

micro controller **208**. (Cellular, paging, PCS (personal communications systems technology and equivalents thereof, are known to those skilled in the art.) Functionality and programmability of the processor **208** is in part provided by computer program instructions and data stored in memory **210** which could include read only memory, random access memory, or electrically erasable programmable read only memory, as those skilled in the art will recognize.

[**0025**] For purposes of claim construction, information that is received from a third party information service provider (**216**) via the radio link **202** and recovered from the radio signal for display on the PDA is considered herein to be a stream of information, whether its length is only a few bytes or several million thereof. In the preferred embodiment, the information stream is obtained from the HPID service and sent to a radio transmitter **212** for broadcast to a remotely located wireless personal digital assistant communications device **200**.

[**0026**] Information recovered from the radio signal **202** is appropriately processed by the computer **208** for display on the display and interface unit **214**. In the preferred embodiment, HPID pre-selects information of interest to an HPID service subscriber and only sends information meeting certain criteria. In an alternate embodiment, an information stream might include unfiltered information that is broadcast to all PDA users such that the processors of the PDAs perform a filtration function, locally selecting certain information in the stream for display on the screen **102**. A user-preference file stored in the PDA memory **210** can hold criteria by which unfiltered information in a broadcast can be locally selected (in the PDA) for display. The filtration of raw information received in the PDA **200** can be performed by the processor **208** if user criteria or specification are stored locally in the memory **210** (or otherwise made available locally) and if PDA processor software is written to filter for display, only information matching certain predetermined criteria.

[**0027**] As noted in **FIG. 2**, each of the information and data flows is bi-directional. Radio signals received at the transceiver **204** and processed by the computer **208** are sent to the display unit **214**, however, the display unit **214** is also capable of receiving input signals from a user creating a flow of information in the opposite direction, i.e. to the CPU for subsequent processing. As an example, a user may request additional information via the input signals to the display unit **214** which would cause the CPU **208** to send an appropriate command to the transceiver **204** which would broadcast a response signal **202** to an information service provider **212** requesting additional information.

[**0028**] **FIG. 3** shows a simplified depiction of how scrolling or ticker-tape display of information might be made to appear on a limited screen area such as that commonly found on commercially available personal digital assistants.

[**0029**] With respect to **FIG. 3**, a PDA **300** having a liquid crystal display input device and display device **302** has one or more display lines **304** allocated to a predetermined region of the display unit **302**. Upon closer examination, the information displayed in the predetermined region of the screen **304** includes a stream of financial news or other information or data **306** which might be obtained via the HPID service, or from other information service providers. If such information is appropriately formatted, it can provide

to the PDA user large amounts of information of particular interest to the PDA user. The information displayed on the screen display lines **304** can be held in position for some pre-determined or a user-specified length of time allowing the PDA user time to read each "frame." Alternatively, information might be continuously scrolled, at various rates, thereby assuring that all of the information to be displayed is scrolled. Still other embodiments would include holding a display window content until the PDA user toggles a screen re-write, by way of a key stroke or key depression for example. For purposes of claim construction however, all of the foregoing techniques or methods are considered to be equivalent ways of "displaying" information, regardless of how such information was obtained by the PDA.

[**0030**] As an embellishment to the real time display of selected information in a PDA, commercial advertising information might be embedded into the information stream. By providing the ability to insert advertising information into an information stream, the provision of a wireless data service such as HP ID or other on line data service might be indirectly subsidized by advertisers who pay for the ability to advertise products or services along side or embedded with information embedded in the HP ID or other information stream. By way of example, in **FIG. 3**, commercial entities might purchase advertising space **308** and **310** that would be scrolled along side the informational content messages **306**. As an additional embellishment, if a user wished to have more information on an advertised product, such as the eyewear advertised **310**, by an input signal provided to the display device **302**, additional information that was embedded in the recovered information stream broadcast to the PDA **202** could be immediately displayed on the screen as the advertisement copy **312** shown in **FIG. 3**. The provision of such advertising content is also considered to be a "display" of information on the PDA screen.

[**0031**] As an alternate embodiment, selecting the advertising copy **310** by an appropriate input perhaps from the pen or stylus **106**, a two way transmission capability in the PDA **200** would allow a hyper link data exchange to take place such that a broadcast signal returned to the information service provider could trigger the download of additional information, such as the advertisement **312** depicted in **FIG. 3**. By providing the ability to request additional information remotely, the volume of downloaded data might be less than that required to send additional or secondary information streams. For purposes of claim construction, the selection of an ad in a stream of information, which is considered to be a primary or first information stream might trigger the display of additional information considered to be a secondary or second data stream by which additional advertising information might be conveyed to the PDA user.

[**0032**] **FIG. 4** depicts a simplified flow chart of the steps of a method by which an information stream might be collected and/or provided to a personal digital assistant for display on its display and input stream. In the preferred embodiment, a third-party collects information from a variety of sources and preferably filters out unwanted information and formats the information for display on a PDA. Information filtration (according to a subscriber profile for instance) is performed by a service such as HPID.

[**0033**] In **FIG. 4**, an incoming data stream is received at the PDA **402**, which in the preferred embodiment is an RF