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be described in detail in this specification and illustrated in the accompanying drawings which form a part hereof and wherein:

FIG. 1 is a plan view of the flexible electronic display;

FIG. 1a is a side view of the flexible electronic display;

FIG. 2 is a plan view of an alternate embodiment of the flexible electronic display;

FIG. 2a is a side view of an alternate embodiment of the flexible electronic display;

FIG. 3 is a plan view of yet another embodiment of the flexible electronic display;

FIG. 4 is a perspective view of a flexible page including the flexible electronic display;

FIG. 4a is a perspective view of a periodical or manual having pages bound together and including a flexible electronic display affixed to one of the pages;

FIG. 5 is a perspective view of a flexible page including the flexible electronic display;

FIG. 6 is a perspective view of a flexible page including the removable electronic display;

FIG. 7 is a plan view of an alternate embodiment of the flexible electronic display; and,

FIG. 7a is side view of FIG. 7.

DESCRIPTION OF THE INVENTION

Referring now to the drawings wherein the showings are for purposes of illustrating at least one embodiment of the invention only and not for purposes of limiting the same, FIG. 1 shows a self-contained electronic displaying device shown generally at 1. The self-contained electronic displaying device 1 may include a display portion 3, electronic control circuitry 4 and a power source 6. The device components may be completely contained within the device 1. That is to say that the device components may form a unitary part. In one embodiment, the unitary device may be contained within a flexible sheath 7. Alternately, each of the display components may be individually contained within separate discrete sheaths 7', as will be discussed in detail in a subsequent paragraph. In any embodiment, the display portion 3 may be electrically communicated to the electronic control circuitry 4, which may control how the information is displayed on the display portion 3. Additionally, the power source 6 may be communicated to the control circuitry 4 and/or display portion 3 for use in providing power to operate the device 1. In this way, the electronic displaying device 1 is self-contained in that it does not require a separate power source or external circuitry to display information on the device 1.

With continued reference to FIG. 1 and now to FIG. 1a, the electronic displaying device 1 may be a thin flexible electronic displaying device 1 wherein the electronic displaying device 1 may be resiliently deformable when flexed. That is to say that the self-contained electronic displaying device 1 may be bent back and forth without permanently affecting the displaying characteristics of the self-contained electronic displaying device 1. In this manner, the display portion 3 may also be constructed as a flexible display member 3' wherein information stored in the electronic control circuitry 4 may be selectively depicted on the flexible display member 3'. In one embodiment, the display portion 3 may be an electronic display membrane 3. The display membrane 3 may be thin with respect to the width and length of the electronic display membrane 3. By thin it is generally meant that the thickness of the electronic display membrane 3 may be at least an order of magnitude smaller with respect to the display's width and length. For example, a display membrane having a length of 7 inches or greater may have a thickness of 0.25 inches. It is contemplated in an alternate embodiment that the membrane 3 may have smaller lengths while still having a thickness of 0.25 or smaller. However, any length and/or thickness of

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membrane 3 may be chosen with sound engineering judgment as is appropriate for use with the subject invention. The electronic display membrane 3 may also be constructed as an optoelectronic device that emits light in the presence of electric current. One such example of the optoelectronic device is an organic light emitting device or OLED. The OLED may be constructed from two or more organic light-emitting material layers fashioned between electrical conductors. When a voltage difference is applied to the conductors, light is emitted from the organic light-emitting material layers, forming a picture element or pixel. Aligning an array of pixels may therefore form a display region or screen. One characteristic of the OLED display screen is that the screen may be flexible and selectively conformed to a curved or contoured surface. In that OLED displays are known in the art, no further explanation will be offered at this time. It is noted that while an OLED display may be used in the subject invention, it is understood that any flexible and substantially thin electronic display may be used without departing from the nature of the subject invention. In another example of an electronic or electrical display membrane 3, the membrane 3 may include individual lights or light emitting means, which may be LEDs that are arranged individually or in an array pattern for displaying information or for attracting attention. In this way, the lighting emitting means may be controlled by the control circuitry 4 and be supplied with power from a power source, as will be discussed further in a subsequent paragraph. However, any light emitting means may be chosen with sound engineering judgment as is appropriate for use with the subject invention.

With continued reference to FIGS. 1 and 1a, control circuitry 4 may be communicated to the electronic display membrane 3. The control circuitry 4 may be comprised of a logic processing unit 9 and memory 11. The memory 11 may include dynamic or static memory, one-time programmable or re-programmable memory, fixed or removable memory, or storage means of any type chosen with sound engineering as is appropriate for use with the subject invention. Additionally, the logic processing unit 9 may include a microprocessor and/or any support peripheral circuitry chosen with sound engineering judgment. The control circuitry 4 may similarly be constructed on a thin flexible material by electrically connecting judiciously distributed circuit components mounted on said flexible material. Electrical circuits of this type may be constructed on a flexible material (such as polyester) onto which a thin conducting layer (such as copper) has been robustly attached, forming a 'flexible substrate'. Circuit paths may then be created by removing unwanted conductor; one means of doing so is by depositing on the conducting layer a masking material in the desired pattern and then exposing the substrate to a chemical that etches away the conductor where there is no masking material. Multilayered substrates may be formed, for example, by layering substrates so constructed, and then electrically connecting the different layers through, for example, drilled holes and the subsequent selective deposition of more conducting material. Circuit components may then be attached in an electrically conductive manner, for example through soldering. Before and/or after components are attached, protective coatings/layers may be applied to the entire assembly. It is also noted that any method of creating a flexible electronic circuit may be chosen with sound engineering judgment. It is also noted that the construction of flexible circuits is well known in the art. Extended from one area of the control circuit may be a communication bus 14 that is connected to electronic display membrane 3. Data from the control circuit memory 11 may be selectively communicated to the display membrane 3 for use in displaying a message on the display membrane 3. The information displayed on the membrane 3 may be one or more static images or dynamic video, or static or dynamic patterns previously stored in the