DESIGN OF SMART DISPLAY USING RASPBERRY PI

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Abstract - *Intelligent mirrors, which continue the works today and will take its place in the future technology, provide both mirror and computer aided information services to its users. Thanks to the microcontroller cards on board, these systems, which can connect to the internet and take data from the internet, can show this information on the places located on the mirror. In the scope of the study, the developed intelligent mirror system includes the weather information, time and location information, current event information, user information, and camera image taken from web services using Raspberry Pi 3 microcontroller card. Some equipment can be controlled by voice commands via the microphone on the smart mirror.*

***Key Words*: (Smart Mirror, Iot, Raspberry Pi,Led Monitor, Weather, Time, News)**

1. INTRODUCTION

This Paper Presents The Implementation Of A Smart Mirror Using Raspberry Pi. A Smart Mirror Is Capable To Displaying Time, Date, Weather And Cloud. The Many Benefits Of Using A Smart Mirror It Make Life Easier As Need To Look At Phones Every Time We Need To Check Time, Weather Is Also Reduced. The Smart Mirror Help In Developed Smart House With Embedded Artificial Intelligence Finding Application In Industries. We Look At The Mirror Daily And Internet With It Psychologically To Find Out How We Look And How Our Attire Is. The Interactive Mirror Is Develop The Mirror With Proper Embedded Intelligence For Offering Feature Such As Weather Of City, Latest Updates Ofnews And Headlines And Local Time Corresponding To Location.

2. PROBLEM STATEMENT

The goal of the smart mirror is to provide an access point for a person to receive all the information that could affect how they plan for the day. For getting news updates and weather updates, a person will always have to switch on the television which is time consuming. To get rid of these problems, the concept of smart mirror is introduced. All the necessary information like weather and news can be accessed from one location. The problem of a secured user authentication technique can also be corrected by this system.
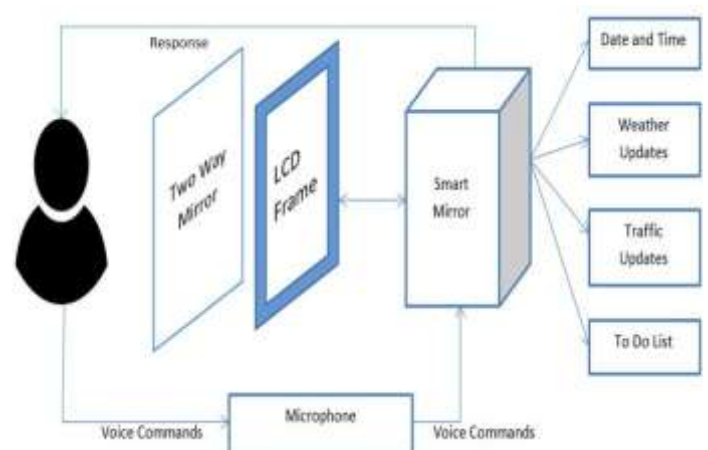
3. OBJECTIVE

The system uses a raspberry pi based processor board along with display with mirror and IOT based circuitry and other sensor interfaced together. We use a precisely modelled panel to construct the outer frame. Then we use specialized glass with a back frame to encase the system.

4. PROPOSED SYSTEM

We plan to designate and exhibit such kind of futuristic smart mirror which provides a whole modern experience to the user. Our proposed smart mirror consist of aRaspberry Pi, two-way mirror, a crylic glass, monitor (LED), and motion Sensor. Raspberry Pi 3 B+ is a minicomputer. It uses raspbian operating system. A wooden frame will be prepared with LED attached behind the glass with all the sensors, and the raspberry pi. The power supply is attached to the raspberry pi which will power the LED monitor and the sensors. The block diagram depicts that it would collect personalized data like date, weather of the metropolitan, the latest updates of news and headlines and local time corresponding to the location. For this process internet access will require which will be provided by Wi-Fi module on the raspberry pi.

5. BLOCK DIAGRAM

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6. REQUIREMENTS

Mirror:

A Smart Mirror is a two-way mirror with an inbuilt display behind the glass. The display can show anything you want on the mirror's surface such as the current time, weather forecast, news feed, upcoming appointments, and more. Smart mirrors can come in all sizes from small table mirrors, to full bathroom mirrors. Smart mirrors are sometimes called 'Magic' Mirrors, but they both refer to the same thing.

Raspberry Pi:

The Raspberry Pi 3 is a credit-card sized computer capable of doing just about anything a desktop PC does. From web surfing and word processing, to playing Minecraft or acting as a media player, the Raspberry Pi's capabilities are extensive. With plenty of graphics processing power, the Raspberry Pi 3 is capable of streaming BluRay-quality video. If you're looking to incorporate the Pi into your next embedded design, the 0.1" spaced 40-pin GPIO header gives you access to 27 GPIO, UART, I2C, SPI as well as both 3.3V and 5V power sources.

Microphone:

The mode for voice commands to reach the Raspberry Pi is the Microphone It processes the voice signal into the electrical signals using acoustic effect and delivers the input required by the Raspberry Pi.

Wooden Frame:

The frame provides house for every component necessary to build the smart mirror. It is made of wooden blocks and clamps are provided in appropriate places to hold the devices in position. It gives the smart mirror a visual treat. The frame could be designed as per the user's wish.

7. ADVANTAGES

- Shows all the essential information which is useful for the user.

- Smooth screen is used for display.

- Two way glass is used

- The mirror is ultimately a technically augmented interaction device.

- Provide a natural interface Location based weather, time; calendar etc. can be accessed with ease.

8. CONCLUSION

This paper proposes an interactive mirror that ease the user's task by displaying widgets such as date and time, weather updates, news feed and schedule according to the user. The schedule of user is displayed only when the mirror recognizes the user, this also provides security to the Smart mirror. The Smart mirror is switched on/off using voice command and also gives voice response to the user.

9. FUTURE WORK

The future work on this project can be adding more widgets such as e-mails, social media applications, traffic updates etc. For security of these widgets iris detection can be used along with thumb impression for accessing mails and personal data. Artificial Intelligence can also be added as an extra feature for recommending news according to the user's choice, suggesting the best path to reach the destination according to the traffic or suggesting clothes and accessories according to the climate conditions.

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