maximum resolution, with each pixel either on or off, or at lower resolutions, with each pixel displaying gray scale information.

It is also contemplated that a display system **106** according to the invention can be removably connected to the housing **102**, as well as to any number of external devices, such as portable phones, laptop or personal computers, personal digital assistants (PDAs), internet appliances, televisions, or the like. In this context, the display system **106** can be coupled to an external device in any fashion that provides for the transfer of information, either directly or remotely, between the display system **106** and the external device. Examples of such connectivity can include, without limitation, radio, infra-red, or other such communications carriers. In such an implementation, the display system **106** can be adapted to determine an identity of the external device to which it is communicating, and to respond accordingly. For example, the user of an intelligent display system according to the invention can connect the display system **106** to a cellular phone (or other such external device). Thereafter, the display system **106** assumes the attributes of the display included with the external device, and thus can provide a better display than the display included with the external device.

In these cases the display system **106** recognizes the display characteristics of the system to which it is connecting. For example, if the display system **106** were connected to a cell phone, it could determine the resolution and gray scale content, for example, of the cell phone display. The display system **106** could then adjust the image of the cell phone display so that it could be viewed appropriately at different sizes. Each pixel of the cell phone display could be mapped onto a corresponding pixel **109** in the display system **106**. Alternatively, if a larger or more resolute image is desired, each pixel from the cell phone could map onto a plurality of pixels of the display system **106**.

The display communications device **100** can also include location finding capabilities, such as global positioning. For example, the antenna **104** can receive global positioning signals from one or more global positioning satellites. The processor **103** can then determine the location of the device **100** from the global positioning signals. The processor **103** can pass data to the display system **106** so that the display system **106** can provide a visual representation of the location of the device **100** based on the received global positioning signals.

FIG. **7** depicts a preferred embodiment of a display communications device **100** according to the invention that includes a display system extension **140**. As shown, the display extension can also be collapsible. Preferably, the display system extension **140** includes a collapsible display screen extension **144**. The display screen extension **144** can be made as described above in connection with display system **106**. Preferably, the display screen extension **144** can be wound around a rod (not shown) that is contained within an extension housing **142**. Thus, a display communications device **100** having a display system extension **140** can take the form of a "pen and pencil" set.

The display system **106** and the display system extension **140** are coupled to one another via a display extension interface **146**. When the display system extension **140** is coupled to the display system **106**, the device **100** detects that the display system extension **140** is present. Thereafter, the processor **103** can provide display data for both the display system **106** and the display system extension **140**. For example, a display data bus can extends through the display system **106**, culminating at the display extension interface **146**. Similarly, the display system extension **140** can include a display data bus that also culminates at the display extension interface. Thus, the processor can communicate display data to both the display system **106** and the display system extension **140** via a common bus. The display extension **140** can also include additional memory.

Thus, there have been described interactive, low power, collapsible, intelligent, multi-media display systems for use as hand-held, portable communications devices. Those skilled in the art will appreciate that numerous changes and modifications can be made to the preferred embodiments of the invention, and that such changes and modifications can be made without departing from the spirit of the invention. It is intended, therefore, that the appended claims cover all such equivalent variations as fall within the true spirit and scope of the invention.

What is claimed is:

1. A display communications device comprising:
- a housing that contains a processor;
- means, coupled to the processor, for receiving input radio signals; and
- a flexible, collapsible display, including a plurality of organic light emitting devices (OLEDs), that is mechanically coupled to the housing and electrically coupled to the processor,
- wherein the display is collapsible into the interior of the housing has a viewable surface area that is larger than any cross-sectional area taken through the housing, and wherein the processor is adapted to extract display data from the input radio signals, and to provide a representation of the display data to the display.

2. The display communications device of claim **1**, further comprising means for transmitting output radio signals, and the processor is further adapted to receive commands from the display and to form the output radio signals based on the received commands.

3. The display communications device of claim **2**, wherein the display is adapted to process touch commands and wherein the received commands are based on the touch commands.

4. The display communications device of claim **1**, further comprising:
- a speaker that is coupled to the processor for transmitting output audio signals,
- wherein the processor is adapted to extract audio data from the input radio signals, and to provide to the speaker output audio signals that are representative of the extracted audio data.

5. The display communications device of claim **1**, further comprising:
- a microphone that is coupled to the processor for receiving input audio signals;
- wherein the processor is adapted to form output radio signals based on the input audio signals.

6. The display communications device of claim **5**, wherein the processor is adapted to form the output radio signals by modulating a carrier signal with a representation of the input audio signal.

7. The display communications device of claim **5**, wherein the processor is adapted to determine whether the input audio signals are telephone signals or commands.

8. The display communications device of claim **7**, wherein the processor is adapted to form output radio signals that initiate a connection between the communications device and a remote network device.

9. The display communications device of claim **8**, wherein the processor is adapted to connect to the Internet.