

Informative Mirror

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Abstract: An informative mirror is a system that functions as mirror with additional capability of displaying date, time, current temperature, weather details, news and daily schedule. In this system, we are providing mirror with intelligence. For designing informative mirror we are using IOT circuitry through which we can display daily information directly on the surface of the mirror. User will give commands according to their requirements and the response will be collected visually using raspberry pi 3 model B. This system also provides security for particular user so that each user can only view their own schedule.

Keywords: Informative mirror, Internet of things (IOT), Raspberry pi 3, smart devices.

1. Introduction

In modern world, man has invented various technologies for their comfort life. Mirror is found in most people's home. We are aiming at combining normal mirror with digital display. The device was to go beyond an ordinary mirror, to have a screen inside that you would be able to interact with by using voice commands and smart phones or other devices. There are many benefits of using an informative mirror. It makes life easier as the need to look at phone every time we need to check the date or weather is reduced. We have all the information that we need right in front of us. The informative mirror would be used to merge two or more technologies and the need for information into any one's daily schedule. With the mirror in place, the user could interact and obtain the information they want during their normal morning and night routines. System collects real world machine data and the data would be transmitted from the machine and would be managed by the Raspberry Pi. The Smart Mirror implemented as a personalized digital device equipped with peripherals such as Raspberry Pi, mouse, keyboard etc.

2. Project Structure

A. Block diagram of informative mirror

Fig. 1 shows the basic block diagram of informative mirror with arrow heads showing the input and output control lines and block shows the component required for the informative mirror. The goal of the Informative mirror is to provide a single easy to access location for a person to receive all the information that could affect how they prepare for the day. Through the use of display and a two-way mirror, weather, time and date, and news are available at a glance. The microphone is connected to the Raspberry Pi to accept Voice commands, according to the voice commands Raspberry Pi will Show you the result on mirror.

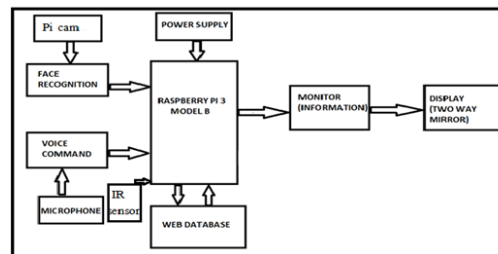


Fig. 1. Block diagram of Informative Mirror

A user-friendly interface, accessible from any Wi-Fi enabled device, allows the user to easily setup the connection to their home Wi-Fi, change the location from which they receive the weather, and select a source from which to receive the day's headlines. Additionally, Pi camera is used for security purpose for schedule accessing using face recognition concept. By building these features into a mirror, which most people will already be using in their morning routine, it is possible to present this information in such a way that it will seamlessly blend together with the task of morning grooming.

Table 1
Literature survey

S. No.	Title of the Paper	Year of Publication	Content
1	Smart Mirror Using Raspberry Pi- International Journal of Engineering and Techniques	March-April, 2018	Smart mirror is to increase a user's productivity by saving them time.
2	Smart Mirror Using Raspberry PI - International Journal for Research in Emerging Science and Technology	April 2018	To make life easier as the need to look at phones, tablet, PC every time we need to check the date, time, news or weather is reduced.
3	Design of Smart Mirror Based on Raspberry Pi", International Conference on Intelligent Transportation, Big Data & Smart City (ICITBS)	Jan 2018	The designed intelligent mirror has the advantages of small size, simple operation, low cost, and is suitable for families, and has broad application prospects.

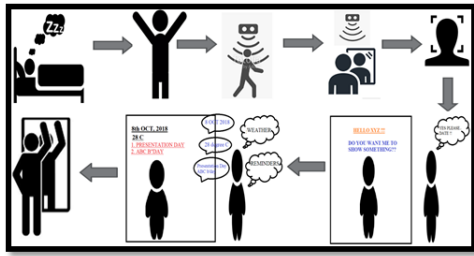


Fig. 2 Conceptual Diagram

Fig. 2 shows the conceptual diagram of informative mirror. It includes basically IR sensor, Pi camera and a two-way mirror. IR sensor is for the detection of any kind of motion in front of it. PI camera is for the face detection purpose and a two-way mirror is for the display of output or when there is no output to display it acts as a simple mirror. The IR sensor is placed just above the mirror in order to track a motion of someone who comes in front of the mirror and then starts the processing. The Raspberry Pi is also placed behind the mirror interfaced with the camera, monitor and IR sensor. When the user comes in front of the mirror the IR sensor activates and detects the motion of someone coming in front of it. The camera detects the user in front of the mirror using face recognition algorithm and detects the right user who owns the informative mirror. If the user detected is the owner then the mirror will ask whether to show some information or not. According to the user's requirement the information will be displayed on the mirror through the monitor interfaced with the Raspberry Pi. The monitor will be off when all the users' commands will be over and finally the informative mirror will act as a normal mirror. This is the whole working of our project.

3. Methodology

Fig 3. shows the schematic view of mirror with all other components placed according to the requirement of our project. The monitor is placed behind the two-way mirror and the mirror acts like a display for output when the monitor's light is on.

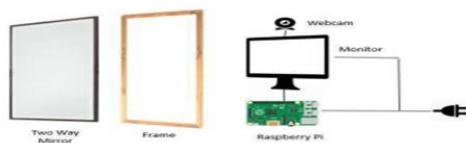


Fig. 3. Methodology

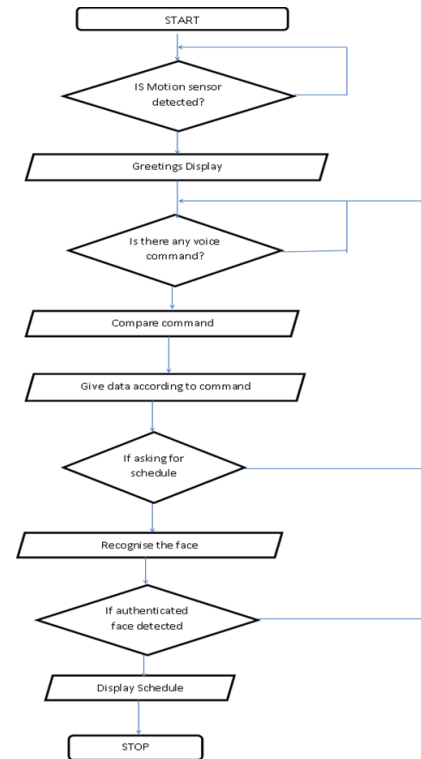


Fig. 4. Flow chart

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