M.A.S.S (Mirror at Smart Service)

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Abstract:- Nowadays people in morning spend most time in their rooms. So a common thing everyone has in room is mirror and making this mirror smart and useful to all in day to day life is done in this project. This is done by displaying useful and necessary information on mirror using Raspberry Pi and LCD. Time, date, motivational quotes and news headlines are displayed on the mirror. A person can keep track of his daily schedules by just a glance of remainder displayed on the mirror. Work of displaying this things is done on LCD monitor. And installation of smart mirrors in homes is not that hard work.

Keywords:- Smart Mirror, Raspberry Pi, Weather, Time, News, Music, YouTube Videos.

I. INTRODUCTION

Smart mirror is nothing but giving a high-tech look to a regular mirror. A mirror where we would be able to see time, news, weather, listen music and even enjoy YouTube videos more just while looking and grooming in front of the mirror.

The system allows us to receive news online and display it on the mirror screen along with other details including current weather forecast which gives it a slight information about the climate outside. The system uses a Raspberry Pi 3 Model B+ based processor board along with monitor. The playlist of YouTube videos to be played are seen on the smart mirror.

A wooden frame is used to hold the circuitry along with the monitor. Then a two-way mirror is used to make the system look like a normal mirror [2]. The frame cavity is then fitted with the Raspberry Pi and Monitor. Raspberry Pi is used to connect with internet using IOT circuit through the use of a Wi-Fi module. This allows us to receive real-time data. IOT helps us to connect to the internet and get news feeds. This shows us that a futuristic IOT smart mirror with time, news and weather display is possible along with music.

IOT has gained a lot of popularity in recent years as it helps us in interaction with various objects rather we can say smart objects. Smart Mirror falls under the category of IOT making daily life interaction easy [4]. Smart Mirror will eventually be a connected smart object in the near future where everyone would be able to communicate with the mirror as an assistant with ease.

II. ARCHITECTURE AND FUNCTION OF SYSTEM

Now, in practical smart mirror system comprises of Raspberry Pi and LCD monitor to be fitted in a wooden frame. The wooden cavity is used in order to hold the circuitry together so that they can be hung on the wall. It can be understood from the diagram below (Fig.1).

Fig 1:- Architecture of Smart Mirror

It will display various modules with a wonderful GUI helping us to know the relevant current information. Like to keep a track of time so we are punctual about all the daily schedules [1]. Displaying the climate outside whether it is hot or is it going to rain. It also updates the important headlines that are necessary to know, which are fetched from the real-time news webpages, from the web sources various data feeds can be used such as RSS feed. Listening to music through YouTube videos will motivate in enjoying the work while working.

The functioning of smart mirror can be achieved by displaying modules. Here the system will be connected to the Wi-Fi where the modules will get the real-time data conveniently and perform the required tasks easily.

III. PROPOSED WORK

According to a research shown about 58.75% of people spend most of their time in bedroom. Most of our daily schedules get disturbed as we lose track of time due to our laziness of either snoozing the alarms or our phones are usually charging in the morning [1]. Due to which people have no idea about the current headlines, as they are already late which gives them no time to read newspaper. Then, while leaving for work nobody checks the traffic prevailing in the daily route to work which again leads to

loss of time by getting stuck in the jam. This also leads to a situation where people are not punctual for work and also don't have a track of upcoming appointments. Climate can't be predicted by human beings, hence, it becomes necessary to have an idea of what the weather is going to be on a particular day so that we don't face any problems e.g.: getting wet on a rainy day.

The above mentioned problems can be avoided by using a Smart Mirror. With the help of Smart Mirror people can get a track of time and also have an idea if there are any upcoming appointments for that day. People will get to know the current headlines and news displayed on the mirror. The climate display will help to know the outside climate and avoid facing the problems. With the help of google map traffic display people get to know where traffic might be so one can avoid traffic and be on time to office. These problems are common to every one of us and the solution to overcome them is to have a system which helps our daily routine work.

IV. REQUIREMENT

A. Software Requirements:

All the software runs on the Raspberry Pi 3 Model B+. A micro SD card with pre-installed Raspbian OS, is available on the official Raspberry Pi website, is provided with the Raspberry Pi kit. Then insert the card on the Raspberry Pi, start it and follow the installation instructions which are simple. Once Raspbian is installed, the first thing is to update it with the latest packages, configure the basics of the OS. Languages used are JavaScript and Python. The overall coding for the smart mirror system is done on the Raspberry Pi. It is very efficient to test the software directly on raspbian terminal.

B. Hardware Requirements:

Two-way mirror, is a mirror which is partially reflective and partially transparent. This is the most important part of the hardware because it is responsible for creating the futuristic effect and is the fragile part of the smart mirror (Fig. 2).
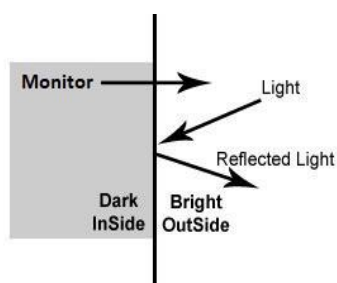

Fig 2:- Two Way Mirror

For display, a monitor was bought. The monitor is comparatively smaller than the mirror, so a black cloth is used to cover the parts of the glass which is not being covered by the monitor. An HDMI cable is used to connect the display to the Raspberry Pi for audio and video [7].

The Raspberry Pi 3 Model B+ is a tiny credit card size computer. Just add a keyboard, mouse, display, power supply, micro SD card with installed Linux Distribution (Fig.3.).

Fig 3:- Raspberry Pi 3 Model B+

The frame is made of wood and is used to provide support to the mirror and all the other components. It frames the glass and helps in hanging the mirror on a wall. A webcam is used which consists of a built in microphone that is used for voice input.

V. ADVANTAGES

- Cost optimized product. All data is stored on micro-SD card.
- Will get a reminder of upcoming appointments and important schedules for that day.
- Get an idea about climate well in advance in order to avoid problems.
- Get to know about what's happening in country with headlines.
- Enjoy working at home while listening to music.
- Very user friendly and easy to use. Interaction is made easy.

VI. DIS-ADVANTAGES

- Major disadvantage of this project is the availability of internet through wireless connection e.g. Wi-Fi. Because there is need of internet to get real-time news, weather forecast, etc.
- Micro-SD is compatible with Raspberry Pi 3 only.

VII. CONCLUSION

Raspberry Pi proves to be a great innovation in today's world and will be used on a vast scale in coming years. Use of Raspberry Pi in numerous smart things has led to an increase in its users.

Smart Mirror is an ordinary mirror with smart features. Smart Mirror uses an LCD Monitor to satisfy users requirements by displaying necessary information. Smart Mirror provides various features while grooming as well as while working like one can watch YouTube videos, listening to music, get frequent news updates, get information about climate and get a track of planned activities.

In future, adding a touch integrated feature will drastically change the use of the mirror.

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