

[0118] The input circuit 18 preferably forms an integral part of a touchscreen because the display section 12 can have an increased area in that case.

[0119] However, the input circuit 18 does not have to be provided as an integral part of a touchscreen but may be implemented as an input section, through which a command is input in response to the user's manipulation. In that case, to increase the effective area of the display section 12 as much as possible, such an input section (not shown) is preferably provided either on the back surface of the display device 10E so as to face the display screen of the display section 12 or on a side surface of the display device 10E so as to cross the display screen. Then, the input section may be a mechanical switch or dial. For example, if a jog dial is provided as an input section on a side surface of the display device 10E so as to cross the display screen of the display section 12, then the display section 12 can have a further increased area and yet the display device 10E can be operated even more easily. Such an input section may be naturally combined with a touchscreen. Furthermore, the input section may also be provided on the same side as the display screen of the display section 12.

[0120] Hereinafter, it will be described with reference to FIG. 8 how a signal may be exchanged between the card-type display device 10F and the electronic appliance 20 in a preferred embodiment of the present invention. The following statement is true of any of the various card-type display devices 10 and 10A through 10E described above. Thus, the card-type display device 10F represents each of the card-type display devices 10 and 10A through 10E described above.

[0121] As shown in FIG. 8, the transceiver 11 of the card-type display device 10F includes a transmission/reception controller 11a and a wireless communicator 11b. Likewise, the electronic appliance 20, to which the card-type display device 10F may be inserted, also includes a transmission/reception controller 21a and a wireless communicator 21b. By exchanging signals between these wireless communicators 11b and 21b, the signal can be transmitted to, or received from, the electronic appliance 20 by a non-contact method. If the card-type display device 10F has no power supply, the signals should be exchanged while the card-type display device 10F is in contact with the electronic appliance 20. However, if the card-type display device 10F has a power supply, the signals may be exchanged even if the card-type display device 10F is out of contact with the electronic appliance 20.

[0122] In this manner, if signals can be exchanged by such a non-contact method, the card-type display device 10F will not be broken or damaged easily even when the substrate 1 thereof is made of glass, for example. This is because the signals can be exchanged with no mechanical force applied onto the substrate 1.

[0123] Optical communication may be carried out as infrared communication when IrDA-compatible infrared communications devices (e.g., optical communications devices including an LED and a photodetector within a single housing and compatible with 1.1 M infrared communication) are used as the wireless communicators 11b and 21b. Alternatively, short-range radio communication may also be carried out by using Bluetooth modules (radio communications devices) as the wireless communicators 11b and 21b.

Also, when the optical communication is carried out, the optical communications devices may be provided on the principal surface of the substrate 1 (e.g., a glass substrate) so as to propagate an optical signal vertically to the substrate 1.

[0124] Furthermore, the card-type display device 10F may be further provided with a contact sensor (not shown). In that case, the card-type display device 10F and/or the electronic appliance 20 may switch their modes of operation depending on whether the card-type display device 10F is in or out of contact with the electronic appliance 20. For example, the modes of communication may be switched as follows depending on whether the card-type display device 10F is in or out of contact with the electronic appliance 20.

[0125] If the contact sensor, provided for the transceiver 11 or system controller 19 of the card-type display device 10F, has sensed that the card-type display device 10F is in contact with the electronic appliance 20, optical communication may be carried out between the card-type display device 10F and electronic appliance 20 by exchanging optical signals between optical communications devices. On the other hand, if the contact sensor has sensed that the card-type display device 10F is out of contact with the electronic appliance 20, radio communication may be carried out between the card-type display device 10F and the electronic appliance 20 by exchanging radio frequency signals between radio communications devices. The modes of communication to be switched are not limited to the optical communication and radio communication described above. For example, modes of communication may also be switched between short-range optical communication and long-range optical communication, between short-range radio communication and long-range radio communication and between electrically connected, wired communication and optical communication or wireless communication (e.g., radio communication).

[0126] Furthermore, the output levels of communication signals such as optical or radio frequency signals may also be changed depending on whether the card-type display device 10F is in or out of contact with the electronic appliance 20. For example, while the card-type display device 10F is out of contact with the electronic appliance 20, the communication between them should be carried out over a certain distance, and therefore, output signals having relatively high levels may be transmitted. On the other hand, while the card-type display device 10F is in contact with the electronic appliance 20, output signals having relatively low levels may be transmitted. Then, the power dissipation can be reduced while the card-type display device 10F is in contact with the electronic appliance 20.

[0127] In the preferred embodiment described above, the contact sensor is provided for the card-type display device 10F. Alternatively, the contact sensor may also be provided for the electronic appliance 20 such that a signal indicating that the electronic appliance 20 is in or out of contact with the card-type display device 10F may be transmitted to the card-type display device 10F. It should be noted that the contact sensor and a circuit for switching the modes of operation in accordance with the results obtained by the contact sensor may be easily implemented with known circuits.

[0128] If the card-type display device 10F has a power supply, information can be exchanged between the card-type