(19) **United States**

(12) **Patent Application Publication** (10) Pub. No.: **US 2003/0048260 A1**

Matusis (43) Pub. Date: **Mar. 13, 2003**

(57) **ABSTRACT**

Provided is a system and method that increases the functionality of input devices and control panels. A dependent relationship between n functions and n fingertips is associated with an input sensor. Including different motions for each fingertip could extend this dependent relationship and further increase functionality. A user selects only one of his/her fingertips, which then activates the input sensor (through on/off activation and/or motion). The selected fingertip is the only fingertip that is required to activate the input sensor, thereby allowing the input sensor to be arbitrary small. An imaging means is included to identify which fingertip activates the input sensor. Imaging means requires the acquisition of at least one image of a part of the user's hand large enough to identify the selected fingertip activating the input sensor. A processing means is included to determine from data of the input sensor and acquired images which function is selected.
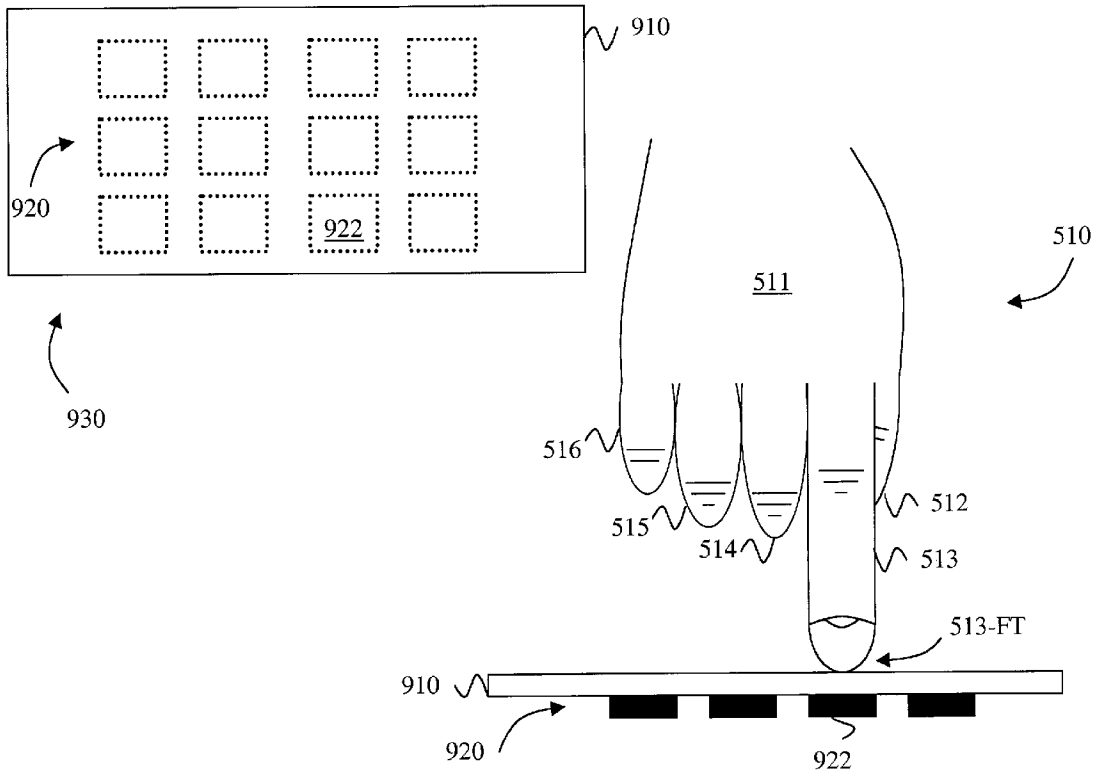
Figure 1

Fingertips	Functions
LEFT HAND	
Fingertip of Little Finger	Function 1
Fingertip of Ring finger	Function 2
Fingertip of Middle finger	Function 3
Fingertip of Index Finger	Function 4
Thumb	Function 9
RIGHT HAND	
Fingertip of Little Finger	Function 5
Fingertip of Ring finger	Function 6
Fingertip of Middle finger	Function 7
Fingertip of Index Finger	Function 8
Thumb	Function 10

Figure 2

Select a Fingertip

210

Touch and Activate an Input Sensor
with only the Selected Fingertip

220

Identify Selected Fingertip
through Imaging

230

Determine Function based on
Dependent relationship between
n Functions and n Fingertips

240

200
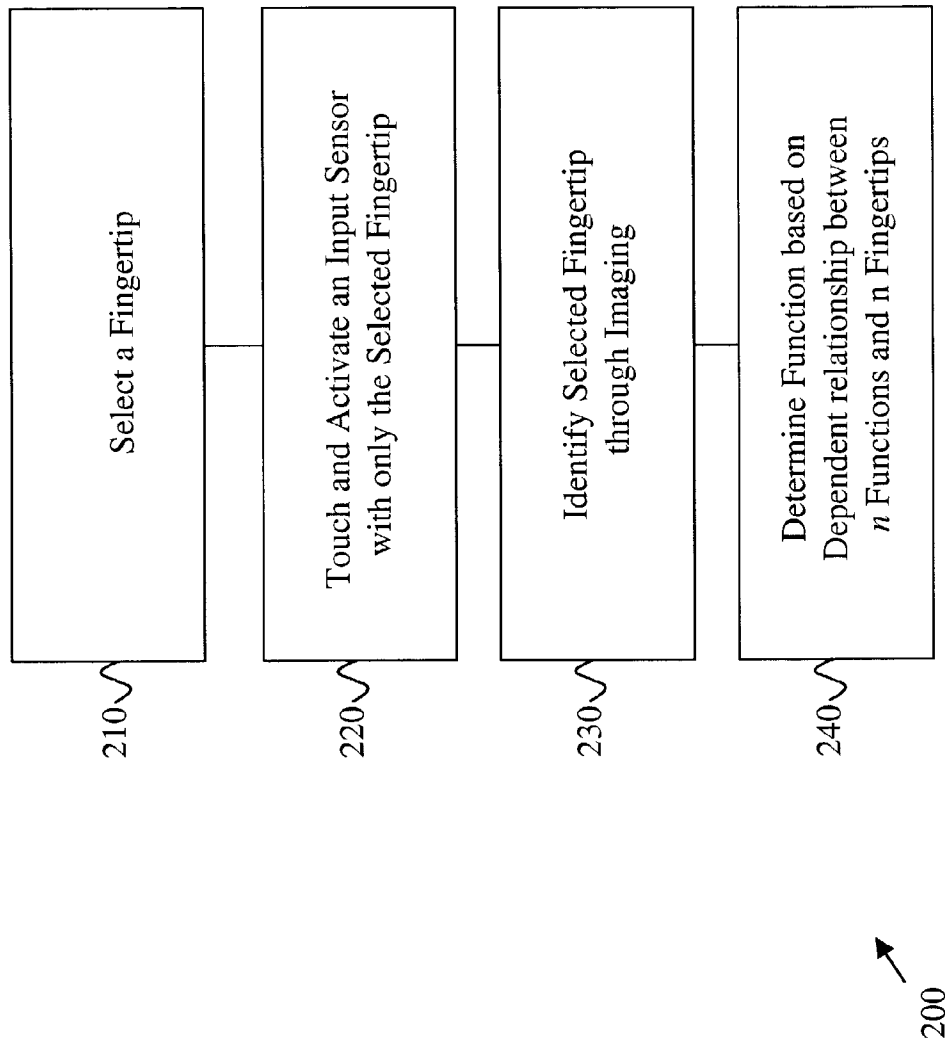
Figure 3

Fingertips	Functions
RIGHT HAND	
Fingertip of Index finger and upward motion	Function 1
Fingertip of Index finger and downward motion	Function 2
Fingertip of Middle Finger and upward motion	Function 3
Fingertip of Middle finger and downward motion	Function 4

Figure 4

Select a Fingertip
210

Touch and Activate an Input Sensor with only the Selected Fingertip
220

Provide Motion on Input Sensor with only the Selected Fingertip
410

Identify Selected Fingertip through Imaging
230

Determine Function based on Dependent relationship between $\sum_{i=1}^{n} m_i$, Functions and $m_p, ..., m_n$ Motions and n Fingertips
420

400

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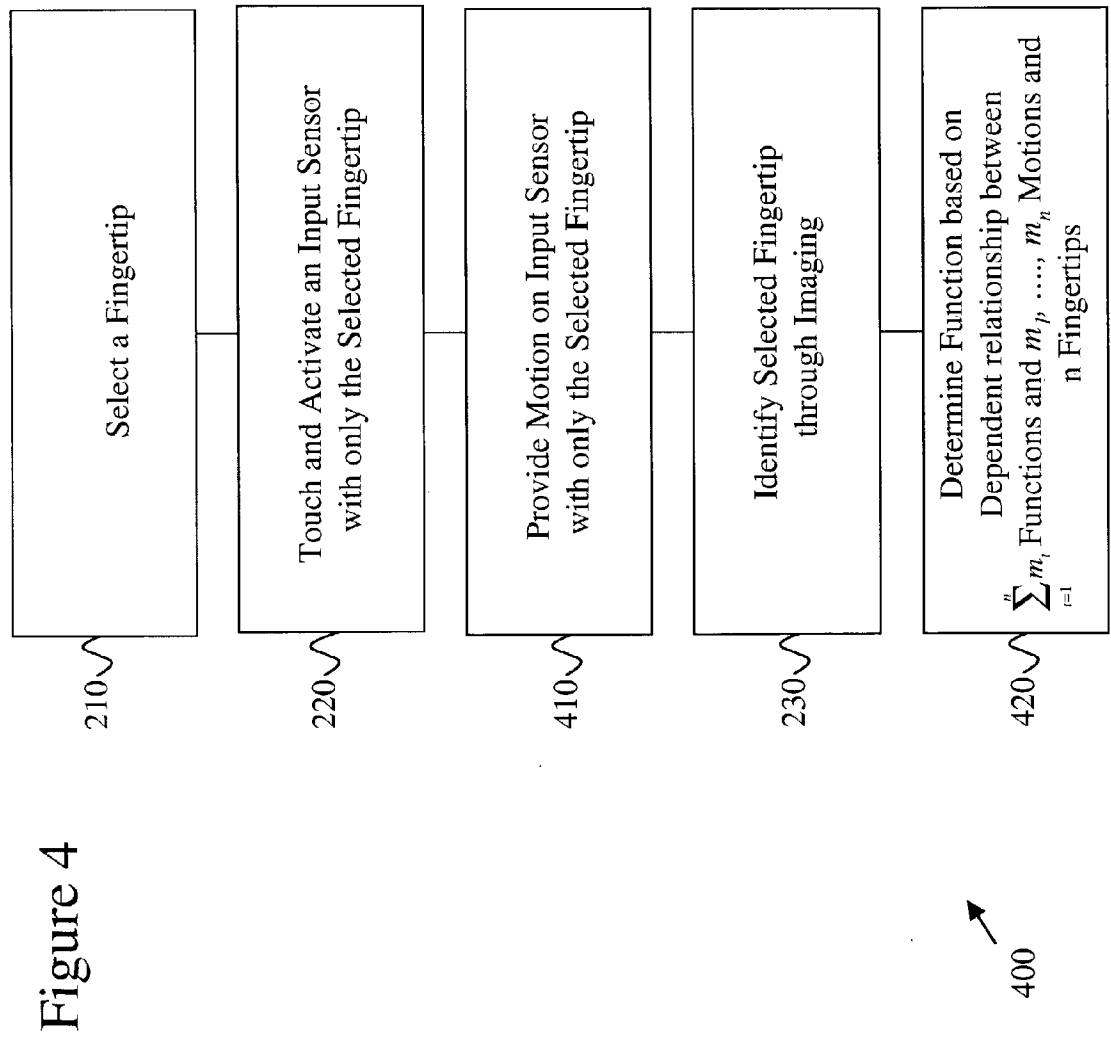
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