ciated driving electronics directly onto the carrier material **110**. The image-forming elements and driving electronics may comprise semi-conductive polymeric inks, and/or conductive polymers applied by means of the printing process. The carrier material **110** may also include a static image or advertisement **140**.

[**0016**] A power source **120** of the system could be provided on the flexible carrier material **110**. The power source **120** could comprise, for example, a photovoltaic cell array printed onto the carrier material **110**. The cell array could be produced using conductive polymers, such as polythiophene or other suitable conjugated polymer. The power source **120** could be in an area of the carrier material **110** that is separate from the display **130** as shown in **FIG. 1A**, or could be integrated with the display **130**. In embodiments, the power source **120** may alternatively be, for example, one or more of a conventional battery, a thin-film battery, photoelectric cells, fuel cells, or conventional wall-plug electricity.

[**0017**] **FIG. 2** illustrates elements of the electronic display system **100** in diagram form. The power source **120** may be coupled to the electronic display device **130** and to a controller **220** to provide electrical power thereto. The controller **220** may further be coupled to the display device **130** and control content of a display on the display device **130**. The controller **220** may comprise programmable logic circuitry such as a processor and/or ASIC (application-specific integrated circuit). The electronics of the display device **130** may comprise, by way of example only, OLEDs (organic light emitting diodes of either the small or large molecule variety), LEP (light emitting polymer, electrophoretic display technology, electro-chromic devices, or nematic or cholesteric liquid crystal devices that may be printed on the carrier material **110**, for example, as described above. An image displayed on the display device **130** may be monochromatic or in color.

[**0018**] Arbitrary display content may be stored in a memory device **240** coupled to the controller **220**. The display content may include any or all of letters, words, numbers and pictures, either still or dynamic (moving). The memory device could be on a surface of or integrated into the carrier material **110** (see **FIGS. 1A, 1B**). The memory device **240** may include flash or other solid-state electronic storage devices designed to function as non-volatile memory. The memory device **240** may be constructed, for example, from thin-film circuitry using polycrystalline silicon, amorphous silicon, or organic semiconductors, or inorganic semiconductors.

[**0019**] Control software and other data may be loaded into the memory **240** under control of the controller **220** using at least one communication port coupled to the controller **220**. Communication ports coupled to the controller **220** may include a wireless port **250** and/or an I/O port **260** to make a physical connection. By means of either the wireless port **250** or the I/O port **260**, the system **100** may be coupled to a computer to receive data and/or control signals from the computer. Since the carrier material **110** may be flexible, the physical connection may be facilitated, for example, with a flex or ribbon connector. The wireless port **250** may comprise an antenna buried into or printed onto the carrier material **110** and connected to a transceiver circuit built into the controller **220**. The electronic display system **100** could also be coupled via communication port **250** and/or **260** to a network such as the Internet or World Wide Web and programmed remotely via the network by, for example, downloading control software and display content into the memory **240**. Additionally or alternatively, the electronic display system **100** could be programmed and reprogrammed by simply replacing the memory **240**. To facilitate this, the memory **240** could be embodied on a replaceable chip such as a flash card.

[**0020**] An audio device **270** such as a speaker may further be associated with the electronic display system **100** and output audio content under the control of the controller **220**. A sensing device **280** may further be associated with the electronic display system **100** and detect events occurring in the proximity of the electronic display system **100**. Based on detecting an event such as the approach of a person, the sensing device may send a signal to the controller **220** to cause it to generate a corresponding display and/or sound via the display device **130** and/or audio device **270**, respectively. The sensing device **280** could comprise, for example, a motion sensor and/or a pressure sensor. The motion sensor could comprise, for example, a light-sensitive device such as a photodiode.

[**0021**] The controller **220** may provide addressing and data logic for driving displays on the display device **130**. The displays could be at varying levels of resolution, with corresponding technologies in the controller **220**. For example, to perform high-resolution graphics rendering, the controller **220** may be constructed from semiconductor materials such as single crystalline silicon processed on silicon wafers to provide the necessary processing speed. Alternatively, in applications where the resolution is lower and data rates are less critical, it may be possible to use thin-film transistors produced on plastic films or paper using polycrystalline silicon, amorphous silicon, or organic semiconductors.

[**0022**] One kind of display technology that may be used in the display device **130** is "active matrix" (AM) technology. **FIG. 3** illustrates details that may be involved in producing an active matrix display for use in the display device **130** according to embodiments of the present invention. To produce an active matrix display, the display device **130** may comprise thousands or perhaps hundreds of thousands of sub picture elements known as pixels. **FIG. 3A** is a magnified view of a small area **310** of the display device **130**. Individual pixels make up the images that are displayed on display device **130**. The pixels are controlled by address driver electronics **340** that provide power to address buses **350** and data driver circuits **320** that provide data to data buses **330**. The address buses **350** determine which column receives data supplied to the data buses **330**. In cases where the display device **130** is light-emitting and where a colored image is desired, each pixel may comprise a green, red, and blue sub-pixel. In **FIG. 3B** sub-pixel elements **360** are shown with associated transistor driving elements **370** that are nested between rows of data buses **330** and column address buses **350**. The transistor driving element **370** may be a Field Effect Transistor of either the PMOS or NMOS variety and may be constructed from organic semiconductors, amorphous silicon or polycrystalline silicon, depending upon the service temperature of a substrate in or on which they are in use. **FIG. 3C** illustrates an example drive circuit **370** comprising two transistors and one capacitor used to