

MIRROR-MONITOR (VARIANTS)

The utility model concerns to the field of household arrangement and, particularly, to design of the mirror with the function of the images demonstration.

From the technical field there is known a mirror-monitor, which is designed by the company Philips in the form of the unique television system MiraVision and is the big liquid-crystal display, covered with the special semi-reflective layer, being a screen functioning as an ordinary mirror in the switched off condition. However, the demonstration of the telecasts or images from computer begins when device is switched on by the button. In the same way the system supports the special operating mode "picture-in-mirror" where the basic part of the display carries out a mirror role, and the small video image appears in the corner of the frame (http://www.3dnews.ru/news/philips_predstavila_zerkalo_televizor/).

Lacks of the given system consist in the complexity of its manufacturing caused by use of the liquid crystal display, covered with the special semi-reflective layer, at the same time the said display is a part of monitor, and mirror function is shown at the expense of change of properties of this display covering, and also not convenient management caused by presence of the external switching on device, what results in more expensive device.

From the technical field there is known a mirror-monitor, containing the monitor with the flat screen and metal framed mirror in front of the screen, made in the form of a flat glass plate with a mirror covering with a titanite spraying on the back side to provide function of one-sided visibility, at the same time on the back side is fixed the substrate from a light-absorbing material with an opening, smaller than the size of the form of the screen of the monitor to which the panel, having an opening, is fixed. The size of the said opening corresponds to the form of the monitor body or to the form of the monitor screen on which the monitor body is fixed, where the screen of the monitor is located opposite or in the panel opening. The Mirror-monitor is supplied with a remote control as a control system. (patent of the Russian Federation № 104174 , 08.02.2010, IPC C03C 17/36).

Lacks of the known technical decision accepted as a prototype is the limited functional capabilities, as well as the complexity of manufacturing caused by presence of a lot of elements, having certain light characteristics, for monitor installation, and not enough convenient control caused by presence of the external device, what results in expensive construction.

The purpose of the present utility model is to create the device with the wide functionality and with improved economic and technical characteristics by making construction simpler and cheaper.

In accordance with the first variant the said purpose is achieved by device, containing the panel for installation of a monitor with the flat screen, the metal framed mirror which is in front of the screen in the form of a flat glass plate with a mirror coating, and a control system, accordingly to invention, the panel is executed in the form of the box-shaped body where the mirror having certain transparency is fixed on its front, under the monitor located at the bottom of the body and occupying the basic area of an internal surface of the body, the movement sensor is established, concerning to which the mirror has a transparent area, the movement sensor is integrated into the built-in control system, implemented with the possibility of video images demonstration in full screen of the monitor or in a reduced form with possibility to move the image in any place of the screen with simultaneous functioning as a mirror, the movement sensor has possibility to demonstrate the video images in the full screen of the monitor at the absence of overlap of transparent area of the mirror and has possibility of simultaneous demonstration of video images in a reduced form and function as a mirror at the condition of overlap of transparent area of the mirror.

In accordance with the second variant the said purpose is achieved by device, where accordingly to invention, panel is executed in the form of the box-shaped body where the mirror having the certain transparency is fixed on its front, under the monitor located at the bottom of the body and occupying a certain part of the basic area of an internal surface of the body, the movement sensor is established, concerning to which the mirror has a transparent area, the movement sensor is integrated into the built-in control system, implemented with the possibility simultaneously to demonstrate video images and function as a mirror or only function as a mirror, at that the movement sensor has possibility simultaneously to demonstrate video of images and function as a mirror when the transparent area of the mirror is overlapped, besides has possibility of function only as a mirror in the absence of the overlapping of the transparent area of the mirror, the area of the monitor is sufficient for simultaneous demonstration of video images and function as a mirror .

Besides, the transparency of the mirror makes up 10 – 15 % and the size of area completely exceeds the body.

And also, the elements fixing the mirror to the body and locks for keeping it in closed position are arranged on the metal frame of the mirror.

Besides it, image videos represent video files in Mpeg 2format, or pictures in Jpeg.format . Existence of the transparent area on the mirror, corresponding with the movement sensor, fixed at the bottom of the body under the monitor and integrated into the built-in control system, executed with possibility of demonstration of video of the image in a reduced form with its moving to any place of the screen, and also, concerning to the second variant, existence of the

monitor area, occupying a certain part of the basic area of an internal surface of the body and located in its bottom, at the certain operation conditions makes real to improve functional capabilities of the device because of simultaneously functioning as the monitor and mirror and additionally to reduce equipment expenses.

Existence of the movement sensor connected with the control system allows to reduce electric energy demand, and so to improve economic capability of the device.

Performance of the panel in the form of the box-shaped body with the monitor arranged in it , allows to simplify installation without using of additional seat members with certain light characteristics and in result to improve manufacturability and reduce the device expenses.

Existence of the movement sensor, integrated into the built-in control system, the certain transparency of a mirror, use of video images in different formats additionally raises usability of device.

Performance of the size of the mirror area, completely exceeding the body and existence of the members fixing mirror to the body and locks for keeping it in closed position additionally provides dust internal cave of device.

Two technical solutions are joined in one application for both of devices solve the same task and are equivalent but can't be united by summary feature. The claimed technical solutions differ from the prototype so that the basic area of the internal surface of the body or the certain part of the basic surface are used as the area for the demonstration of the video images is implemented the, as well as existence of the movement sensor which is integrated in the built-in control system.

These differences allow to make conclusion that the claimed technical solutions meet the criteria "novelty".

The features distinguishing the claimed technical solution from the prototype are not known from other technical solution when search in the given and adjacent technical fields and, therefore, meet to criterion «essential features».

The invention is illustrated by drawings, where are shown:

In fig. 1- a general view of the first variant of the device ;

In fig. 2 – the back view of the first variant of the device;

In fig. 3 – a general view of the second variant of the device;

In fig. 4 – the rear view of the second variant of the device;

In fig. 5 – the block schematic diagram of the control system.

The device consists of the panel in the form of the box-shaped body 1 (fig.1) with the monitor 2 established in it with the flat screen occupying the basic area of an internal surface of the body. At the bottom part of the body 1 the movement sensor 3 is established. On the front of the body 1

the mirror 4 in the form of the flat plate is fixed, mirror 4 has a metal frame 5 with the elements located on it (are not shown on the drawing) for to fix to the body 1 and mechanical locks (are not shown on the drawing), fixing a mirror 4 in the closed position. At the bottom part of a mirror 4 is established the transparent area 6, correlative to arrangement area of the movement sensor 3 located on the body 1. From the back side body 1 has elements 7 fixing (fig.2) device to a wall.

In accordance with the second variant of execution (figs. 3, 4) the monitor 2 occupies a certain part of the basic area of an internal surface of the case 1, sufficient for simultaneous demonstration of video images and functioning as a mirror, and the built-in control system which is executed with possibility of demonstration of video images and simultaneous functioning as a mirror or to have only mirror function.

The movement sensor 3 is integrated into the built in control system made with possibility of demonstration of video images in the full screen of the monitor or in a reduced form with moving of the image at any set-up place of the screen and including the power unit 8 (fig.5), the control unit 9, consisting of the processor and a memory, for example a SD card and USB, storing video images representing video files in Mpeg 2 format or picture in Jpeg format, and dynamics 10.

The device by the first variant works in the following way:

When mirror-monitor is engaged the power unit 8 will transform voltage 220 in the voltage 12, and the electricity enters to the control unit 9, at its signal, in accordance with the recorded program, the video images in the form of video files in Mpeg 2 format or in the form of pictures in Jpeg format appear on the monitor 2, accessible to be reviewed from the outside for the certain transparency of a mirror 4. Demonstration is accompanied with sound of dynamics 10. When at certain distance, set by the customer, appears the person or any object and the transparent area 6 of the mirror 4 is overlapped, accordingly to the movement sensor 3 the signal feeds on the control unit 9, at its signal the size of the image on the monitor 2 reduces and moves to any place on the screen, transforming the remained surface of a mirror 4 into a usual mirror. The size of video image and place of its moving on the screen of the monitor 2 is defined accordingly to the established program in the processor of the control unit 9. In the absence of the person or an object in the area of the movement sensor 3 the video image appears in the full size.

The device by the second variant works in the following way.

When at certain distance appears the person or any object and the transparent area 6 of the mirror 4 is overlapped, the signal from sensor 3 through the control unit 9 engages the video images, storing in the storage unit of control unit 9, these images become accessible to an external review. At the same time the size of the monitor 2 doesn't inhibit to use the rest area of a mirror

4 as an ordinary mirror. In the absence of the person or an object in the area of a transparent part 6 of the mirror 4, the monitor 2 is disconnected by a signal of the movement sensor and the device transforms into ordinary mirror.

The described device is characterized in, wide functionality and aesthetic design, convenience features it is cheap, easily mounted and programmed.

The present utility model can be easily realised with use of separate mirrors and various types of TV sets.

THE CLAIM OF UTILITY MODEL

1. Mirror-monitor containing the panel for installation of a monitor with the flat screen, the metal framed mirror which is in front of the screen in the form of a flat glass plate with a mirror coating, and a control system, different that the panel is executed in the form of the box-shaped body where the mirror having certain transparency is fixed on its front, under the monitor located at the bottom of the body and occupying the basic area of an internal surface of the body, the movement sensor is established, concerning to which the mirror has a transparent area, the movement sensor is integrated into the built-in control system, implemented with the possibility of video images demonstration in full screen of the monitor or in a reduced form with possibility to move the image in any place of the screen with simultaneous function as a mirror.

2. Mirror-monitor at item 1, different that the movement sensor has possibility to demonstrate the video images in the full screen of the monitor at the absence of overlap of transparent area of the mirror .

3. Mirror-monitor at item 1, different that the movement sensor has possibility of simultaneous demonstration of video images in a reduced form and function as a mirror at overlap of transparent area of the mirror.

4. Mirror-monitor containing the panel for installation of a monitor with the flat screen, the metal framed mirror which is in front of the screen in the form of a flat glass plate with a mirror coating, and a control system, different that the panel is executed in the form of the box-shaped body where the mirror having the certain transparency is fixed on its front, under the monitor located at the bottom of the body and occupying a certain part of the basic area of an internal surface of the body, the movement sensor is established, concerning to which the mirror has a transparent area, the movement sensor is integrated into the built-in control system, implemented with the possibility of simultaneous demonstration of video images and function as a mirror or function only as a mirror.

5. Mirror-monitor at item 4, different that the movement sensor has possibility simultaneously to demonstrate video of images and function as a mirror when the transparent area of the mirror is overlapped. 2.

6. Mirror-monitor at item 4, different that the movement sensor has possibility of function only as a mirror in the absence of overlapping of transparent area of a mirror.

7. Mirror-monitor at item 4, different that the area of the monitor is sufficient for simultaneous demonstration of video images and function as a mirror.

8. Mirror-monitor at items 1, 4, different that the transparency of a mirror makes up 10 – 15 %.

9. Mirror-monitor at items 1, 4, different that the size of mirror area completely exceeds the body.

10. The Mirror-monitor under items 1, 4, different that the elements fixing the mirror to the body and locks for keeping it in closed position are arranged on the metal frame of the mirror.

11. The Mirror-monitor under items 1, 4, different that video images represent video files in Mpeg 2format.

12. The Mirror-monitor under items 1, 4, different that video images represent pictures in Jpeg.format.