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(54) Title: PERSONAL COMMUNICATIONS TERMINAL

(57) Abstract

A personal communications terminal (PCT) (10) in a case having a first half hingedly connected to a second half. The PCT operates in an open and a closed position and comprises a mobile telephone unit (32) and a personal digital assistant (PDA) unit (31) electronically connected to the mobile telephone unit. The PDA unit (31) is a fully functional personal computer. The PDA unit comprises a memory for application software programs (41), a memory for data (42), a processor (43) for performing operations with the data and the application programs, a modem (33) for passing data between the PDA unit (31) and the mobile telephone unit (32), and a mobile data interface (34) for passing data between the PDA unit and the mobile telephone unit without utilizing the modem. When the PCT (10) is in the open position, it forms two interior faces which include a PDA display screen (23) on one face and a full alpha-numeric keyboard (24) on the other face. The PCT may be operated as a standard wireless telephone, as a personal computer, or in an integrated mode for FAX, wireless data transfer, or sending and receiving short message service (SMS) messages.
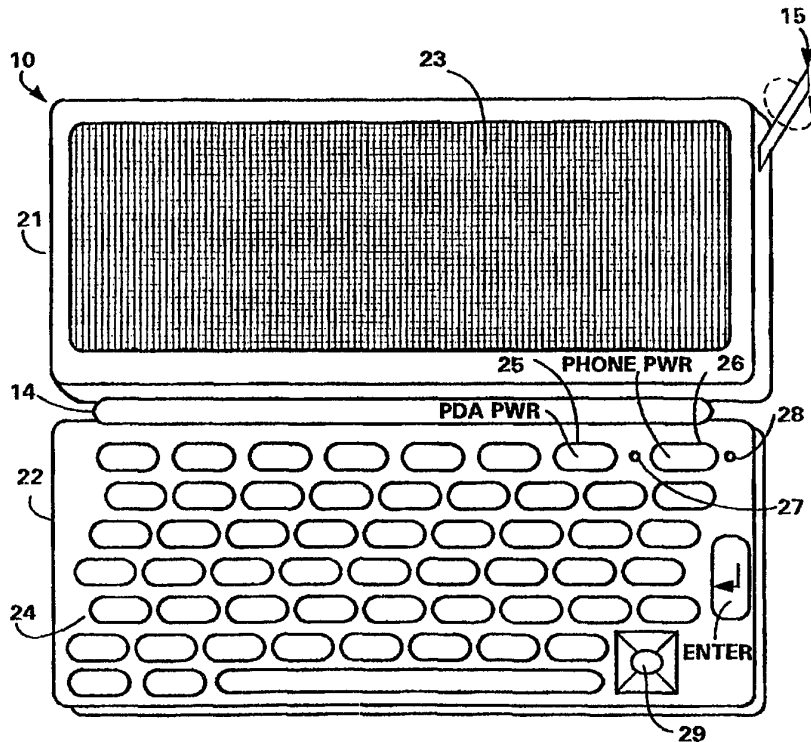
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PERSONAL COMMUNICATIONS TERMINAL

BACKGROUND OF THE INVENTION

Technical Field of the Invention

This invention relates to mobile stations in a radio telecommunications network and, more particularly, to an integrated personal communications terminal which performs the functions of a mobile telephone while transmitting, receiving, and displaying text or images.

Description of Related Art

In modern radio telecommunication systems, subscribers move throughout the coverage area of the system utilizing mobile telephones referred to as mobile stations. Existing mobile telephones have a small display, such as a LED display, for displaying to the subscriber the telephone number being called and the status of the call.

Subscriber demand is great for mobile stations with increased communications capabilities. For example, subscribers desire mobile stations capable of transmitting, receiving, and displaying text and images. Heretofore, there has not been a self-contained mobile station capable of operating as a mobile telephone while performing these more advanced functions in a convenient manner. An existing solution has been to use a portable computer such as a laptop or Notepad, such as the Newton Notepad from Apple Computer, which is connected to a mobile telephone so that text and images can be displayed.

There are several problems, however, with this existing solution. First, the subscriber must carry around the laptop or Notepad computer in addition to the subscriber's mobile telephone. This is inconvenient at best, and for some subscribers, or in some circumstances, it is not possible. Second, the subscriber must possess the knowledge required to connect the portable computer to the mobile telephone. With the use of mobile

-2-

telephones expanding rapidly within the general population, there are many subscribers who do not possess this knowledge. Third, the subscriber must take time to connect the portable computer to the mobile telephone. Again, this is inconvenient at best, and may result in increased cost to the subscriber since a call is either lengthened by the time it takes the subscriber to connect the computer and the telephone, or two calls must be placed: a first call to alert the subscriber that text or images are to be sent, and a second call to send the text or images.

Although there are no known prior art teachings of a solution to the aforementioned deficiency and shortcoming such as that disclosed herein, a number of prior art references exist that discuss subject matter that bears some relation to matters discussed herein. Such prior art references are U.S. Patent Number 5,348,347 to Shink, a publication titled "Searching for the Perfect PDA", and a publication titled "Is it a phone or a PDA? Here's what Simon says". Each of these references is discussed briefly below.

U.S. Patent Number 5,348,347 to Shink discloses a pocketbook size organizer that can store a portable cellular telephone. The organizer comprises a flexible book that may hold a mobile telephone, a notepad, a pen, a calculator, and a timer. However, Shink does not teach or suggest a personal communications terminal which can perform as a mobile telephone while transmitting, receiving, and displaying text or image data.

The publication titled "Searching for the Perfect PDA" describes three generations of personal digital assistants (PDAs). The first generation comprised palmtop or handheld computers. These palmtops were generally pocket sized with a split case and a hinge on the spine. One side of the palmtop held a display, and the other side held a keyboard. External communication was limited to a serial port for connecting to a desktop computer or

external modems. The second generation of PDAs was much like the first generation, but added the capability to recognize handwriting entered with a stylus on the display screen. The third generation of PDAs are often called Personal Communications Assistants (PCAs) or Personal Intelligent Communicators (PICs). The most advanced PCA appears to be a device sold by BellSouth Cellular Corporation called Simon.

The publication titled, "Is it a phone or a PDA? Here's what Simon says" is a journal article appearing in the October 31, 1994 issue of InfoWorld magazine at pages 119-120. The article describes the Simon as a device comprising a cellular telephone and a personal digital assistant (PDA). The device may function as a mobile telephone as well as offering communications features such as electronic mail (E-mail) and faxing. The Simon device is not a fully functional personal computer. It is a cellular phone that is also programmed with personal information management (PIM) software applications such as a notepad, address book, calendar, calculator, and the like.

Almost all of one side of the Simon device is a LCD display, but this configuration has several disadvantages. First, since the display covers the entire side of the device, the Simon device must use an on-screen keyboard. When used as a PDA rather than a telephone, the device may display one of two on-screen keyboards or a numeric keypad for use with a calculator application. This creates a second disadvantage, however, since the small size of the on-screen keyboard requires that a stylus be used to make data entries. The on-screen keyboard is not designed for touch typing, but a modest amount of data entry is possible. The on-screen keyboard also creates a third disadvantage because a very limited amount of display area remains for displaying text or graphics information when the keyboard is displayed. While acceptable for straight

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