered necessary for patentability. Applicant respectfully requests reconsideration and allowance of all pending claims.

Interview Summary and Request for Subsequent Interview

Applicant's attorney, Chad D. Terrell, conducted a telephone interview with Examiner Nakhjavan on March 13, 2012. Applicant's attorney thanks the Examiner for the courtesy of the interview. Pursuant to M.P.E.P. § 713.04, Applicant submits this summary of the telephone interview to record Applicant's attorney's understanding of the substance of the interview. If Applicant's attorney's understanding is inaccurate, notice of such is appreciated. During the interview, the Examiner and Applicant's attorney discussed the Examiner's interpretation of the claims as invoking 35 U.S.C. § 112, Sixth Paragraph, including possible amendments for obviating this interpretation. Although the participants did not agree to particular language, Applicant believes the amendments presented in this Response are of the nature of those the Examiner indicated in the interview would obviate the Examiner's interpretation of the claims as invoking 35 U.S.C. § 112, Sixth Paragraph.

If in response to Applicant's present submission the Examiner intends to issue a new Office Action rejecting some or all of the pending claims, or interpreting the claims as invoking 35 U.S.C. § 112, Sixth Paragraph, in the interest of compact and efficient prosecution Applicant respectfully requests that the Examiner contact Applicant's attorney prior to issuing the new Office Action to discuss a possible resolution to any outstanding issues.

The Objections to the Disclosure should be Withdrawn.

The Office Action objects to the disclosure as lacking a Title of the Invention and Cross-References to Related Applications in the Specification. Although Applicant previously included the Title of the Invention and the Cross-References to Related Applications in the Application Data Sheet, to advance prosecution Applicant has amended the Specification to also include these. For at least these reasons, Applicant respectfully requests the Examiner to withdraw the objection.

Although the Office Action lists purported requirements of the Abstract and other sections of the Specification, the Office Action states no affirmative objection. Thus, Applicant has made no other amendments to the Specification.

Claim 1 Does not Invoke 35 U.S.C. § 112, Sixth Paragraph.

The Office Action interprets Claim 1 under 35 U.S.C. § 112, sixth paragraph. Applicant respectfully submits that this is an improper application of 35 U.S.C. § 112, sixth paragraph. In particular, Applicant respectfully submits that the claims of this Application do not invoke 35 U.S.C. § 112, sixth paragraph, and further submit that the Office Action's treatment of Claims 1-11 under 35 U.S.C. § 112, sixth paragraph is improper.

“A claim element that does not include the phrase “means for” or “step for” will not be considered to invoke 35 U.S.C. 112, sixth paragraph.” M.P.E.P. 2181(I) (further noting that “if a claim limitation does not use the phrase ‘means for’ or ‘step for,’ that is, the first prong of the 3-prong analysis is not met, the examiner will not treat such a claim limitation under 35 U.S.C. 112, sixth paragraph”) (emphasis added). Thus, according the M.P.E.P., a claim limitation must include the phrase “means for” or “step for” in order to invoke 35 U.S.C. § 112, sixth paragraph. Because Claim 1 does not include the phrase “means for” or “step for,” Applicant respectfully submits that Claim 1 does not invoke 35 U.S.C. § 112, sixth paragraph, and further submits that the Office Action's treatment of Claims 1-11 under 35 U.S.C. § 112, sixth paragraph is improper.

For at least this reason, Applicant respectfully submits that Claim 1 does not invoke 35 U.S.C. § 112, sixth paragraph.

Although Applicant does not agree that original Claim 1 invokes 35 U.S.C. § 112, sixth paragraph, to advance prosecution Applicant has made clarifying amendments to Claim 1. Applicant believes these amendments are of the nature of those the Examiner indicated in the March 13, 2012 interview would obviate the Examiner's interpretation of the claims as invoking 35 U.S.C. § 112, Sixth Paragraph. For at least this additional reason, Applicant respectfully submits that Claim 1 does not invoke 35 U.S.C. § 112, sixth paragraph.

The Claims are Allowable under 35 U.S.C. § 112.

Claims 13 and 14 stand rejected under 35 U.S.C. § 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which they depend. Although Applicant does not necessarily agree with the rejections, to expedite allowance of this Application Applicant has amended Claims 13 and 14 to be in independent form, as suggested by the Office Action. For at least these reasons, Applicant respectfully requests reconsideration and allowance of independent Claims 13-14.

The Claims are Allowable Over *Hillis*.

The Office Action rejects Claims 1-9 and 12 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Application Publication No. 2007/0046643 filed by Hillis et al. ("*Hillis*"). Applicant respectfully traverses these rejections and discusses amended independent Claim 1 as an example.

At a minimum, the cited portions of *Hillis* do not disclose, teach, or suggest "a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures," as recited in amended Claim 1. The cited portions of *Hillis* generally relate to a "touch sensor" with a "touch sensitive surface" and a "gesture identification module" that "identifies a user gesture." *Hillis* at ¶ 0024. In

particular, the cited portions appear to disclose that “the behavior of the gesture identification module is best considered as a series of transitions between a set of possible states.” *Hillis* at ¶ 0028.

However, nowhere do the cited portions of *Hillis* disclose, teach, or suggest “a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures,” as recited in amended Claim 1.

For at least these reasons, Applicant respectfully requests reconsideration and allowance of independent Claim 1 and its dependent claims. For at least certain analogous reasons, Applicant respectfully requests reconsideration and allowance of independent Claims 12-14.

The Claims are Allowable Over the Proposed *Hillis-Wright* Combination.

The Office Action further rejects Claims 10, 11, and 13-14 under 35 U.S.C. § 103(a) as being unpatentable over *Hillis* in view of U.S. Patent Application Publication No. 2007/0291009 filed by Wright et al. (“*Wright*”).

Claims 13 and 14, which have been amended to be independent claims, are shown above to be allowable over *Hillis*. The cited portions of *Wright* do not appear to make up for the above-discussed deficiencies of *Hillis*.

Claims 10 and 11 depend from independent Claim 1, shown above to be allowable over *Hillis*, and are allowable for at least this reason. The cited portions of *Wright* do not appear to make up for the above-discussed deficiencies of *Hillis*. In addition, these dependent claims recite further patentable distinctions over the proposed *Hillis-Wright* combination. To avoid burdening the record and in view of the clear allowability of Applicant’s independent claims, Applicant does not discuss these distinctions in this

Response. However, Applicant reserves the right to discuss these distinctions in a future submission, if appropriate.

Additionally, Applicant does not admit that the proposed *Hillis-Wright* combination is possible or that the Office Action provides an adequate explanation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Applicant's invention, to combine or modify these references in the manner the Office Action proposes. To avoid burdening the record and in view of the clear deficiencies of the proposed *Hillis-Wright* combination, Applicant does not discuss in detail this issue in this Response. However, Applicant reserves the right to discuss this issue in a future submission, if appropriate.

For at least these reasons, Applicant respectfully requests reconsideration and allowance of Claims 10, 11, and 13-14.

Request for Evidentiary Support

Should a rejection based on any of the above-asserted rejections be maintained, Applicant respectfully requests appropriate evidentiary support. Additionally, if the Examiner is relying upon "common knowledge" or "well known" principles to establish the rejection, Applicant requests that a reference be provided in support of this position pursuant to M.P.E.P. § 2144.03. Furthermore, to the extent that the Examiner maintains any rejection based on an "Official Notice" or other information within the Examiner's personal knowledge, Applicant respectfully requests that the Examiner cite a reference as documentary evidence in support of this position or provide an affidavit in accordance with M.P.E.P. § 2144.03 and 37 C.F.R. 1.104(d)(2).

No Waiver

Applicant's arguments and amendments are without prejudice or disclaimer. Additionally, Applicant has merely discussed example distinctions from the cited references. Other distinctions may exist, and Applicant reserves the right to discuss these additional distinctions in a later submission, if appropriate. By not responding to additional statements made by the Office Action, Applicant does not acquiesce to those additional statements.

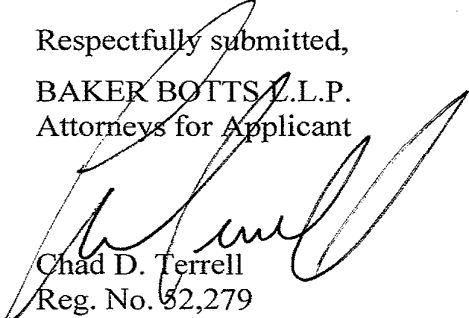
Conclusion

Applicant has made an earnest attempt to place this case in condition for allowance. For at least the foregoing reasons, Applicant respectfully requests full allowance of all pending claims.

If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Chad D. Terrell, Attorney for Applicant, at (214) 953-6813 at the Examiner's convenience.

The Commissioner is hereby authorized to charge the required \$250.00 fee for an additional independent claim over three. Applicants believe no other fee is due; however, the Commissioner is hereby authorized to charge any necessary fees and credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,
BAKER BOTTS L.L.P.
Attorneys for Applicant


Chad D. Terrell
Reg. No. 52,279

Date: April 26, 2012

CORRESPONDENCE ADDRESS:
at Customer No. **12323**

Electronic Patent Application Fee Transmittal

Application Number:	12254043
Filing Date:	20-Oct-2008
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Filer:	Bradley Jay Birchfield/Esmarie Garland
Attorney Docket Number:	080900.0181

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Independent claims in excess of 3	1201	1	250	250

Miscellaneous-Filing:

Petition:

Patent-Appeals-and-Interference:

Post-Allowance-and-Post-Issuance:

Extension-of-Time:

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				250

Electronic Acknowledgement Receipt

EFS ID:	12639320
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	12323
Filer:	Bradley Jay Birchfield/Esmarie Garland
Filer Authorized By:	Bradley Jay Birchfield
Attorney Docket Number:	080900.0181
Receipt Date:	26-APR-2012
Filing Date:	20-OCT-2008
Time Stamp:	15:56:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$250
RAM confirmation Number	2858
Deposit Account	020384
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		0809000181 Reesponse.PDF	642193 64cd4519d260d90ef39ecca09c46be5cb8e ba22b	yes	14
Multipart Description/PDF files in .zip description					
		Document Description	Start	End	
		Amendment/Req. Reconsideration-After Non-Final Reject	1	1	
		Specification	2	2	
		Claims	3	8	
		Applicant Arguments/Remarks Made in an Amendment	9	14	

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	29724 1b848f0d645dcac2e51b2aec29a60c39e35 d765c	no	2
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Warnings:

Information:

Total Files Size (in bytes):	671917
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Applicant-Initiated Interview Summary	Application No. 12/254,043	Applicant(s) BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Shervin Nakhjavan/Examiner. (3)_____.
- (2) Chad Terrell/Applicant's Attorney (Reg. 52,279). (4)_____.

Date of Interview: 13 March 2012.

Type: Telephonic Video Conference
 Personal [copy given to: applicant applicant's representative]

Exhibit shown or demonstration conducted: Yes No.
If Yes, brief description: _____.

Issues Discussed 101 112 102 103 Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1.

Identification of prior art discussed: None.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant's Attorney requested clarification on 35 U.S.C 112 6th Paragraph and what language falls under this interpretation. Examiner directed the Applicant's Attorney to Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. § 112 and for Treatment of Related Issues in Patent Applications, 76 FR 7162, 7167 (Feb. 9, 2011). Applicant's Attorney further discussed ways to amend claim 1 in order to avoid this interpretation. Examiner suggested if a hardware language e.g. a processor, was introduced to the claim, so that it would encompass the processing of the "position-processing unit" and "gesture processing unit", the claim would no longer invoke 112 6th Paragraph. Applicant's Attorney submitted that similar language will be utilized in order to amend the claim.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Attachment

/JASON M REPKO/
Supervisory Patent Examiner, Art Unit 2624

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes application details for Alan Bowens and examiner information for NAKHJAVAN, SHERVIN K.

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail1@bakerbotts.com
ptomail2@bakerbotts.com

Response to Arguments

1. Applicant's arguments filed 4/26/12 have been fully considered but they are not persuasive. Applicant on pages 11 and 12 of the remarks, filed 4/26/12, states that the prior art of record, US 2007/0046643 A1 to Hillis et al (hereinafter 'Hillis'), does not teach newly added limitations of claim 1 and further added in claims 12, 13 and 14 "a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and output the recognized multi-touch gestures" as recited in claim 1 and further in claims 12, 13 and 14. Examiner respectfully disagrees. Hillis discloses, as depicted in figure 3, the plurality of one-touch state machine modules (Fig. 3, module 3000, 3010, 3020, 3030, etc.) and plurality of multi-touch state machines modules (Fig. 3, module 3060, 3070, 3080, etc.). Additionally, Hillis further discloses processing functions of each of the modules of the one-touch state machines in paragraph [0033] and [0034], and accordingly discloses the functional steps of multi-touch modules once the processing enters into multi-touch or Track-two stage 3070, as depicted in figure 3, and discussed in paragraph [0039]. Therefore, Hillis anticipates the Applicant's invention as claimed.

2. Additionally, Examiner with respect to preambles of claims 12-14 reminds Applicant that during examination, statements in the preamble reciting the purpose or

Art Unit: 2624

intended use of the claimed invention is evaluated to determine whether the recited purpose or intended use results in a structural difference. However, if a prior art structure is capable of performing the intended use as recited in the preamble, then it meets the claim (M.P.E.P 2111.02 (II)). (See, e.g., *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). Therefore, any prior art method, integrated circuit, and computer will meet the limitations of claims 12-14, respectively.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 8 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hillis.

Regarding claim 1, Hillis discloses a touch sensor device (Para [0018], touch sensor system) comprising: a sensor (Para [0024], touch sensor 500) having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area (Para [0024], wherein the touch sensor 500 comprises touch sensitive surface); a processor (Para [0027], wherein a laptop computers include a resistive touch pad and a processor to compute the positional information) operable to execute position-processing logic stored in one or more tangible media, the position-processing logic, when executed by the processor,

Art Unit: 2624

configured operable to: calculate positions of interactions with the sensitive area from an analysis of the sense signals (Para [0027], wherein by considering the changes in resistive characteristics, the location of the contact can be determined, and wherein media to store such position-processing operation is inherently included in the computer); and output a times series of data indicative of the interaction positions on the sensor, the interaction positions corresponding to touches (Para [0028], wherein the contact information is updated over time at discrete, regular intervals and the touch sensor provides contact information for up to two contacts at each update); and a processor (Para [0027], wherein the laptop computers inherently includes a processor) operable to execute gesture-processing logic stored in one or more tangible media (Para [0024] and Fig. 2, wherein a flow chart summarizing the state-based gesture identification is depicted and wherein the computer inherently includes a storage unit to store the identification algorithm), the gesture-processing logic, when executed by the processor (Fig. 2, gesture identification module 1000) configured to analyze the time series of data to distinguish one or more gesture inputs from the time series of data (Para [0028], wherein the contact information is updated over time at discrete, regular intervals), the gesture-processing logic being coded with gesture-recognition code comprising a plurality of linked-state-machine modules (Fig. 3, modules 3000, 3010, 3020, etc), the plurality of state-machine modules comprising a plurality of one-touch state- machine modules (Fig. 3, Modules 3000, 3020, 3030 are the linked modules supporting on-touch module 3010) and one or more multi-touch state-machine modules (Fig. 3, Modules 3070, 3080 and 3000 are linked modules supporting the multi-touch

Art Unit: 2624

module 3060), each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures (Para [0033] and [0034], wherein in the Tracking One state, the gesture identification module identifies determines plurality of moves including entering in to state 3020, state 3030 while evaluating plurality of conditions as set forth) and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules (Para [0034], wherein if the initiation of a second contact D2 is detected in the Tracking one state, the gesture identification module enters the Tracking Two state 3060), recognize multi-touch gestures (Para [0039], wherein in the Tracking Two state, the gesture identification module identifies and determines plurality of moves including entering states 3070 and 3080).

Regarding Claim 2, Hillis discloses each of the plurality of state-machine modules including an idle-state module (Fig. 3, Idle-state 3000 being as part of the one and multi-touch state modules) and a plurality of gesture-interpretation-state modules (Fig. 3, states 3010, 3020, 3060, 3070, etc being different interpretation states of the two modules), the idle-state module being entered at the start of operation (Fig. 3, wherein the interpretation process starts with idle-state 3000), wherein the and being able to be returned to from at least some of the gesture-interpretation-state modules (Fig. 3, wherein idle-state 3000 is returned to from at least module 3020).

Regarding claim 3, Hillis discloses each of the plurality of gesture-interpretation-state modules for each of the plurality of one-touch state-machine modules including a touch-state module (Para [0034], wherein the Tracking-One modules e.g. 3020 , 3030,

Art Unit: 2624

etc as the one-touch state-machine modules, are each inherently a touch-state module , which the process moves to, based on the ongoing status of the originated one-touch state 3010) and the idle-module passing, responsive to a touch, control to the touch-state module (Para [0033], wherein upon initiation first contact C1, the gesture identification module enters the Tracking One state (3010))

Regarding claim 4, Hillis discloses wherein, the plurality of gesture-interpretation-state modules for a multi-touch state-machine module including at least one multi-touch state-module (Fig. 3, module 3060 being the multi-touch module of all the Track-two modules as discussed in claim 1 above) operable to process multiple simultaneous touches based on output from multiple of the plurality of one-touch state-machine modules (Para [0034], wherein in the Tracking One state, considering only one contact or touch, upon monitoring different states by each of the modules 3010, 3020, 3030, C1, U1, D2, if the initiation of a second contact D2 is detected, the gesture identification module enters the Tracking Two state 3060 which processes the multiple simultaneous touches or simultaneous one touches), the gesture- processing logic being operable to pass control to the appropriate multi-touch state-machine module based on the number of simultaneous touches defined by the time series of data at the time (Para [0039], wherein once in Track-two touch state, the process continues from the first multi-touch state module 3060 to other modules 3070, 3080, etc. for a given activity).

Regarding claim 8, Hillis discloses the plurality of gesture-interpretation-state modules including a plurality of state modules operable to recognize motion-related gestures derived from one or more moving touches (Para [0030] and Fig. 3, wherein the

Art Unit: 2624

presence of motion of the first and second contacts is termed M1 and M2, respectively, as part of the one and multi-touch states of tracking-one and Tracking-two process).

Regarding claim 12, Hillis discloses a method comprising: receiving times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches (Para [0028], wherein the contact information is updated over time at discrete, regular intervals and the touch sensor provides contact information for up to two contacts at each update); analyzing the time series of data to distinguish one or more gesture inputs from the time series of data (Para [0028], wherein the contact information is updated over time at discrete, regular intervals) using gesture- recognition code comprising a plurality of state-machine modules (Fig. 3, modules 3000, 3010, 3020, etc), the plurality of state- machine modules comprising a plurality of one-touch state-machine modules (Fig. 3, Modules 3000, 3020, 3030 are the linked modules supporting on-touch module 3010) and one or more multi-touch state-machine modules (Fig. 3, Modules 3070, 3080 and 3000 are linked modules supporting the multi-touch module 3060), each one of the plurality of one-touch state- machine modules being operable to recognize one-touch gestures (Para [0033] and [0034], wherein in the Tracking One state, the gesture identification module identifies determines plurality of moves including entering in to state 3020, state 3030 while evaluating plurality of conditions as set forth) and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules (Para [0034], wherein if the initiation of a second contact D2 is detected in the Tracking one state, the gesture identification module enters the Tracking

Art Unit: 2624

Two state 3060), recognize multi-touch gestures(Para [0039], wherein in the Tracking Two state, the gesture identification module identifies and determines plurality of moves including entering states 3070 and 3080); and outputting the recognized multi-touch gestures (Para [0024] and Fig. 2, wherein the gesture identification module identifies a user gesture and issues an associated display command 1500 as output to a display control module 2000).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillis in view of US 2008/0165141 to Christie.

Regarding claim 5, Hillis does not explicitly disclose wherein there is a multi-touch state-machine module for each of two simultaneous touches and three simultaneous touches (Para [0109], wherein the gestural touch can be configured to operate whether two, three, four or more fingers are touching, and even if the numbers change during the gesture, i.e., only need a minimum of two fingers at any time during the gesture). Hillis and Christie are combinable because they both teach gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine a multi-touch state-machine module for

Art Unit: 2624

each of two simultaneous touches and three simultaneous touches of Christie's device with Hillis' in order to organize the gestures by the number of fingers touching and relate each event to a appropriate gesture (Para [0113]).

Regarding claim 9, Hillis discloses the gesture-recognition code being configured to recognize gestures having up to N simultaneous touches, and comprising N one-touch state-machines modules operable to recognize only one-touch gestures and N-1 multi-touch state-machine modules each operable to recognize only n-touch gestures, wherein $n=2$ to N (Para [0028], wherein the contact information is updated over time at discrete, regular intervals, and wherein the touch sensor provides contact information for up to two contacts at each update, and the gesture identification module identifies gestures based on the initiation, termination, position, and motion of the up to two contacts). Hillis does not explicitly disclose the N simultaneous touches being at least 2. Christie disclose two simultaneous touches (Para [0109], wherein the gestural touch can be configured to operate whether two, three, four or more fingers are touching, and even if the numbers change during the gesture, i.e., only need a minimum of two fingers at any time during the gesture). Hillis and Christie are combinable because they both teach gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine a multi-touch state-machine module for each of two simultaneous touches and three simultaneous touches of Christie's device with Hillis' in order to organize the gestures by the number of fingers touching and relate each event to a appropriate gesture (Para [0113]).

Art Unit: 2624

5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillis in view of US 2007/0291009 A1 to Wright et al (hereinafter 'Wright').

Regarding claim 10, Hillis does not explicitly disclose the position processing logic and the gesture-processing logic are accommodated in, and run on, a single integrated circuit. Wright discloses wherein the position-processing logic and the gesture-processing logic are accommodated in, and running on, a single integrated circuit (Para [0052] and [0115], wherein capacitance sensor 201 may be integrated into the IC of the processing device 210, or alternatively, in a separate IC). Hillis and wright are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the position processing unit and the gesture processing unit are accommodated in, and run on, a single integrated circuit, of Wright's device with Hillis' in order for a behavioral level code, describing capacitance sensor, or portions thereof, to be stored in a machine-accessible medium (Para [0056]).

Regarding claim 11, Hillis does not explicitly disclose the position-processing logic being accommodated in, and running on, a first integrated circuit, and the gesture-processing logic being accommodated in, and running on, one or more separate integrated circuits. Wright discloses wherein the position-processing logic is accommodated in, and running on, a first integrated circuit, and the gesture-processing logic is accommodated in, and running on, one or more separate integrated circuits (Para [0052] and [0115], wherein the capacitance sensor 201 may be integrated into the IC of the processing device 210, or alternatively, integrated in a separate IC). Hillis and

Art Unit: 2624

wright are combinable because they both disclose gesture recognition devices.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the position processing unit is accommodated in, and runs on, a first integrated circuit, and the gesture processing unit is accommodated in, and runs on, one or more separate integrated circuits, of Wright's device with Hillis' in order for a behavioral level code, describing capacitance sensor, or portions thereof, to be stored in a machine-accessible medium (Para [0056]).

6. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright in view of Hillis.

Regarding claim 13, Wright discloses a single integrated circuit (Para [0052] and Fig. 2, wherein Processing device 210 may reside on an integrated circuit (IC)) comprising: a memory element (Para [0040], wherein Processing device 210 include memory); a processor (Fig. 2, Processing core 202) operable to execute logic stored in one or more tangible media (Para [0040], wherein RAM 205 may be static RAM (SRAM), and program flash 204 may be a non-volatile storage, which may be used to store control algorithms executable by the processing core 202), the logic, when executed by the processor, operable to: receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches (Para [0115], wherein gesture detection block 605 is configured to detect gestures performed by the conductive object on the sensing device 601, such as tap, double tap, and drag gestures, and wherein the gesture detection block 605 distinguishes between multiple gestures using fewer than three time intervals); analyze the time series of data

Art Unit: 2624

to distinguish one or more gesture inputs from the time series of data using gesture-recognition code (Para [0117], wherein using the first and second timeouts 613 and 614, gesture processing block 610 distinguishes a particular gesture from among multiple-gestures at the end of the time interval). Wright does not explicitly disclose analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and output the recognized multi-touch gestures. Hillis discloses analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules (Fig. 3, modules 3000, 3010, 3020, etc), the plurality of state-machine modules comprising a plurality of one-touch state-machine modules (Fig. 3, Modules 3000, 3020, 3030 are the linked modules supporting on-touch module 3010) and one or more multi-touch state-machine modules (Fig. 3, Modules 3070, 3080 and 3000 are linked modules supporting the multi-touch module 3060), each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures (Para [0033] and [0034], wherein in the Tracking One state, the gesture identification module identifies determines plurality of moves including

Art Unit: 2624

entering in to state 3020, state 3030 while evaluating plurality of conditions as set forth) and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules (Para [0034], wherein if the initiation of a second contact D2 is detected in the Tracking one state, the gesture identification module enters the Tracking Two state 3060), recognize multi-touch gestures (Para [0039], wherein in the Tracking Two state, the gesture identification module identifies and determines plurality of moves including entering states 3070 and 3080); and output the recognized multi-touch gestures (Para [0024] and Fig. 2, wherein the gesture identification module identifies a user gesture and issues an associated display command 1500 as output to a display control module 2000). Wright and Hillis are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine analyzing the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and output the recognized multi-touch gestures of Hillis' circuit with Wright's in order to more

Art Unit: 2624

effectively identifying user gestures that more accurately reflects user intent, thereby facilitating more natural interaction with the display. (Para [0023]).

Regarding claim 14, Wright discloses a computer (Para [0058], wherein In one embodiment, electronic system 200 may be used in a notebook computer) comprising: a memory element (Para [0040], wherein Processing device 210 include memory); a processor (Fig. 2, Processing core 202) operable to execute logic stored in one or more tangible media (Para [0040], wherein RAM 205 may be static RAM (SRAM), and program flash 204 may be a non-volatile storage, which may be used to store control algorithms executable by the processing core 202), the logic, when executed by the processor, operable to: receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches (Para [0115], wherein gesture detection block 605 is configured to detect gestures performed by the conductive object on the sensing device 601, such as tap, double tap, and drag gestures, and wherein the gesture detection block 605 distinguishes between multiple gestures using fewer than three time intervals); analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code (Para [0117], wherein using the first and second timeouts 613 and 614, gesture processing block 610 distinguishes a particular gesture from among multiple-gestures at the end of the time interval). Wright does not explicitly disclose analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch

Art Unit: 2624

state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and output the recognized multi-touch gestures. Hillis discloses analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules (Fig. 3, modules 3000, 3010, 3020, etc), the plurality of state-machine modules comprising a plurality of one-touch state-machine modules (Fig. 3, Modules 3000, 3020, 3030 are the linked modules supporting on-touch module 3010) and one or more multi-touch state-machine modules Fig. 3, Modules 3070, 3080 and 3000 are linked modules supporting the multi-touch module 3060), each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures (Para [0033] and [0034], wherein in the Tracking One state, the gesture identification module identifies determines plurality of moves including entering in to state 3020, state 3030 while evaluating plurality of conditions as set forth) and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules (Para [0034], wherein if the initiation of a second contact D2 is detected in the Tracking one state, the gesture identification module enters the Tracking Two state 3060), recognize multi-touch gestures (Para [0039], wherein in the Tracking Two state, the gesture identification module identifies and determines plurality of moves including

Art Unit: 2624

entering states 3070 and 3080); and output the recognized multi-touch gestures (Para [0024] and Fig. 2, wherein the gesture identification module identifies a user gesture and issues an associated display command 1500 as output to a display control module 2000). Wright and Hillis are combinable because they both disclose gesture recognition devices. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine analyzing the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and output the recognized multi-touch gestures of Hillis' device with Wright's in order to more efficaciously identifying user gestures that more accurately reflects user intent, thereby facilitating more natural interaction with the display (Para [0023]).

Allowable Subject Matter

7. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the prior art or the prior art of record

Art Unit: 2624

specifically, Hillis, Wright and US 2008/0165141 A1 to Christie, does not disclose the plurality of gesture-interpretation-state modules *for each of the plurality of one-touch state-machine modules including a press-state module* to which control can pass from a touch-state module *if a touch of a duration longer than a threshold duration is sensed in touch-state module*, of claim 6 combined with other features and elements of the claim. Claim 7 depends from an allowable base claim and would be thus allowable itself.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Other Prior Art Cited

9. The US Patent Publication 2008/0309626; US Patent Publication 20070291007; and US 2007/0097096 are related to Applicant's invention as claimed.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERVIN NAKHJAVAN whose telephone number is (571)272-5731. The examiner can normally be reached on 8:30-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Repko can be reached on (571)272-8624. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON M REPKO/
Supervisory Patent Examiner, Art Unit 2624

/Shervin Nakhjavan/
Examiner, Art Unit 2624

Application/Control Number: 12/254,043
Art Unit: 2624

Page 19

Notice of References Cited	Application/Control No. 12/254,043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624	Page 1 of 1

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*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-2007/0097096 A1	05-2007	Rosenberg, Louis B.	345/173
*	B US-2007/0291007 A1	12-2007	Forlines et al.	345/173
*	C US-2008/0165141 A1	07-2008	Christie, Greg	345/173
*	D US-2008/0309626 A1	12-2008	Westerman et al.	345/173
	E US-			
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	H US-			
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<i>Index of Claims</i> 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	01/14/2012	07/04/2012						
	1	✓	✓						
	2	✓	✓						
	3	✓	✓						
	4	✓	✓						
	5	✓	✓						
	6	✓	○						
	7	✓	○						
	8	✓	✓						
	9	✓	✓						
	10	✓	✓						
	11	✓	✓						
	12	✓	✓						
	13	✓	✓						
	14	✓	✓						

gesture finger press state



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	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

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Class	Subclass	Date	Examiner
382	312, 314, 315	1/12/12	SN
348	14.03	1/12/12	SN
715	700, 719	1/12/12	SN
345	157, 173-177, 181	1/12/12	SN
Search	Update	7/3/12	SN

SEARCH NOTES			
Search Notes	Date	Examiner	
EAST (USPAT, PGPUB)	1/12 - 1/14/12	SN	
EAST (USPAT, PGPUB)	7/3/12	SN	
Inventor Search	7/4/12	SN	
Google Scholar	7/4/12	SN	

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382	315	1/12/12	SN

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Request for Continued Examination (RCE) Transmittal

Address to:
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P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	12/254,043
Filing Date	October 20, 2008
First Named Inventor	Alan Bowens
Art Unit	2666 confirmation 1663
Examiner Name	Shervin K. Nakhjavan
Attorney Docket Number	080900.0181

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- a. Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. Other _____
- b. Enclosed
- i. Amendment/Reply
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- iii. Information Disclosure Statement (IDS)
- iv. Other _____

2. Miscellaneous

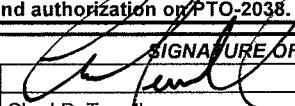
- a. Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. Other _____

3. Fees

- The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 02-0384.
- a. RCE fee required under 37 CFR 1.17(e)
- ii. Extension of time fee (37 CFR 1.136 and 1.17)
- iii. Other _____
- b. Check in the amount of \$ _____ enclosed
- c. Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature		Date	November 19, 2012
Name (Print/Type)	Chad D. Terrell	Registration No.	52,279

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature		Date	
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Alan Bowens
Application No: 12/254,043
Filed: October 20, 2008
Art Unit: 2666
Confirmation No.: 1663
Examiner: Shervin K. Nakhjavan
Title: *Gesture Recognition*

MAIL STOP RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Response Accompanying Request for Continued Examination (RCE)

In response to the Final Office Action dated July 19, 2012, Applicant respectfully requests the Examiner to reconsider the rejections of the claims in view of the following amendments and remarks, submitted with the filing of an RCE. Please amend the Application as follows.

In the Claims

1. (Currently amended) A touch sensor device comprising:
 - a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area;
 - a processor operable to execute position-processing logic stored in one or more tangible media, the position-processing logic, when executed by the processor, ~~configure~~configured to:
 - calculate positions of interactions with the sensitive area from an analysis of the sense signals; and
 - output a times series of data indicative of the interaction positions on the sensor, the interaction positions corresponding to touches; and
 - a processor operable to execute gesture-processing logic stored in one or more tangible media, the gesture-processing logic, when executed by the processor, configured to analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures.
2. (Previously presented) The device of claim 1, each of the plurality of state-machine modules including an idle-state module and a plurality of gesture-interpretation-state modules, the idle-state module being entered at the start of operation and being able to be returned to from at least some of the gesture-interpretation-state modules.

3. (Previously presented) The device of claim 2, each of the plurality of gesture-interpretation-state modules for each of the plurality of one-touch state-machine modules including a touch-state module and the idle-state module passing, responsive to a touch, control to the touch-state module.

4. (Currently amended) The device of claim 1, the plurality of gesture-interpretation-state modules for a multi-touch state-machine module including at least one multi-touch state-module operable to process multiple simultaneous touches based on output from multiple of the plurality of one-touch state-machine modules, the gesture-processing logic being operable to pass control to the appropriate multi-touch state-machine module based on the number of simultaneous touches defined by the time series of data at the time.

5. (Previously presented) The device of claim 4, wherein there is a multi-touch state-machine module for each of two simultaneous touches and three simultaneous touches.

6. (Currently amended) The device of claim 3, the plurality of gesture-interpretation-state modules for each of the plurality of one-touch state-machine modules including a press-state module to which control can pass from a touch-state module if a touch of a duration longer than a threshold duration is sensed in the touch-state module.

7. (Previously presented) The device of claim 6, the press-state being a super-state comprising multiple sub-states to distinguish between different durations of press.

8. (Previously presented) The device of claim 2, the plurality of gesture-interpretation-state modules including a plurality of state modules operable to recognize motion-related gestures derived from one or more moving touches.

9. (Previously presented) The device of claim 1, the gesture-recognition code being configured to recognize gestures having up to N simultaneous touches, N being at least 2, and comprising N one-touch state-machine modules operable to recognize only one-touch gestures and $N-1$ multi-touch state-machine modules each operable to recognize only n -touch gestures, wherein $n=2$ to N .

10. (Previously presented) The device of claim 1, the position-processing logic and the gesture-processing logic being accommodated in, and run on, a single integrated circuit.

11. (Previously presented) The device of claim 1, the position-processing logic being accommodated in, and running on, a first integrated circuit and the gesture-processing logic being accommodated in, and running on, one or more separate integrated circuits.

12. (Previously presented) A method comprising:
receiving a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
analyzing the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each one of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures; and
outputting the recognized multi-touch gestures.

13. (Previously presented) A single integrated circuit comprising:
a memory element;

a processor operable to execute logic stored in one or more tangible media, the logic,
when executed by the processor, operable to:

receive a times series of data indicative of the interaction positions on a
sensor, the interaction positions corresponding to touches;

analyze the time series of data to distinguish one or more gesture inputs from
the time series of data using gesture-recognition code comprising a plurality of state-machine
modules, the plurality of state-machine modules comprising a plurality of one-touch state-
machine modules and one or more multi-touch state-machine modules, each one of the
plurality of one-touch state-machine modules being operable to recognize one-touch gestures
and each of the one or more multi-touch state-machine modules being operable to, based on
outputs from one or more of the plurality of one-touch state-machine modules, recognize
multi-touch gestures; and

output the recognized multi-touch gestures.

14. (Currently amended) A computer comprising:
- a memory element;
 - a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:
 - receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
 - analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
 - a first plurality of one-touch state-machine module modules, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
 - a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
 - ~~a one or more multi-touch state-machine module modules, each one of the plurality of one touch state machine modules being operable to recognize one touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on at least the first and second outputs from one or more of the plurality of one touch state machine modules, recognize at least one multi-touch gesture gestures;~~ and
 - output the recognized multi-touch gestures.

Remarks

This Application has been reviewed carefully in light of the Final Office Action dated July 19, 2012. Although Applicant believes all claims are allowable without amendment, to advance prosecution Applicant has made clarifying amendments to Claim 14. Applicant has amended Claims 1, 4 and 6 to address clerical errors. Applicant does not admit that these amendments are narrowing or necessary for patentability, or that these amendments are made in response to or necessitated by any cited reference or combination of references. Applicant respectfully requests reconsideration and allowance of all pending claims.

Request for Interview

If the Examiner intends to issue a new Office Action in response to Applicant's present submission, in the interest of compact and efficient prosecution, Applicant respectfully requests that the Examiner contact Applicant's attorney prior to issuing the new Office Action to discuss a possible resolution to any outstanding issues. Applicant would appreciate such an opportunity to discuss this Application with the Examiner.

Independent Claims 1 and 12 and their Dependent Claims are Allowable.

The Final Office Action rejects Claims 1-4, 8, and 12 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Application Publication No. 2007/0046643 filed by Hillis et al. ("*Hillis*"). Applicant traverses these rejections and discusses independent Claim 1 as an example.

At a minimum, the cited portions of *Hillis* do not disclose, teach, or suggest "a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures," as recited in Claim 1. The cited portions of *Hillis* generally relate to a "touch sensor" with a "touch sensitive surface" and a "gesture identification module" that "identifies a user gesture." *Hillis* at ¶ 0024. In particular, the

cited portions appear to disclose that “the behavior of the gesture identification module is best considered as a series of transitions between a set of possible states.” *Hillis* at ¶ 0033 (emphasis added).

In response to arguments in Applicant's previous Response, the Final Office Action cites "Fig. 3, modules 3000, 3010, 3020, . . . 3060, 3070, 3080, etc." as purportedly disclosing "a plurality of state-machine modules" and cites paragraphs 0033, 0034, and 0039 as purportedly disclosing "processing functions of each of the modules of the one-touch state machines [and] the functional steps of multi-touch modules once the processing enters into multitouch or Track-two stage 3070." Final Office Action at 4. *Hillis* describes examples of these cited elements as follows:

[0032] FIG. 3 shows a schematic representation of the gesture identification module behavior. The behavior of the gesture identification module is best considered as a series of transitions between a set of possible states. Upon receipt of updated contact information from the touch sensor, the gesture identification module determines, based on the initiation, termination, and motion of the contacts, whether it transitions into another state or remains in the current state. Depending on the current state, the gesture identification module may also identify a user gesture and send an appropriate display command to the display control module.

[0033] Upon initialization, the gesture identification module enters the Idle state (3000). In the Idle state, the gesture identification module identifies no gesture and issues no display command to the display control module. The gesture identification module remains in the Idle state until the initiation D1 of a first contact C1. Upon initiation D1 of a first contact C1, the gesture identification module enters the Tracking One state (3010).

[0034] In the Tracking One state, the gesture identification module identifies no gesture and issues no display command to the display control module. However, the gesture identification module continues to monitor the contact C1. If the first contact is terminated U1, the gesture identification module enters the Clicking state (3020). If motion M1 of the first contact is detected, the gesture identification module enters the Awaiting Click state (3030). If the initiation of a second contact D2 is detected, the gesture identification module enters the Tracking Two state (3060). Otherwise, the gesture identification module remains in the Tracking One state.

...

[0039] In the Tracking Two state, the gesture identification module identifies no gesture and issues no display command to the display control module.

However, the gesture identification module continues to monitor the behavior of the first and second contacts. If either the first or second contact is terminated, U1 or U2, the gesture identification module enters the Was Tracking Two state. Otherwise, the gesture identification module determines if the motions of the first and second contact points M1 and M2 are aligned or opposed. If the contact points exhibit Opposed Motion, the gesture identification module enters the Zooming state (3070). If the contact points exhibit Aligned Motion, the gesture identification module enters the Panning state. Aligned Motion thus results in two contacts being treated as one in that the behavior of the second contact is ignored in the Panning state. This greatly alleviates the problems encountered when a user attempts to gestures with his entire hand. As noted previously, a user often believes he is contacting the touch sensor at a single, hand sized region but, in fact, establishes two separate contact points as determined by the touch sensor.

Hillis at ¶ 0033-0034, 0039 (emphasis added). Thus, at best, *Hillis* describes cited elements 3000, 3010, 3020, and other similar elements as being individual states within a gesture identification module, not as being state machines, let alone the particular state machines recited in Claim 1. However, nowhere do the cited portions of *Hillis* disclose, teach, or suggest “a plurality of state-machine modules,” let alone “the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures,” as recited in Claim 1.

For at least these reasons, Applicant respectfully requests reconsideration and allowance of independent Claim 1 and its dependent claims. For at least certain analogous reasons, Applicant respectfully requests reconsideration and allowance of independent Claim 12.

The Separately-Rejected Dependent Claims are Allowable.

The Final Office Action also rejects Claims 5 and 9 under 35 U.S.C. § 103(a) as being unpatentable over *Hillis* in view of U.S. Patent Application Publication No. 2008/0165141 filed by Christie (“*Christie*”). The Final Office Action also rejects Claims 10 and 11 under

35 U.S.C. § 103(a) as being unpatentable over *Hillis* in view of U.S. Patent Application Publication No. 2007/0291009 filed by Wright et al. ("*Wright*").

Dependent Claims 5 and 9-11 depend from independent Claim 1, which Applicant has shown above to be allowable. The cited portions of the additional references do not appear to make up for at least the above-discussed deficiencies. Accordingly, these dependent claims are allowable over the proposed combinations at least because they depend on an allowable independent claim. In addition, the separately-rejected dependent claims recite further patentable distinctions over the proposed combinations. To avoid burdening the record and in view of the clear allowability of independent Claim 1, Applicant does not discuss these distinctions in this Response. However, Applicant reserves the right to discuss these distinctions in a future submission, if appropriate. Moreover, Applicant does not admit that the proposed combinations of references are possible or that the Final Office Action has provided an adequate reason for combining or modifying the references in the manner proposed by the Final Office Action.

For at least these reasons, Applicant respectfully requests reconsideration and allowance of dependent Claims 5 and 9-11.

Independent Claim 13 is Allowable.

The Final Office Action also rejects Claim 13 under 35 U.S.C. § 103(a) as being unpatentable over *Wright* in view of *Hillis*.

At a minimum, the proposed *Wright-Hillis* combination does not disclose, teach, or suggest "a plurality of state-machine modules, the plurality of state-machine modules comprising a plurality of one-touch state-machine modules and one or more multi-touch state-machine modules, each of the plurality of one-touch state-machine modules being operable to recognize one-touch gestures and each of the one or more multi-touch state-machine modules being operable to, based on outputs from one or more of the plurality of one-touch state-machine modules, recognize multi-touch gestures," as recited in Claim 13.

As purportedly disclosing these elements, the Final Office Action relies exclusively on *Hillis*. However, as discussed above with reference to Claim 1, nowhere do the cited portions of *Hillis* disclose, teach, or suggest these elements.

Moreover, Applicant does not admit that the proposed combination of references is possible or that the Final Office Action has provided an adequate reason for combining or modifying the references in the manner proposed by the Final Office Action.

For at least these reasons, Applicant respectfully requests reconsideration and allowance of independent Claims 13.

Independent Claim 14 is Allowable.

The Final Office Action also rejects Claim 14 under 35 U.S.C. § 103(a) as being unpatentable over *Wright* in view of *Hillis*.

At a minimum, the proposed *Wright-Hillis* combination does not disclose, teach, or suggest the following elements recited in Claim 14:

a plurality of state-machine modules, the plurality of state-machine modules comprising:

a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;

a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and

a multi-touch state-machine module, the multi-touch state-machine module being operable to, based on at least the first and second outputs, recognize at least one multi-touch gesture.

As purportedly disclosing these elements (prior to the amendments presented in this Response), the Final Office Action relies exclusively on *Hillis*. In particular, the Office Action relies on "Fig. 3, modules 3000, 3010, 3020 etc." However, as discussed above with reference to Claim 1, nowhere do the cited portions of *Hillis* disclose, teach, or suggest "a plurality of state-machine modules," as recited in amended Claim 14, let alone the following

limitations of amended Claim 14:

a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;

a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and

a multi-touch state-machine modules, the multi-touch state-machine module being operable to, based on at least the first and second outputs, recognize at least one multi-touch gesture.

Moreover, Applicant does not admit that the proposed combination of references is possible or that the Final Office Action has provided an adequate reason for combining or modifying the references in the manner proposed by the Final Office Action.

For at least these reasons, Applicant respectfully requests reconsideration and allowance of independent Claim 14.

Allowable Subject Matter

Applicant appreciates the Examiner's indication that Claims 6 and 7 would be allowable if rewritten in independent form and including all of the limitations of the base claim and any intervening claims. However, in view of Applicant's belief that Applicant's independent claims are allowable, Applicant has chosen not to rewrite Claims 6 and 7 in independent form at this time.

Elements Recited in the Claims Should Not Be Ignored.

The Final Office Action states that "any prior art method, integrated circuit, and computer will meet the limitations of claims 12-14, respectively." Final Office Action at 3. Applicant respectfully disagrees with this statement, which suggests that virtually every element recited in the body of each of Claims 12-14 should be completely ignored. "To anticipate a claim, the reference must teach every element of the claim." M.P.E.P. 2131. *See also Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.");

see also Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (“The identical invention must be shown in as complete detail as is contained in the ... claim.”). Applicant respectfully submits that all limitations should be considered.

Request for Evidentiary Support

Should a rejection based on any of the above-asserted rejections be maintained, Applicant respectfully requests appropriate evidentiary support. Additionally, if the Examiner is relying upon “common knowledge” or “well known” principles to establish the rejection, Applicant requests that a reference be provided in support of this position pursuant to M.P.E.P. § 2144.03. Furthermore, to the extent that the Examiner maintains any rejection based on an “Official Notice” or other information within the Examiner’s personal knowledge, Applicant respectfully requests that the Examiner cite a reference as documentary evidence in support of this position or provide an affidavit in accordance with M.P.E.P. § 2144.03 and 37 C.F.R. 1.104(d)(2).

No Waiver

Applicant’s arguments and amendments are without prejudice or disclaimer. Additionally, Applicant has merely discussed example distinctions from the cited references. Other distinctions may exist, and Applicant reserves the right to discuss these additional distinctions in a later submission, if appropriate. By not responding to additional statements made by the Final Office Action, Applicant does not acquiesce to those additional statements.

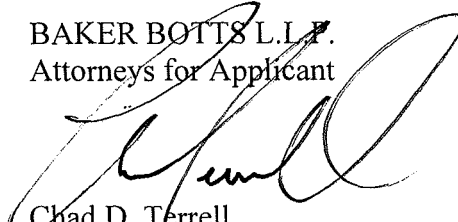
Conclusion

Applicant has made an earnest attempt to place this case in condition for allowance. For at least the foregoing reasons, Applicant respectfully requests full allowance of all pending claims.

If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Chad D. Terrell, Attorney for Applicant, at the Examiner's convenience at (214) 953-6813..

As indicated on the accompanying RCE Transmittal form, the Commissioner is authorized to charge the amounts of \$930.00 (for the RCE fee) and \$150.00 (for the one-month extension-of-time fee) to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P. Although Applicant believes no other fees are due, the Commissioner is authorized to charge any necessary additional fees and credit any overpayments to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

Respectfully submitted,
BAKER BOTTS L.L.P.
Attorneys for Applicant



Chad D. Terrell
Reg. No. 52,279

Date: November 19, 2012

CORRESPONDENCE ADDRESS:
at Customer No. **12323**

Electronic Patent Application Fee Transmittal

Application Number:	12254043
Filing Date:	20-Oct-2008
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Filer:	David Gerald Wille/Sue LeRoy
Attorney Docket Number:	080900.0181

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	1251	1	150	150

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for continued examination	1801	1	930	930
Total in USD (\$)				1080

Electronic Acknowledgement Receipt

EFS ID:	14269891
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	Gesture Recognition
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	12323
Filer:	David Gerald Wille/Sue LeRoy
Filer Authorized By:	David Gerald Wille
Attorney Docket Number:	080900.0181
Receipt Date:	19-NOV-2012
Filing Date:	20-OCT-2008
Time Stamp:	18:55:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$1080
RAM confirmation Number	7391
Deposit Account	020384
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	RCEtrans.PDF	80883 f4b47750fee5efada1b33a05a3977d6274198c94	no	1

Warnings:

This is not a USPTO supplied RCE SB30 form.

Information:

2		atmel0181RespRce.PDF	698943 666ae3e03b6cf386c0eceedfb85e0eb00673106b	yes	14
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Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment Submitted/Entered with Filing of CPA/RCE	1	1
Claims	2	6
Applicant Arguments/Remarks Made in an Amendment	7	14

Warnings:

Information:

3	Fee Worksheet (SB06)	fee-info.pdf	31873 52a87a6387c4dbf0ec292c9be58d845054dfe055	no	2
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Warnings:

Information:

Total Files Size (in bytes):			811699		
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/254,043	Filing Date 10/20/2008	<input type="checkbox"/> To be Mailed
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APPLICATION AS FILED – PART I			OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	SMALL ENTITY <input type="checkbox"/>	OR			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)
<input type="checkbox"/> BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A			N/A	
<input type="checkbox"/> SEARCH FEE <small>(37 CFR 1.16(k), (j), or (m))</small>	N/A	N/A	N/A			N/A	
<input type="checkbox"/> EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A			N/A	
TOTAL CLAIMS <small>(37 CFR 1.16(j))</small>	minus 20 =	*	X \$ =		OR	X \$ =	
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	minus 3 =	*	X \$ =			X \$ =	
<input type="checkbox"/> APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT <small>(37 CFR 1.16(j))</small>							
			TOTAL			TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II					OTHER THAN SMALL ENTITY				
	(Column 1)	(Column 2)	(Column 3)						
AMENDMENT	11/19/2012	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total <small>(37 CFR 1.16(i))</small>	* 14	Minus ** 20	= 0	X \$ =		OR	X \$62=	0
	Independent <small>(37 CFR 1.16(h))</small>	* 3	Minus ***3	= 0	X \$ =		OR	X \$250=	0
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

	(Column 1)	(Column 2)	(Column 3)						
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus **	=	X \$ =		OR	X \$ =	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus ***	=	X \$ =		OR	X \$ =	
	<input type="checkbox"/> Application Size Fee <small>(37 CFR 1.16(s))</small>								
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <small>(37 CFR 1.16(j))</small>						OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
 /KIMBERLY PANNELL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Notice of Allowability

Application No.

12/254,043

Examiner

SHERVIN NAKHJAVAN

Applicant(s)

BOWENS, ALAN

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. This communication is responsive to amendment received 11/19/12 and Interview on 12/15/12.
- 2. An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 3. The allowed claim(s) is/are 1-14. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
- 4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has **THREE MONTHS FROM THE "MAILING DATE"** of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in **ABANDONMENT** of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- 5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1. Notice of References Cited (PTO-892)
- 2. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
- 3. Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 4. Interview Summary (PTO-413), Paper No./Mail Date _____.
- 5. Examiner's Amendment/Comment
- 6. Examiner's Statement of Reasons for Allowance
- 7. Other _____.

/CLAIRE X WANG/
Primary Examiner, Art Unit 2666



NOTICE OF ALLOWANCE AND FEE(S) DUE

12323 7590 12/24/2012
Baker Botts L.L.P.
2001 Ross Avenue, 6th Floor
Dallas, TX 75201

EXAMINER

NAKHJAVAN, SHERVIN K

ART UNIT PAPER NUMBER

2666

DATE MAILED: 12/24/2012

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

12/254,043 10/20/2008 Alan Bowens 080900.0181 1663

TITLE OF INVENTION: GESTURE RECOGNITION

Table with 7 columns: APPLN. TYPE, SMALL ENTITY, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

nonprovisional NO \$1770 \$300 \$0 \$2070 03/25/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

12323 7590 12/24/2012
Baker Botts L.L.P.
 2001 Ross Avenue, 6th Floor
 Dallas, TX 75201

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/254,043	10/20/2008	Alan Bowens	080900.0181	1663

TITLE OF INVENTION: GESTURE RECOGNITION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1770	\$300	\$0	\$2070	03/25/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
NAKHJAVAN, SHERVIN K	2666	345-173000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____</p> <p>(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____</p> <p>3 _____</p>
---	---

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

<p>4a. The following fee(s) are submitted:</p> <p><input type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p>
---	--

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
12/254,043 10/20/2008 Alan Bowens 080900.0181 1663

12323 7590 12/24/2012
Baker Botts L.L.P.
2001 Ross Avenue, 6th Floor
Dallas, TX 75201

EXAMINER

NAKHJAVAN, SHERVIN K

ART UNIT PAPER NUMBER

2666

DATE MAILED: 12/24/2012

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 736 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 736 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Examiner-Initiated Interview Summary	Application No. 12/254,043	Applicant(s) BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Shervin Nakhjavan/Examiner. (3)_____.
- (2) Chad Terrell/Applicant's Representative. (4)_____.

Date of Interview: 05 December 2012.

Type: Telephonic Video Conference
 Personal [copy given to: applicant applicant's representative]

Exhibit shown or demonstration conducted: Yes No.
If Yes, brief description: _____.

Issues Discussed 101 112 102 103 Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 12-14.

Identification of prior art discussed: US 2007/0176906 A1 and US 5,825,352 A, US 2007/0046643 A1.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Examiner contacted the Applicant's Representative and in order to expedite the prosecution of the Application suggested plurality of alternative language to overcome the rejections and possible future rejections by the prior art of record above, and further proceed with allowing of the Application. Specifically, Examiner first, proposed to add a language to the independent claims 1 and 12-1 to render the recited "one-touch" state-machines and the "multi-touch" state-machine" of the claims to be distinct from each other and not being of combination of one another. Examiner also added that the claims further need other modifications and made a second proposal to include the language "wherein the multi-touch state-machine recognizes simultaneous touches". Applicant's Representative agreed with the first proposal however, disagreed with the "simultaneous" language of the second proposal and further submitted that he will seek an alternative language and will follow up with another interview.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Attachment

/Shervin Nakhjavan/
Examiner, Art Unit 2666

Applicant-Initiated Interview Summary	Application No. 12/254,043	Applicant(s) BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Shervin Nakhjavan/Examiner. (3) Michell Ahmadian/Applicant's Representative.
(2) Chad Terrell/Applicant's Representative. (4) _____.

Date of Interview: 14 December 2012.

Type: Telephonic Video Conference
 Personal [copy given to: applicant applicant's representative]

Exhibit shown or demonstration conducted: Yes No.
If Yes, brief description: _____.

Issues Discussed 101 112 102 103 Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 12-14.

Identification of prior art discussed: None.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant's Representatives contacted the Examiner and followed up with interview of 12/5/12. Applicant's Representative (Chad Terrell) in additon to what was agreed in the prior interview, suggested in order to further limit the claim in view of the prior art and the prior art of record, to add the language to ender the meaning wherein the multi-touch state-machine directly receives each of the outputs from the first one-touch state-machine and the second one-touch state-machine. Examiner agreed and based on the update search and the prior art of record submitted that the changes would overcome the teachings of the prior art. Examiner, based on the draft modifications of the claims by the Representative, will make the changes to the claims by an Examiner's amendment as agreed by the Applicant's Representative.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Attachment

/Shervin Nakhjavan/
Examiner, Art Unit 2666

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chad Terrell (Reg. 52,279) on 12/14/12.

The application has been amended as follows:

Please replace the claims with the attached claim amendments.

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: Claims 1-14 are allowed because the prior art or the prior art of record specifically, US 2007/0046643 A1 to Hillis et al; US 2007/0176906 A1 to WARREN; and US 5,825,352 A to Bisset et al, does not disclose:

A touch sensor device comprising: a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area; a processor operable to execute position-processing logic stored in one or more tangible media, the position-processing logic, when executed by the processor, configured to: calculate positions of interactions with the sensitive area from an analysis of the sense signals; and output a times series of data indicative of the interaction positions on the sensor, the interaction positions

Art Unit: 2666

corresponding to touches; and a processor operable to execute gesture-processing logic stored in one or more tangible media, the gesture-processing logic, when executed by the processor, configured to analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising: a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture; *a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and a multi-touch state-machine module, operable to: receive, directly from the first one-touch state-machine module, the first output; receive, directly from the second one-touch state-machine module, the second output; and recognize, based on at least the first and second at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules;* and output the recognized multi-touch gestures, of

claim 1;

Claims 2-11 depend from an allowed base claim and are thus allowed themselves;

A method comprising: receiving a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches; analyzing the

Art Unit: 2666

time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising: a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture; *a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and a multi-touch state-machine module operable to: receive, directly from the first one-touch state-machine module, the first output; receive, directly from the second one-touch state-machine module, the second output; and recognize, based on at least the first and second at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules;* and outputting the recognized multi-touch gestures, of **claim 12**;

A single integrated circuit comprising: a memory element; a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to: receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches; analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising: a first one-touch state-machine module , the first one-touch state-machine

Art Unit: 2666

module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture; *a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and a multi-touch state-machine module, operable to: receive, directly from the first one-touch state-machine module, the first output; receive, directly from the second one-touch state-machine module, the second output; and recognize, based on at least the first and second outputs at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and output the recognized multi-touch gestures, of **claim 13**.*

A computer comprising: a memory element; a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to: receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches; analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising: a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture; a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second

Art Unit: 2666

output based on the second one-touch gesture; and a multi-touch state-machine module operable to: *receive, directly from the first one-touch state-machine module, the first output; receive, directly from the second one-touch state-machine module, the second output; and recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules*; and output the recognized multi-touch gesture, of **claim 14**.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERVIN NAKHJAVAN whose telephone number is (571)272-5731. The examiner can normally be reached on 8:30-5:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan Park can be reached on (571)272-7409. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2666

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shervin Nakhjavan/
Examiner, Art Unit 2666

/CLAIRE X WANG/
Primary Examiner, Art Unit 2666

Issue Classification 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666

ORIGINAL					INTERNATIONAL CLASSIFICATION														
CLASS		SUBCLASS			CLAIMED					NON-CLAIMED									
382		315			G	0	6	K	9 / 22 (2006.0)										
CROSS REFERENCE(S)																			
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																		
345	173																		

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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14	14														

/SHERVIN NAKHJAVAN/ Examiner. Art Unit 2666 (Assistant Examiner)	12/15/12 (Date)	Total Claims Allowed: 14	
/CLAIRE X WANG/ Primary Examiner. Art Unit 2666 (Primary Examiner)	12/16/2012 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043
	Filing Date		2008-10-20
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		QGS

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	3593115	A	1971-07-13	Dym et al.		
	2	5650597	A	1997-07-22	Redmayne		
	3	6297811	A	2001-10-02	Kent et al.		
	4	5825352	A	1998-10-30	Bissett		
	5	6028271	A	2000-02-22	Gillespie et al.		
	6	6414671	A	2002-07-02	Gillespie et al.		
	7	6750852		2004-06-15	Gillespie et al.		
	8	5730165	A	1998-03-24	Philipp		

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	Filing Date	2008-10-20	
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	QGS	

	9	6466036	A	2002-10-15	Philipp	
	10	6452514	A	2002-09-17	Philipp	
	11	6888536	B2	2005-05-03	Westerman et al.	

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	1	20050041018	A1	2005-02-24	Philipp	
	2	20070247443	A1	2007-10-25	Philipp	
	3	20070257894	A1	2007-11-08	Philipp	
	4	20070279395	A1	2007-12-06	Philipp	
	5	20070152984	A1	2007-07-05	Ording et al.	
	6	20020015024	A1	2002-02-07	Westerman et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Filing Date	2008-10-20	
First Named Inventor	Bowens	
Art Unit		
Examiner Name		
Attorney Docket Number	QGS	

7	20070176906	A1	2007-08-02	Warren	
8	20060066582	A1	2006-03-30	Lyon et al.	
9	20080165141	A1	2008-07-10	Christie	
10	20060067991	A1	2006-05-11	Hotelling	
11	20060250377	A1	2006-11-09	Zadesky et al.	
12	20070152979	A1	2007-07-05	Jobs et al.	
13	20070177804	A1	2007-08-02	Elias et al.	
14	20070257890	Aq	2007-11-08	Hotelling et al.	

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	First Named Inventor	Bowens	
	Art Unit		
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BIB DATA SHEET
CONFIRMATION NO. 1663

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.	
12/254,043	10/20/2008	345	2666	080900.0181	
APPLICANTS Alan Bowens, Southampton, UNITED KINGDOM; ** CONTINUING DATA ***** This appln claims benefit of 61/049,453 05/01/2008 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 10/30/2008					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /SHERVIN K NAKHJAVAN/ Acknowledged Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY UNITED KINGDOM	SHEETS DRAWINGS 11	TOTAL CLAIMS 14	INDEPENDENT CLAIMS 2
ADDRESS Baker Botts L.L.P. 2001 Ross Avenue, 6th Floor Dallas, TX 75201 UNITED STATES					
TITLE Gesture Recognition					
FILING FEE RECEIVED 1340	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

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	4	5825352		1998-10-20	Bisset et al		
	5	6025271		2000-02-22	Gillespie et al		
	6	6414671	B1	2002-07-02	Gillespie et al		
	7	6750852	B2	2004-06-15	Gillespie et al		
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	10	6452514	B1	2002-09-17	Philipp	
	11	6888536	B2	2005-05-03	Westerman et al	

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	2	20070247443	A1	2007-10-25	Philipp	
	3	20070257894	A1	2007-11-08	Philipp	
	4	20070279395	A1	2007-12-06	Philipp et al	
	5	20070152984	A1	2007-07-05	Ording et al	
	6	20020015202	A1	2002-02-07	Westerman et al	

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9	20080165514	A1	2008-07-10	Christie	
10	20060097991	A1	2006-05-11	Hotelling et al	
11	20060250377	A1	2006-11-09	Zadesky et al	
12	20070152979	A1	2007-07-05	Jobs et al	
13	20070177804	A1	2007-08-02	Elias et al	
14	20070257890	A1	2007-11-08	Hotelling et al	

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Examiner Signature	/Shervin Nakhjavan/	Date Considered	12/15/2012

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<i>Index of Claims</i> 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	01/14/2012	07/04/2012	12/15/2012					
1	1	✓	✓	=					
2	2	✓	✓	=					
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11	11	✓	✓	=					
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13	13	✓	✓	=					
14	14	✓	✓	=					

EAST Search History**EAST Search History (Interference)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	0	((one adj touch) near3 (state adj machine)).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:40
L5	2555	(one adj touch).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:43
L6	166	5 and machine.clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:43
L7	6	6 and (multi adj touch).clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:43
L8	0	7 and recogni\$5.clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:45
L9	4	7 and gestur\$.clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:45
L10	2	9 and output\$3.clm.	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 16:46

12/ 15/ 2012 4:46:48 PM**C:\Users\snakhjavan1\Documents\EAST\Workspaces\Workspaces\12254043.wsp**

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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S100	8	S98 and fingers	US-PGPUB; USPAT	ADJ	OFF	2012/12/03 21:50
S101	25	US-3593115-\$.DID. OR US-5650597-\$.DID. OR US-6297811-\$.DID. OR US-5825352-\$.DID. OR US-6025271-\$.DID. OR US-6414671-\$.DID. OR US-6750852-\$.DID. OR US-5730165-\$.DID. OR US-6466036-\$.DID. OR US-6452514-\$.DID. OR US-6888536-\$.DID. OR US-20050041018-\$.DID. OR US-20070247443-\$.DID. OR US-20070257894-\$.DID. OR US-20070279395-\$.DID. OR US-20070152984-\$.DID. OR US-20020015202-\$.DID. OR US-20070176906-\$.DID. OR US-20060066582-\$.DID. OR US-20080165514-\$.DID. OR US-20060097991-\$.DID. OR US-20060250377-\$.DID. OR US-20070152979-\$.DID. OR US-20070177804-\$.DID. OR US-20070257890-\$.DID.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2012/12/04 16:56
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S103	13	(US-20070265081-\$ or US-20070046643-\$ or US-20060132460-\$ or US-20030214481-\$ or US-20070291009-\$ or US-20080309626-\$ or US-20070291007-\$ or US-20070097096-\$ or US-20080165141-\$).did. or (US-6608619-\$ or US-5396443-\$	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 16:57

		or US-5133076-\$ or US-5570113-\$).did.				
S104	41	S101 or S102 or S103	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 16:58
S105	35	S104 and state\$2	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 16:58
S106	23	S105 and fingers	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 16:59
S107	25	S104 and fingers	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 16:59
S108	25	S107 and finger	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 17:00
S109	23	S108 and state\$2	US-PGPUB; USPAT	ADJ	OFF	2012/12/04 17:39
S110	25	US-3593115-\$.DID. OR US-5650597-\$.DID. OR US-6297811-\$.DID. OR US-5825352-\$.DID. OR US-6025271-\$.DID. OR US-6414671-\$.DID. OR US-6750852-\$.DID. OR US-5730165-\$.DID. OR US-6466036-\$.DID. OR US-6452514-\$.DID. OR US-6888536-\$.DID. OR US-20050041018-\$.DID. OR US-20070247443-\$.DID. OR US-20070257894-\$.DID. OR US-20070279395-\$.DID. OR US-20070152984-\$.DID. OR US-20020015202-\$.DID. OR US-20070176906-\$.DID. OR US-20060066582-\$.DID. OR US-20080165514-\$.DID. OR US-20060097991-\$.DID. OR US-20060250377-\$.DID. OR US-20070152979-\$.DID. OR US-20070177804-\$.DID. OR US-20070257890-\$.DID.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2012/12/05 02:19
S111	25	US-3593115-\$.DID. OR US-5650597-\$.DID. OR US-6297811-\$.DID. OR US-5825352-\$.DID. OR US-6028271-\$.DID. OR US-6414671-\$.DID. OR US-6750852-\$.DID. OR US-5730165-\$.DID. OR US-6466036-\$.DID. OR US-6452514-\$.DID. OR US-6888536-\$.DID. OR US-20050041018-\$.DID. OR US-20070247443-\$.DID. OR US-20070257894-\$.DID. OR US-20070279395-\$.DID. OR US-20070152984-\$.DID. OR US-20020015024-\$.DID. OR US-20070176906-\$.DID. OR US-20060066582-\$.DID. OR US-20080165141-\$.DID. OR US-20060067991-\$.DID. OR US-20060250377-\$.DID. OR US-20070152979-\$.DID. OR US-20070177804-\$.DID. OR US-20070257890-\$.DID.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2012/12/05 02:19
S112	13	(US-20070265081-\$ or US-20070046643-\$ or US-20060132460-\$ or US-20030214481-\$ or US-20070291009-\$ or US-20080309626-\$ or US-20070291007-\$ or US-20070097096-\$ or US-20080165141-\$).did. or (US-6608619-\$ or US-5396443-\$ or US-5133076-\$ or US-5570113-\$).did.	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:19
S113	41	S110 or S111 or S112	US-PGPUB;	ADJ	OFF	2012/12/05 02:19

			USPAT			
S114	25	S113 and fingers	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:19
S115	25	S114 and finger	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:19
S116	23	S115 and state\$2	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:19
S117	15	S116 and (angle\$2 or angular\$)	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:20
S118	8	S117 and ((finger\$2 or location\$2) near5 (angle\$2 or angular\$))	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:20
S119	13	S116 and ((finger\$2 or location\$2) near5 (distance\$2 or displace\$5))	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 02:43
S120	18061	finite state machine\$2	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:12
S121	2551	S120 and touch\$3	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:13
S122	342	S121 and finger\$2	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:13
S123	122	S122 and fingers	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:13
S124	25	S123 and (touch\$3 near5 (simultaneous\$3 or concurrent\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:15
S125	6	S124 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:16
S126	58281	touch\$3 same (finger or fingers)	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:18
S127	36137	S126 and @ad<"20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:18
S128	1739	S127 and (touch\$3 near5 (simultaneous\$3 or concurrent\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:18
S129	984	S128 and fingers	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:19
S130	211	S129 and (fingers near5 (simultaneous\$3 or concurrent\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:21
S132	136	S130 and (two near3 fingers)	US-PGPUB; USPAT	ADJ	OFF	2012/12/05 14:26
S133	118	S132 and (pad\$2 or tablet\$2 or (touch adj pad\$2) or touchpad\$2 or (touch adj screen)	US-PGPUB;	ADJ	OFF	2012/12/05 14:35

		or touchscreen\$2)	USPAT			
S134	1149	(382/312,314,315).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/12/15 15:32
S135	273	(348/14.03).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/12/15 15:32
S136	3262	(715/700,719).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/12/15 15:32
S137	18624	(345/157,173-177,181).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/12/15 15:32
S138	23116	S134 or S135 or S136 or S137	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:32
S139	13244	S138 and @ad< "20080501"	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:33
S140	5970	S139 and ((pen\$2 or stylus\$ or finger\$2) near5 (touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:33
S141	5008	S140 and ((pen\$2 or stylus\$ or finger\$2) near5 touch\$3)	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:34
S142	3928	S141 and (pad\$2 or tablet\$2 or (touch adj pad\$2) or touchpad\$2 or (touch adj screen) or touchscreen\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:35
S143	827	S142 and ((single or one) adj touch\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:36
S144	333	S143 and (((plurality or multiple or multi) adj touch\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:37
S145	202	S144 and ((recogniz\$5 or gestur\$3) same touch\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:38
S146	94	S145 and ((recogniz\$5 or gestur\$3) same (touch and touches))	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:39
S147	65	S146 and (((plurality or multiple or multi) adj touch\$2) same ((single or one) adj touch\$2))	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:40
S148	30	S147 and (((plurality or multiple or multi) adj touch\$2) or ((single or one) adj touch\$2)) same state\$2)	US-PGPUB; USPAT	ADJ	OFF	2012/12/15 15:41

12/15/2012 4:39:07 PM

C:\Users\snakhjavan1\Documents\EAST\Workspaces\Workspaces\12254043.wsp

In the Claims

1. (Currently amended) A touch sensor device comprising:

a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area;

a processor operable to execute position-processing logic stored in one or more tangible media, the position-processing logic, when executed by the processor, configured to:

calculate positions of interactions with the sensitive area from an analysis of the sense signals; and

output a times series of data indicative of the interaction positions on the sensor, the interaction positions corresponding to touches; and

a processor operable to execute gesture-processing logic stored in one or more tangible media, the gesture-processing logic, when executed by the processor, configured to analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:

a first plurality of one-touch state-machine module modules, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;

a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and

a one or more multi-touch state-machine module modules, each one of the plurality of one touch state machine modules being operable to recognize one touch gestures and each of the one or more multi touch state machine modules being operable [[to]]to:

receive, directly from the first one-touch state-machine module, the first output;

receive, directly from the second one-touch state-machine module, the second output; and

recognize, based on at least the first and second outputs from one or more of the plurality of one touch state machine modules, recognize at least one

multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules ~~gestures~~; and

output the recognized multi-touch gestures.

2. (Previously presented) The device of claim 1, each of the plurality of state-machine modules including an idle-state module and a plurality of gesture-interpretation-state modules, the idle-state module being entered at the start of operation and being able to be returned to from at least some of the gesture-interpretation-state modules.

3. (Currently amended) The device of claim 2, each of the plurality of gesture-interpretation-state modules for each of the ~~plurality of~~ one-touch state-machine modules including a touch-state module and the idle-state module passing, responsive to a touch, control to the touch-state module.

4. (Currently amended) The device of claim 1, the plurality of gesture-interpretation-state modules for ~~[[a]]the~~ multi-touch state-machine module including at least one multi-touch state-module operable to process multiple simultaneous touches based on the first and second outputs from ~~multiple of the plurality of~~ first and second one-touch state-machine modules, the gesture-processing logic being operable to pass control to the ~~appropriate~~ multi-touch state-machine module based on the number of simultaneous touches defined by the time series of data at the time.

5. (Currently amended) The device of claim 4, ~~wherein wherein:~~
~~there is a~~ the multi-touch state-machine module is for processing each of two simultaneous touches;

and the device further comprises another multi-touch state-machine module for processing three simultaneous touches.

6. (Currently amended) The device of claim 3, the plurality of gesture-interpretation-state modules for each of the ~~plurality of first and second~~ one-touch state-machine modules including a press-state module to which control can pass from a touch-state module if a touch of a duration longer than a threshold duration is sensed in the touch-state module.

7. (Previously presented) The device of claim 6, the press-state being a super-state comprising multiple sub-states to distinguish between different durations of press.

8. (Previously presented) The device of claim 2, the plurality of gesture-interpretation-state modules including a plurality of state modules operable to recognize motion-related gestures derived from one or more moving touches.

9. (Previously presented) The device of claim 1, the gesture-recognition code being configured to recognize gestures having up to N simultaneous touches, N being at least 2, and comprising N one-touch state-machine modules operable to recognize only one-touch gestures and N-1 multi-touch state-machine modules each operable to recognize only n-touch gestures, wherein $n=2$ to N.

10. (Previously presented) The device of claim 1, the position-processing logic and the gesture-processing logic being accommodated in, and run on, a single integrated circuit.

11. (Previously presented) The device of claim 1, the position-processing logic being accommodated in, and running on, a first integrated circuit and the gesture-processing logic being accommodated in, and running on, one or more separate integrated circuits.

12. (Currently amended) A method comprising:
receiving a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;

analyzing the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising;

a first plurality of one-touch state-machine module modules, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;

a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and

a one or more multi-touch state-machine module modules, each one of the plurality of one touch state machine modules being operable to recognize one touch gestures and each of the one or more multi-touch state-machine modules being operable [[to]]to:

receive, directly from the first one-touch state-machine module, the first output;

receive, directly from the second one-touch state-machine module, the second output; and

recognize, based on at least the first and second outputs from one or more of the plurality of one touch state machine modules, recognize at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules-gestures; and

outputting the recognized multi-touch gestures.

13. (Currently amended) A single integrated circuit comprising:

a memory element;

a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:

receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;

analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition

code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:

~~a first plurality of one-touch state-machine module modules, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;~~

~~a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and~~

~~a one or more multi-touch state-machine module modules, each one of the plurality of one touch state machine modules being operable to recognize one touch gestures and each of the one or more multi touch state machine modules being operable~~ to:

~~receive, directly from the first one-touch state-machine module, the first output;~~

~~receive, directly from the second one-touch state-machine module, the second output; and~~

~~recognize, based on at least the first and second outputs from one or more of the plurality of one touch state machine modules, recognize at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules~~ gestures; and

output the recognized multi-touch gestures.

14. (Currently amended) A computer comprising:

a memory element;

a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:

receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;

analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:

a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;

a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and


a multi-touch state-machine module, ~~the multi-touch state-machine module being~~ operable ~~[[to]]to~~:

receive, directly from the first one-touch state-machine module, the first output;

receive, directly from the second one-touch state-machine module, the second output; and

recognize, based on at least the first and second outputs, ~~recognize~~ at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and

output the recognized multi-touch gesture.

Search Notes 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

SEARCHED			
Class	Subclass	Date	Examiner
382	312, 314, 315	1/12/12	SN
348	14.03	1/12/12	SN
715	700, 719	1/12/12	SN
345	157, 173-177, 181	1/12/12	SN
Search	Update	7/3/12	SN
Search	Update	12/15/12	SN

SEARCH NOTES			
Search Notes	Date	Examiner	
EAST (USPAT, PGPUB)	1/12 - 1/14/12	SN	
EAST (USPAT, PGPUB)	7/3/12	SN	
Inventor Search	7/4/12	SN	
Google Scholar	7/4/12	SN	
EAST (USPAT, PGPUB)	12/3 - 12/5/12	SN	

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
382	315	12/15/12	SN

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal Address to: Mail Stop RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Application Number	12/254,043
	Filing Date	October 20, 2008
	First Named Inventor	Alan Bowens
	Art Unit	2666 confirmation 1663
	Examiner Name	Shervin K. Nakhjavan
	Attorney Docket Number	080900.0181

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
 Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a. Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

i. Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

ii. Other _____

b. Enclosed

i. Amendment/Reply

ii. Affidavit(s)/ Declaration(s)

iii. Information Disclosure Statement (IDS)

iv. Other _____

2. **Miscellaneous**

a. Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(l) required)

b. Other _____

3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 02-0384.

a. RCE fee required under 37 CFR 1.17(e)

ii. Extension of time fee (37 CFR 1.136 and 1.17)

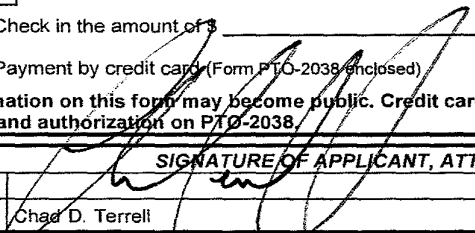
iii. Other _____

b. Check in the amount of \$ _____ enclosed

c. Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature		Date	March 20, 2013
Name (Print/Type)	Chad D. Terrell	Registration No.	52,279

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature		Date	
Name (Print/Type)			

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
 If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Alan Bowens
Application No.: 12/254,043
Filing Date: October 20, 2008
Group Art Unit: 2666
Confirmation No.: 1663
Examiner: Shervin K. Nakhjavan
Title: *Gesture Recognition*

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Supplemental Information Disclosure Statement (IDS)

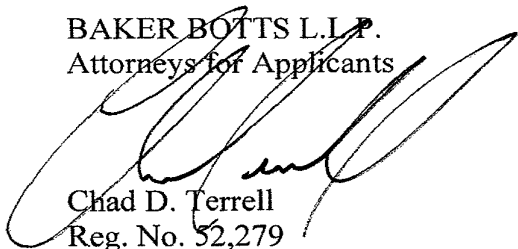
Applicant respectfully requests, pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, that the documents listed on the attached PTO SB/08 form be considered and cited in the examination of the above-identified patent application. Pursuant to 37 C.F.R. §§ 1.97 (g) and (h), Applicant makes no representation that a search has been made, that these documents are material to patentability of the present application, or that these documents qualify as prior art.

Copies of U.S. patents and U.S. patent application publications have not been provided. To the extent applicable, documents other than the U.S. patents and U.S. patent application publications are enclosed for the convenience of the Examiner.

This Supplemental IDS is being submitted along with a Request for Continued Examination and before payment of the issue fee in the above-identified patent application. Thus, Applicant believes no fee is due for this Supplemental IDS and respectfully requests consideration of this Supplemental IDS. Although Applicant believes no fees are due, the Commissioner is authorized to charge any necessary fees and credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Applicants



Chad D. Terrell
Reg. No. 52,279

Date: March 20, 2012

CORRESPONDENCE ADDRESS:

at Customer No. **12323**

PTO/SB/08 INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number: 12/254043	First Named Inventor: Alan Bowens	
	Attorney Docket No: 080900.0181	Art Unit: 2666 confirm # 2666	Filing Date: 10-20-2008

ISSUED U.S. PATENTS AND PUBLISHED U.S. APPLICATIONS

	DOCUMENT NUMBER	PUBLICATION OR ISSUE DATE	FIRST NAMED INVENTOR
A	7,663,607	16 February 2010	Hotelling
B	7,875,814	25 January 2011	Chen
C	7,920,129	05 April 2011	Hotelling
D	8,031,094	04 October 2011	Hotelling
E	8,031,174	04 October 2011	Hamblin
F	8,040,326	18 October 2011	Hotelling
G	8,049,732	01 November 2011	Hotelling
H	8,179,381	15 May 2012	Frey
I	2009/0315854	24 December 2009	Matsuo
J	2012/0242588	27 September 2012	Myers
K	2012/0242592	27 September 2012	Rothkopf
L	2012/0243151	27 September 2012	Lynch
M	2012/0243719	27 September 2012	Franklin

UNPUBLISHED U.S. APPLICATIONS

	DOCUMENT NUMBER	FILING DATE	FIRST NAMED INVENTOR
N	61/454936	21 March 2011	Myers
O	61/454950	21 March 2011	Lynch
P	61/454894	21 March 2011	Rothkopf

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	PUBLICATION OR ISSUE DATE	COUNTRY	TRANSLATION (YES OR NO)
Q	WO 2012/129247	27 September 2012	PCT	
R				

NON-PATENT LITERATURE (NPL)

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
S		
T		

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.	

Electronic Patent Application Fee Transmittal

Application Number:	12254043
Filing Date:	20-Oct-2008
Title of Invention:	GESTURE RECOGNITION
First Named Inventor/Applicant Name:	Alan Bowens
Filer:	David Gerald Wille/Sue LeRoy
Attorney Docket Number:	080900.0181

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
RCE - 2nd and Subsequent Request	1820	1	1700	1700
Total in USD (\$)				1700

Electronic Acknowledgement Receipt

EFS ID:	15306441
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	GESTURE RECOGNITION
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	12323
Filer:	David Gerald Wille/Sue LeRoy
Filer Authorized By:	David Gerald Wille
Attorney Docket Number:	080900.0181
Receipt Date:	20-MAR-2013
Filing Date:	20-OCT-2008
Time Stamp:	12:05:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$1700
RAM confirmation Number	30958
Deposit Account	020384
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	RCEtrans.PDF	82133 fd4aabb82660d5f73037943af532f060a833f99	no	1

Warnings:

This is not a USPTO supplied RCE SB30 form.

Information:

2		atmel0181IDS.PDF	114696 c9b8b9b602ebb12b84858f2e6200a8604dc6663b	yes	3
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Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	2
Information Disclosure Statement (IDS) Form (SB08)	3	3

Warnings:

Information:

3	Foreign Reference	WO2012129247.pdf	4285007 bc72f0894d8245fb68ef787739b6478d1890b4b4	no	142
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Warnings:

Information:

4	Fee Worksheet (SB06)	fee-info.pdf	30054 84dc07fc56b366295d740b57d444ae6e2248870c	no	2
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Warnings:

Information:

Total Files Size (in bytes):			4511890		
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



NOTICE OF ALLOWANCE AND FEE(S) DUE

12323 7590 04/10/2013
Baker Botts L.L.P.
2001 Ross Avenue, 6th Floor
Dallas, TX 75201

Table with 2 columns: EXAMINER (NAKHJAVAN, SHERVIN K), ART UNIT, PAPER NUMBER

2666
DATE MAILED: 04/10/2013

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

12/254,043 10/20/2008 Alan Bowens 080900.0181 1663
TITLE OF INVENTION: GESTURE RECOGNITION

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

- I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.
If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.
If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".
For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

12323 7590 04/10/2013
Baker Botts L.L.P.
 2001 Ross Avenue, 6th Floor
 Dallas, TX 75201

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/254,043	10/20/2008	Alan Bowens	080900.0181	1663

TITLE OF INVENTION: GESTURE RECOGNITION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1780	\$300	\$0	\$2080	07/10/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
NAKHJAVAN, SHERVIN K	2666	382-315000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.	2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, _____ 1 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. _____ 2 _____ 3
--	--

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted: <input type="checkbox"/> Issue Fee <input type="checkbox"/> Publication Fee (No small entity discount permitted) <input type="checkbox"/> Advance Order - # of Copies _____	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) <input type="checkbox"/> A check is enclosed. <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. <input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).
--	--

5. **Change in Entity Status** (from status indicated above)

Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
12/254,043 10/20/2008 Alan Bowens 080900.0181 1663

12323 7590 04/10/2013
Baker Botts L.L.P.
2001 Ross Avenue, 6th Floor
Dallas, TX 75201

EXAMINER

NAKHJAVAN, SHERVIN K

ART UNIT PAPER NUMBER

2666

DATE MAILED: 04/10/2013

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 736 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 736 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 12/254,043	Applicant(s) BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to IDS filed with RCE on 3/20/13.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. The allowed claim(s) is/are 1-14. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/oph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) All b) Some *c) None of the:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Interim copies:

- a) All b) Some c) None of the: Interim copies of the priority documents have been received.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Examiner's Amendment/Comment |
| 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. <input checked="" type="checkbox"/> Other <u>Considering IDS.</u> |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ | |

/JASON M REPKO/
Supervisory Patent Examiner, Art Unit 2666

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 3/20/13 was filed after the mailing date of the notice of allowance on 12/24/12. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Other Prior Art Cited

2. The US Patent 8,368,653 B2 is related to Applicant's invention as claimed.

Contact Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERVIN NAKHJAVAN whose telephone number is (571)272-5731. The examiner can normally be reached on 8:30-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Repko can be reached on (571)272-8624. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2666

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON M REPKO/
Supervisory Patent Examiner, Art
Unit 2666

/Shervin Nakhjavan/
Examiner, Art Unit 2666

Notice of References Cited	Application/Control No. 12/254,043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN	
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666	Page 1 of 1

U.S. PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-8,368,653 B2	02-2013	Han et al.	345/173
	B US-			
	C US-			
	D US-			
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

FOREIGN PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)				
	U				
	V				
	W				
	X				

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PTO/SB/08 INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number: 12/254043	First Named Inventor: Alan Bowens	
	Attorney Docket No: 080900.0181	Art Unit: 2666 confirm # 2666	Filing Date: 10-20-2008

ISSUED U.S. PATENTS AND PUBLISHED U.S. APPLICATIONS

	DOCUMENT NUMBER	PUBLICATION OR ISSUE DATE	FIRST NAMED INVENTOR
A	7,663,607	16 February 2010	Hotelling
B	7,875,814	25 January 2011	Chen
C	7,920,129	05 April 2011	Hotelling
D	8,031,094	04 October 2011	Hotelling
E	8,031,174	04 October 2011	Hamblin
F	8,040,326	18 October 2011	Hotelling
G	8,049,732	01 November 2011	Hotelling
H	8,179,381	15 May 2012	Frey
I	2009/0315854	24 December 2009	Matsuo
J	2012/0242588	27 September 2012	Myers
K	2012/0242592	27 September 2012	Rothkopf
L	2012/0243151	27 September 2012	Lynch
M	2012/0243719	27 September 2012	Franklin

UNPUBLISHED U.S. APPLICATIONS

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P	61/454894	21 March 2011	Rothkopf

FOREIGN PATENT DOCUMENTS

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Q	WO 2012/129247	27 September 2012	PCT	
R				

NON-PATENT LITERATURE (NPL)

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
S		
T		

EXAMINER /Shervin Nakhjavan/	DATE CONSIDERED 04/01/2013
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.	

U.S. PATENT AND TRADEMARK OFFICE

PAL01:123943

Page 1 of 1


ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.N./
Petitioner Samsung Ex-1004, 0274


UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET
CONFIRMATION NO. 1663

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.	
12/254,043	10/20/2008	345	2666	080900.0181	
APPLICANTS Alan Bowens, Southampton, UNITED KINGDOM; ** CONTINUING DATA ***** This appln claims benefit of 61/049,453 05/01/2008 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 10/30/2008					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /SHERVIN K NAKHJAVAN/ Acknowledged Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY UNITED KINGDOM	SHEETS DRAWINGS 11	TOTAL CLAIMS 14	INDEPENDENT CLAIMS 2
ADDRESS Baker Botts L.L.P. 2001 Ross Avenue, 6th Floor Dallas, TX 75201 UNITED STATES					
TITLE GESTURE RECOGNITION					
FILING FEE RECEIVED 1340	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		


Issue Classification 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666

CPC			Type	Version
Symbol				

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version


US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION								
CLASS	SUBCLASS	CLAIMED			NON-CLAIMED					
382	315	G	0	6	K	9 / 22 (2006.01.01)				
CROSS REFERENCE(S)										
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)									
345	173									

/SHERVIN NAKHJAVAN/ Examiner.Art Unit 2666 (Assistant Examiner)	4/1/13 (Date)	Total Claims Allowed: 14	
/JASON M REPKO/ Supervisory Patent Examiner.Art Unit 2666 (Primary Examiner)	04/03/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Issue Classification 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant		<input type="checkbox"/> CPA		<input type="checkbox"/> T.D.		<input type="checkbox"/> R.1.47									
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1														
2	2														
3	3														
7	4														
8	5														
4	6														
5	7														
6	8														
9	9														
10	10														
11	11														
12	12														
13	13														
14	14														

/SHERVIN NAKHJAVAN/ Examiner.Art Unit 2666 (Assistant Examiner)	4/1/13 (Date)	Total Claims Allowed: 14	
/JASON M REPKO/ Supervisory Patent Examiner.Art Unit 2666 (Primary Examiner)	04/03/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Index of Claims 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2666

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claims renumbered in the same order as presented by applicant
 CPA
 T.D.
 R.1.47

CLAIM		DATE							
Final	Original	01/14/2012	07/04/2012	12/15/2012	04/01/2013				
1	1	✓	✓	=	=				
2	2	✓	✓	=	=				
3	3	✓	✓	=	=				
7	4	✓	✓	=	=				
8	5	✓	✓	=	=				
4	6	✓	○	=	=				
5	7	✓	○	=	=				
6	8	✓	✓	=	=				
9	9	✓	✓	=	=				
10	10	✓	✓	=	=				
11	11	✓	✓	=	=				
12	12	✓	✓	=	=				
13	13	✓	✓	=	=				
14	14	✓	✓	=	=				


EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	(12/254043).APP.	US-PGPUB; USPAT	OR	OFF	2013/04/01 14:15
L2	9	US-7663607-\$.DID. OR US-7875814-\$.DID. OR US-7920129-\$.DID. OR US-8031094-\$.DID. OR US-8031174-\$.DID. OR US-8040326-\$.DID. OR US-8049732-\$.DID. OR US-8179381-\$.DID. OR US-20090315854-\$.DID. OR WO-2012129247-\$.DID. OR WO-201212924727-\$.DID.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2013/04/01 14:20
L3	4	((("20090315854") or ("20120242588") or ("20120243151") or ("20120243719")).PN.	US-PGPUB; USPAT	OR	OFF	2013/04/01 14:24
L4	12	2 or 3	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 14:24
L5	14	"20060250377"	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 14:39
L6	1	"20060067991"	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 14:39
L7	159267	((pen\$2 or stylus\$ or finger\$2) near5 (tap\$4 or touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 15:55
L8	5610	7 and @pd> "20121215"	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 15:56
L9	441	8 and @ad< "20080501"	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 15:56
L10	76	9 and ((multi\$3 or plurality) near5 (tap\$4 or touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 15:58
L11	59	10 and ((single or one) near5 (tap\$4 or touch\$3 or press\$3))	US-PGPUB; USPAT	ADJ	OFF	2013/04/01 15:58

4/ 1/ 2013 4:32:50 PM

C:\Users\snakhjavan1\Documents\EAST\Workspaces\Workspaces\12254043.wsp

Search Notes 	Application/Control No. 12254043	Applicant(s)/Patent Under Reexamination BOWENS, ALAN
	Examiner SHERVIN NAKHJAVAN	Art Unit 2624

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	312, 314, 315	1/12/12	SN
348	14.03	1/12/12	SN
715	700, 719	1/12/12	SN
345	157, 173-177, 181	1/12/12	SN
Search	Update	7/3/12	SN
Search	Update	12/15/12	SN

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPAT, PGPUB)	1/12 - 1/14/12	SN
EAST (USPAT, PGPUB)	7/3/12	SN
Inventor Search	7/4/12	SN
Google Scholar	7/4/12	SN
EAST (USPAT, PGPUB)	12/3 - 12/5/12	SN
EAST (USPAT, PGPUB)	4/1/13	SN

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
382	315	12/15/12	SN

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or **Fax** (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, Advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

12323 7590 04/10/2013
 Baker Botts L.L.P.
 2001 Ross Avenue, 6th Floor
 Dallas, TX 75201

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)
_____ (Signature)
_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/254,043	10/20/2008	Alan Bowens	080900.0181	1663

TITLE OF INVENTION: GESTURE RECOGNITION

APPL. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1780	\$300	\$0	\$2080	07/10/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
NAKHJAVAN, SHEKVIN K	2666	382-315000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 "Fee Address" indication (or "Fee Address" indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Baker Botts LLP
 2. _____
 3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Atmel Corporation

San Jose, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:

- Issue Fee
 Publication Fee (No small entity discount permitted)
 Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 020384 (enclose an extra copy of this form).

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Applicant certifying micro entity status. See 37 CFR 1.29

Applicant asserting small entity status. See 37 CFR 1.27

Applicant changing to regular undifferentiated fee status.

NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date 7/10/2013

Typed or printed name Chad B. Terrell

Registration No. 52,279

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS, SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Electronic Patent Application Fee Transmittal

Application Number:	12254043
Filing Date:	20-Oct-2008
Title of Invention:	GESTURE RECOGNITION
First Named Inventor/Applicant Name:	Alan Bowens
Filer:	Jenni R. Moen/Janet Daddona
Attorney Docket Number:	080900.0181

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	1780	1780
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2080

Electronic Acknowledgement Receipt

EFS ID:	16280521
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	GESTURE RECOGNITION
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	12323
Filer:	Jenni R. Moen/Janet Daddona
Filer Authorized By:	Jenni R. Moen
Attorney Docket Number:	080900.0181
Receipt Date:	10-JUL-2013
Filing Date:	20-OCT-2008
Time Stamp:	17:20:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$2080
RAM confirmation Number	4828
Deposit Account	020384
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	312amendment.PDF	343380 4d2b59a23a2a5303dd23972a91606e3444627574	no	8

Warnings:

Information:

2	Post Allowance Communication - Incoming	Comments.PDF	53378 8f376c0327cfeea15e881166ffe92d00f72722c9	no	1
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Warnings:

Information:

3	Issue Fee Payment (PTO-85B)	feepayment.PDF	149229 14ff35e3217f42ae63853bfe3c19c21d88005e3c	no	2
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Warnings:

Information:

4	Fee Worksheet (SB06)	fee-info.pdf	31967 f6fc3583b56af73b2da0be2d46cdcbf416cb46	no	2
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Warnings:

Information:

Total Files Size (in bytes):

577954

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Alan Bowens
Serial No.: 12/254,043
Filed: October 20, 2008
Group No.: 2666
Examiner: Shervin K. Nakhjavan
Notice of Allowance Mailed: April 10, 2013
Confirmation No.: 1663
Title: Gesture Recognition

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Amendment under 37 C.F.R. § 1.312

It is requested that the following amendment, which is submitted with payment of the Issue Fee, be entered under the provisions of 37 C.F.R. § 1.312. Please amend the Application as follows.

In the Claims

1. (Currently amended) A touch sensor device comprising:
 - a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area;
 - a processor operable to execute position-processing logic stored in one or more tangible media, the position-processing logic, when executed by the processor, configured to:
 - calculate positions of interactions with the sensitive area from an analysis of the sense signals; and
 - output a times series of data indicative of the interaction positions on the sensor, the interaction positions corresponding to touches; and
 - a processor operable to execute gesture-processing logic stored in one or more tangible media, the gesture-processing logic, when executed by the processor, configured to analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
 - a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
 - a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
 - a multi-touch state-machine module[[,]] operable to:
 - receive, directly from the first one-touch state-machine module, the first output;
 - receive, directly from the second one-touch state-machine module, the second output; and
 - recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
- output the recognized multi-touch gesture.

2. (Previously presented) The device of claim 1, each of the plurality of state-machine modules including an idle-state module and a plurality of gesture-interpretation-state modules, the idle-state module being entered at the start of operation and being able to be returned to from at least some of the gesture-interpretation-state modules.

3. (Previously presented) The device of claim 2, each of the plurality of gesture-interpretation-state modules for each of the one-touch state-machine modules including a touch-state module and the idle-state module passing, responsive to a touch, control to the touch-state module.

4. (Currently amended) The device of ~~claim 1~~ claim 2, the plurality of gesture-interpretation-state modules for the multi-touch state-machine module including at least one multi-touch state-module operable to process multiple simultaneous touches based on the first and second outputs from the first and second one-touch state-machine modules, the gesture-processing logic being operable to pass control to the multi-touch state-machine module based on the number of simultaneous touches defined by the time series of data at the time.

5. (Previously presented) The device of claim 4, wherein:
the multi-touch state-machine module is for processing two simultaneous touches;
and the device further comprises another multi-touch state-machine module for processing three simultaneous touches.

6. (Previously presented) The device of claim 3, the plurality of gesture-interpretation-state modules for each of the first and second one-touch state-machine modules including a press-state module to which control can pass from a touch-state module if a touch of a duration longer than a threshold duration is sensed in the touch-state module.

7. (Previously presented) The device of claim 6, the press-state being a super-state comprising multiple sub-states to distinguish between different durations of press.

8. (Previously presented) The device of claim 2, the plurality of gesture-interpretation-state modules including a plurality of state modules operable to recognize motion-related gestures derived from one or more moving touches.

9. (Previously presented) The device of claim 1, the gesture-recognition code being configured to recognize gestures having up to N simultaneous touches, N being at least 2, and comprising N one-touch state-machine modules operable to recognize only one-touch gestures and N-1 multi-touch state-machine modules each operable to recognize only n-touch gestures, wherein $n=2$ to N.

10. (Previously presented) The device of claim 1, the position-processing logic and the gesture-processing logic being accommodated in, and run on, a single integrated circuit.

11. (Previously presented) The device of claim 1, the position-processing logic being accommodated in, and running on, a first integrated circuit and the gesture-processing logic being accommodated in, and running on, one or more separate integrated circuits.

12. (Currently amended) A method comprising:

- receiving a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
- analyzing the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
 - a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
 - a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
 - a multi-touch state-machine module[[,]] operable to:
 - receive, directly from the first one-touch state-machine module, the first output;
 - receive, directly from the second one-touch state-machine module, the second output; and
 - recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
- outputting the recognized multi-touch gesture.

13. (Currently amended) A single integrated circuit comprising:
a memory element;
a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:
receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
a multi-touch state-machine module[[,]] operable to:
receive, directly from the first one-touch state-machine module, the first output;
receive, directly from the second one-touch state-machine module, the second output; and
recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
output the recognized multi-touch gesture.

14. (Previously presented) A computer comprising:
a memory element;
a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:
receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
a multi-touch state-machine module operable to:
receive, directly from the first one-touch state-machine module, the first output;
receive, directly from the second one-touch state-machine module, the second output; and
recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
output the recognized multi-touch gesture.

Remarks

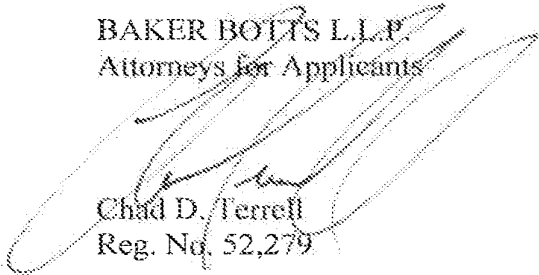
Applicants believe that the above-provided version of the claims is consistent with the amendments presented by Examiner's Amendment in the Notice of Allowance dated December 24, 2012. *See Office Action Appendix* attached to the *Notice of Allowance* and referenced in the Examiner's Amendment at page 2 of the *Notice of Allowance*. Applicants respectfully request that the above amendments to Claims 1, 4, and 12-13, submitted after the mailing of a Notice of Allowance and with payment of the Issue Fee, be entered under 37 C.F.R. § 1.312. The amendments to Claims 1 and 12-13 merely remove an unnecessary comma. The amendment to Claim 4 change Claim 4 to depend from Claim 2 rather than Claim 1 to resolve a potential antecedent basis issue regarding the limitations "the plurality of gesture-interpretation-state modules." Applicants respectfully submit that consideration and entry of these amendments would require no substantial amount of additional work on the part of the Office. *See M.P.E.P.* § 714.16.

If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Chad D. Terrell, Attorney for Applicants, at the Examiner's convenience at (214) 953-6813.

Although Applicants believe no fees are due for this submission, the Commissioner is authorized to charge any necessary fees and credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Applicants



Chad D. Terrell
Reg. No. 52,279

Date: July 10, 2013

CORRESPONDENCE ADDRESS:

at Customer No. 12323

ATTORNEY DOCKET NO.
080900.0181 (P033523QRG)

PATENT APPLICATION
12/254,043

1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Alan Bowens
Serial No.: 12/254,043
Filed: October 20, 2008
Group No.: 2666
Examiner: Shervin K. Nakhjavan
Notice of Allowance Mailed: April 10, 2013
Confirmation No.: 1663
Title: Gesture Recognition

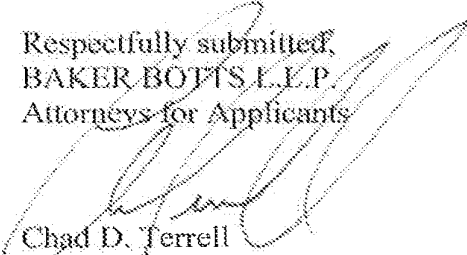
Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Applicants appreciate the Examiner's allowance of Claims 1-14. Pursuant to 37 C.F.R. § 1.104, Applicants respectfully issue a statement commenting on the Examiner's reasons for allowance. Applicants respectfully disagree with the Examiner's reasons for allowance to the extent that they are inconsistent with applicable case law, statutes, and regulations. Furthermore, Applicants do not admit to any characterization or limitation of the claims or to any characterization of a reference by the Examiner, particularly any that are inconsistent with the language of the claims considered in their entirety and including all of their constituent limitations.

Respectfully submitted,
BAKER BOTTS L.L.P.
Attorneys for Applicants


Chad D. Terrell
Registration No. 52,279

Date: 7/10/13
CUSTOMER NO. 12323

In the Claims

1. (Currently amended) A touch sensor device comprising:
 - a sensor having a sensitive area extending in at least one-dimension and arranged to output sense signals responsive to proximity of an object to the sensitive area;
 - a processor operable to execute position-processing logic stored in one or more tangible media, the position-processing logic, when executed by the processor, configured to:
 - calculate positions of interactions with the sensitive area from an analysis of the sense signals; and
 - output a times series of data indicative of the interaction positions on the sensor, the interaction positions corresponding to touches; and
 - a processor operable to execute gesture-processing logic stored in one or more tangible media, the gesture-processing logic, when executed by the processor, configured to analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
 - a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
 - a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
 - a multi-touch state-machine module[[,]] operable to:
 - receive, directly from the first one-touch state-machine module, the first output;
 - receive, directly from the second one-touch state-machine module, the second output; and
 - recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
- output the recognized multi-touch gesture.

2. (Previously presented) The device of claim 1, each of the plurality of state-machine modules including an idle-state module and a plurality of gesture-interpretation-state modules, the idle-state module being entered at the start of operation and being able to be returned to from at least some of the gesture-interpretation-state modules.

3. (Previously presented) The device of claim 2, each of the plurality of gesture-interpretation-state modules for each of the one-touch state-machine modules including a touch-state module and the idle-state module passing, responsive to a touch, control to the touch-state module.

4. (Currently amended) The device of ~~claim 1~~ claim 2, the plurality of gesture-interpretation-state modules for the multi-touch state-machine module including at least one multi-touch state-module operable to process multiple simultaneous touches based on the first and second outputs from the first and second one-touch state-machine modules, the gesture-processing logic being operable to pass control to the multi-touch state-machine module based on the number of simultaneous touches defined by the time series of data at the time.

5. (Previously presented) The device of claim 4, wherein:
the multi-touch state-machine module is for processing two simultaneous touches;
and the device further comprises another multi-touch state-machine module for processing three simultaneous touches.

6. (Previously presented) The device of claim 3, the plurality of gesture-interpretation-state modules for each of the first and second one-touch state-machine modules including a press-state module to which control can pass from a touch-state module if a touch of a duration longer than a threshold duration is sensed in the touch-state module.

7. (Previously presented) The device of claim 6, the press-state being a super-state comprising multiple sub-states to distinguish between different durations of press.

8. (Previously presented) The device of claim 2, the plurality of gesture-interpretation-state modules including a plurality of state modules operable to recognize motion-related gestures derived from one or more moving touches.

9. (Previously presented) The device of claim 1, the gesture-recognition code being configured to recognize gestures having up to N simultaneous touches, N being at least 2, and comprising N one-touch state-machine modules operable to recognize only one-touch gestures and N-1 multi-touch state-machine modules each operable to recognize only n-touch gestures, wherein $n=2$ to N.

10. (Previously presented) The device of claim 1, the position-processing logic and the gesture-processing logic being accommodated in, and run on, a single integrated circuit.

11. (Previously presented) The device of claim 1, the position-processing logic being accommodated in, and running on, a first integrated circuit and the gesture-processing logic being accommodated in, and running on, one or more separate integrated circuits.

12. (Currently amended) A method comprising:

- receiving a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
- analyzing the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
 - a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
 - a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
 - a multi-touch state-machine module[[,]] operable to:
 - receive, directly from the first one-touch state-machine module, the first output;
 - receive, directly from the second one-touch state-machine module, the second output; and
 - recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
- outputting the recognized multi-touch gesture.

13. (Currently amended) A single integrated circuit comprising:
a memory element;
a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:
receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
analyze the time series of data to distinguish one or more gesture inputs from the time series of data, the gesture-processing logic being coded with gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
a multi-touch state-machine module[[,]] operable to:
receive, directly from the first one-touch state-machine module, the first output;
receive, directly from the second one-touch state-machine module, the second output; and
recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
output the recognized multi-touch gesture.

14. (Previously presented) A computer comprising:
a memory element;
a processor operable to execute logic stored in one or more tangible media, the logic, when executed by the processor, operable to:
receive a times series of data indicative of the interaction positions on a sensor, the interaction positions corresponding to touches;
analyze the time series of data to distinguish one or more gesture inputs from the time series of data using gesture-recognition code comprising a plurality of state-machine modules, the plurality of state-machine modules comprising:
a first one-touch state-machine module, the first one-touch state-machine module being operable to recognize at least a first one-touch gesture and generate a first output based on the first one-touch gesture;
a second one-touch state-machine module, the second one-touch state-machine module being operable to recognize at least a second one-touch gesture and generate a second output based on the second one-touch gesture; and
a multi-touch state-machine module operable to:
receive, directly from the first one-touch state-machine module, the first output;
receive, directly from the second one-touch state-machine module, the second output; and
recognize, based on at least the first and second outputs, at least one multi-touch gesture, the first one-touch state-machine module, the second one-touch state-machine module, and the multi-touch state-machine module being distinct state-machine modules; and
output the recognized multi-touch gesture.

OK to enter

SN

7/27/13

ATTORNEY DOCKET
080900.0181 (P033523QRG)

PATENT APPLICATION

12/254,043

1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Alan Bowens
Serial No.: 12/254,043
Filed: October 20, 2008
Group No.: 2666
Examiner: Shervin K. Nakhjavan
Notice of Allowance Mailed: April 10, 2013
Confirmation No.: 1663
Title: Gesture Recognition

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Amendment under 37 C.F.R. § 1.312

It is requested that the following amendment, which is submitted with payment of the Issue Fee, be entered under the provisions of 37 C.F.R. § 1.312. Please amend the Application as follows.



UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes application details for Alan Bowens and examiner information for NAKHJAVAN, SHERVIN K.

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail1@bakerbotts.com
ptomail2@bakerbotts.com

Response to Rule 312 Communication	Application No.	Applicant(s)
	12/254,043	BOWENS, ALAN
	Examiner	Art Unit
	SHERVIN NAKHJAVAN	2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. The amendment filed on 10 July 2013 under 37 CFR 1.312 has been considered, and has been:

a) entered.

b) entered as directed to matters of form not affecting the scope of the invention.

c) disapproved because the amendment was filed after the payment of the issue fee.

Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) disapproved. See explanation below.

e) entered in part. See explanation below.

Applicant's amendment corrects formal matters of claims 1, 12 and 13. Amendment is also made to correct an antecedent basis matter with respect to claim 4, wherein the claim's dependency is changed from claim 1 to claim 2. The corrected claim dependency has been previously considered at the time of notice of allowance and the amendment would not change the scope of the claim 4, and hence the necessity of the amendment.

	/Shervin Nakhjavan/ Examiner, Art Unit 2666
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	12254043	12254043 - GAU: 2666
	Filing Date	2008-10-20	
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	QGS	

	7	20070176906	A1	2007-08-02	Warren	
	8	20060066582	A1	2006-03-30	Lyon et al	
Change(s) applied to document, /D.D./ 2/8/2013	9	20080165514	A1	2008-07-10	Christie	20080165141
	10	20060097991	A1	2006-05-11	Hotelling et al	
	11	20060250377	A1	2006-11-09	Zadesky et al	
	12	20070152979	A1	2007-07-05	Jobs et al	
	13	20070177804	A1	2007-08-02	Elias et al	
	14	20070257890	A1	2007-11-08	Hotelling et al	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

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	1							<input type="checkbox"/>

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043	12254043 - GAU: 2666	
	Filing Date		2008-10-20		
	First Named Inventor	Bowens			
	Art Unit				
	Examiner Name				
	Attorney Docket Number		QGS		

	9	6466036	B1	2002-10-15	Philipp	
	10	6452514	B1	2002-09-17	Philipp	
	11	6888536	B2	2005-05-03	Westerman et al	

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20050041018	A1	2005-02-25	Philipp	
	2	20070247443	A1	2007-10-25	Philipp	
	3	20070257894	A1	2007-11-08	Philipp	
	4	20070279395	A1	2007-12-06	Philipp et al	
	5	20070152984	A1	2007-07-05	Ording et al	
	6	20020015202	A1	2002-02-07	Westerman et al	20020015024

Change(s) applied to document,

/D.D./

2/8/2013 EFS Web 2.1.6

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.N./
Petitioner Samsung Ex-1004, 0307

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12254043	12254043 - GAU: 2666
Filing Date	2008-10-20	
First Named Inventor	Bowens	
Art Unit		
Examiner Name		
Attorney Docket Number	QGS	

	7	20070176906	A1	2007-08-02	Warren	
	8	20060066582	A1	2006-03-30	Lyon et al.	
	9	20080165141	A1	2008-07-10	Christie	
Change(s) applied to document, /D.D./ 2/8/2013	10	20060067094	A1	2006-05-11	Hotelling	20060097991
	11	20060250377	A1	2006-11-09	Zadesky et al.	
	12	20070152979	A1	2007-07-05	Jobs et al.	
	13	20070177804	A1	2007-08-02	Elias et al.	
	14	20070257890	Aq	2007-11-08	Hotelling et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12254043
	Filing Date		2008-10-20
	First Named Inventor	Bowens	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		QGS

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	1	3593115	A	1971-07-13	Dym et al		
	2	5650597	A	1997-07-22	Redmayne		
	3	6297811		2001-10-02	Kent et al		
	4	5825352		1998-10-20	Bisset et al		
	5	6025271		2000-02-22	Gillespie et al	6,028,271	
	6	6414671	B1	2002-07-02	Gillespie et al		
	7	6750852	B2	2004-06-15	Gillespie et al		
	8	5730165	A	1998-03-24	Philipp		

Change(s) applied to document, /D.D./ 2/11/2013



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/254,043	09/03/2013	8526767	080900.0181	1663

12323 7590 08/14/2013
Baker Botts L.L.P.
2001 Ross Avenue, 6th Floor
Dallas, TX 75201

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 1010 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Alan Bowens, Southampton, UNITED KINGDOM;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

 Practitioners associated with the Customer Number:

OR

 Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

 The address associated with Customer Number:


OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
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Telephone	Email		

Assignee Name and Address:

Solas OLED Limited
4-5 Burton Hall Road
Sandyford, Dublin 18 Ireland**A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.****SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	Jan 25, 2019
Name	Ciaran O'Gara		Telephone
Title	Managing Director, Solas OLED Limited		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

SUPPLEMENTAL CHAIN OF TITLE

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7. From: SILICON STORAGE TECHNOLOGY, INC. ATMEL CORPORATION MICROSEMI CORPORATION To: JPMORGAN CHASE BANK, N.A. AS ADMINISTRATIVE AGENT

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9. From: JPMORGAN CHASE BANK, N.A. AS ADMINISTRATIVE AGENT To: MICROCHIP TECHNOLOGY INCORPORATED

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10. From: WELLS FARGO BANK, NATIONAL ASSOCIATION AS ADMINISTRATIVE AGENT To: MICROCHIP TECHNOLOGY INCORPORATED

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Alan Bowens
Application No./Patent No.: 8,526,767 Filed/Issue Date: 09-03-2013
Titled: GESTURE RECOGNITION

Solas OLED Limited, a Corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

- 1. the assignee of the entire right, title, and interest in;
- 2. an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
- 3. the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: LAUB, STEVEN ALAN, SHAIKH, KHALIL To: ATMEL CORPORATION

The document was recorded in the United States Patent and Trademark Office at
Reel 207143, Frame 0316, or for which a copy thereof is attached.

2. From: YILMAZ, ESAT To: ATMEL TECHNOLOGIES U.K. LIMITED

The document was recorded in the United States Patent and Trademark Office at
Reel 027143, Frame 0349, or for which a copy thereof is attached.

3. From: ATMEL TECHNOLOGIES U.K. LIMITED To: ATMEL CORPORATION

The document was recorded in the United States Patent and Trademark Office at
Reel 027558, Frame 0271, or for which a copy thereof is attached.

Additional documents in the chain of title are listed on a supplemental sheet(s).

As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Michael Messinger/
Signature

February 28, 2019
Date

Michael Messinger Reg. No. 37,575
Printed or Typed Name

Attorney for Assignee
Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	35280686
Application Number:	12254043
International Application Number:	
Confirmation Number:	1663
Title of Invention:	GESTURE RECOGNITION
First Named Inventor/Applicant Name:	Alan Bowens
Customer Number:	12323
Filer:	Michael V. Messinger
Filer Authorized By:	
Attorney Docket Number:	080900.0181
Receipt Date:	01-MAR-2019
Filing Date:	20-OCT-2008
Time Stamp:	17:08:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	00560000000_POAPreAIASigned.pdf	202143 <small>7fed39f986959b0f066bd7af07da1d4ea77d313d</small>	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	0056005US01_1POA_Transmittal_373_Supplemental.pdf	43721	no	1
			fb55a27cdecf9f27447934ebc86db61c23478c5b		

Warnings:

Information:

3	Assignee showing of ownership per 37 CFR 3.73	0056005US01_POA_Transmittal_PreAIA_PTOSB96.pdf	430143	no	2
			5c06dcca70fe11379b0079495cae8ca21fcb3657		

Warnings:

Information:

Total Files Size (in bytes):			676007		
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/254,043	10/20/2008	Alan Bowens	080900.0181

CONFIRMATION NO. 1663

POWER OF ATTORNEY NOTICE

12323
Baker Botts L.L.P./Atmel Corporation
2001 Ross Avenue
SUITE 700
Dallas, TX 75201



Date Mailed: 03/08/2019

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/01/2019.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/atesfai/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/254,043	10/20/2008	Alan Bowens	080900.0181

CONFIRMATION NO. 1663

POA ACCEPTANCE LETTER



151145
Shami Messinger PLLC
1000 Wisconsin Ave. NW
Suite 200
Washington, DC 20007

Date Mailed: 03/08/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/01/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/atesfai/