SMART MIRROR AUTOMATON

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Abstract— **Internet of Things (IoT) allows devices to communicate with each other in different and important places at the same time. Smart things are developed in ways that interact with each other, such as smart doors and smart homes. One of the most important IoT applications is the smart mirror. It is a mirror that acts as a reflective surface and as an interactive screen at the same time. Smart mirrors can be implemented for many fields such as Sport field , Fashion field , Academic field and an assistant in the fitting rooms. This paper presents a view on smart mirrors.**

*Keywords-***Academic field: An academic discipline or field of study is known as a branch of** knowledge or Academic field.Interactive screen: An interactive screen is a computer**driven device, allowing users to access and manipulate electronic files by means of a LCD display.**

I.   INTRODUCTION

The world around us is inconsistent. With the advancement in both science and technology, people are moving towards a more automated lifestyle. Some of the automated areas like smart cities, smart cars, smartphones, and smart homes and to survive in this automated world, we need many home automation systems using the Internet of Things (IoT) devices. IoT is an integrated system used for the running of task autonomously. There are many real- world applications exist for the home automation like closing and opening of doors/windows automatically when a person enters or exists. This paper mainly focuses on the Smart Mirror using IoT which works with the help of Raspberry Pi 4.A smart mirror is an intelligent device that works as a mirror with the ability to interact with users and display various responses and information such as date, time and weather on the screen all behind a reflective surface as a mirror. There are many types, shapes, sizes and applications of smart mirrors that can be applied in various fields such as academic, general and medical fields by using different implementation methods and programming languages.

II.   PROPOSED METHOD

The Block Diagram of Smart Mirror Smart mirror is a Raspberry Pi (low powered minicomputer) based display when connected to the internet it picks and displays the necessary information in the presence of the user. In the proposed system, Raspberry Pi 3 B+ is used which contains 1 GB SDRAM, runs on Linux platform and needs 700mA. A single sided mirror is placed on the LCD screen which acts as a regular mirror when there is no light behind it or act as a glass window where information is displayed. Only when the user stands in front of the mirror the customized information will be displayed. In order to retrieve updated data from the web sources various data feeds can be used such as RSS feed. The personal schedule of events and the updated weather reports can be obtained by using Google Calendar API and Weather API. For displaying these useful information Tkinter, a standard library GUI python module is used.
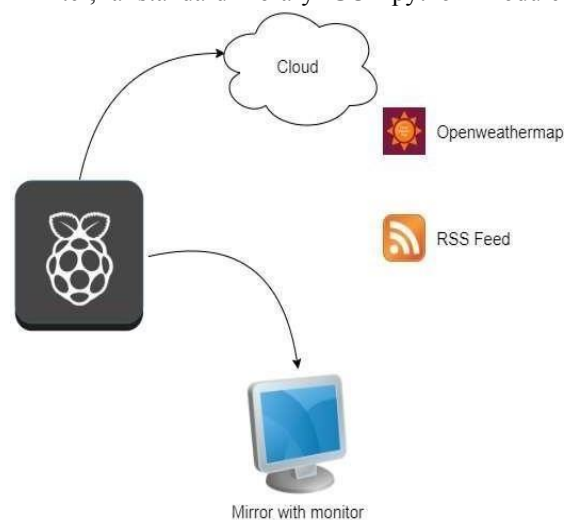

Fig.1 flow chat for classification

III LITERATURE SURVEY

The We surveyed existing methods of creating Smart interactive mirror system. Smart Mirrors are developed mostly for the purpose to display time, date, and weather forecast. Some also contains To-Do lists, traffic information, and notifications. Later, it got upgraded with music player and voice recognition. Thus, it can be personalized as per the requirements.

III.   WORKING PRINCIPLE

Use Case Diagram:

A use case diagram is a tool that maps interactions between users and systems to show the interactions between them. The use case is a set of conditions that describe the interaction between a user and one system. The usage case diagram shows the relationship between the players as well use cases.
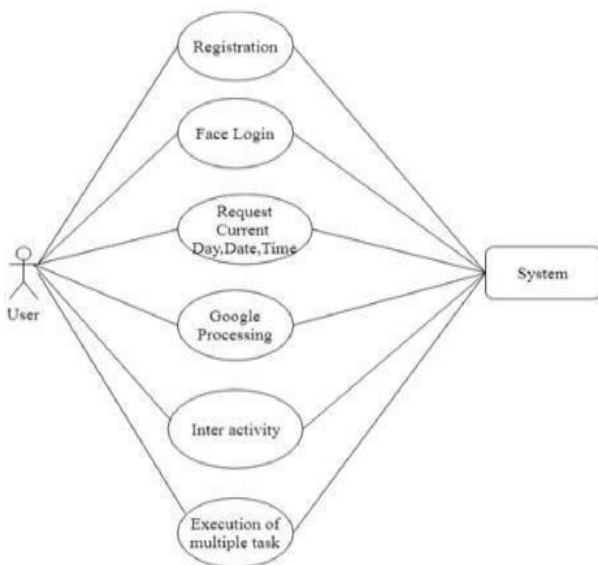
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Fig 2:matrix 3x3 and 2x2

The actor represents a user or other program that will work with the system you are modeling. A case of using an external system-view represents a specific action that a user may perform to complete a task.
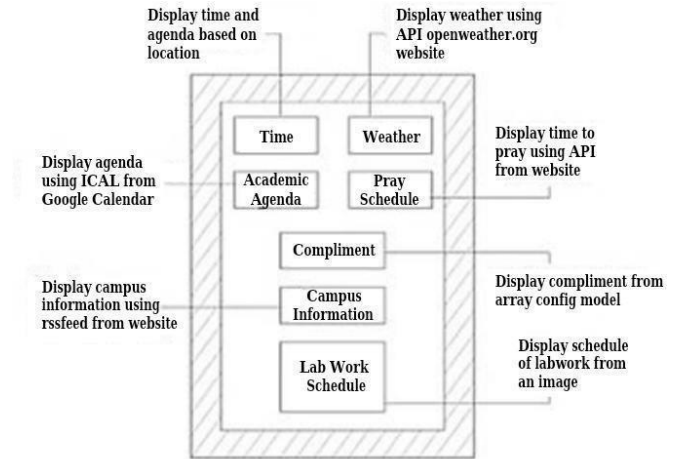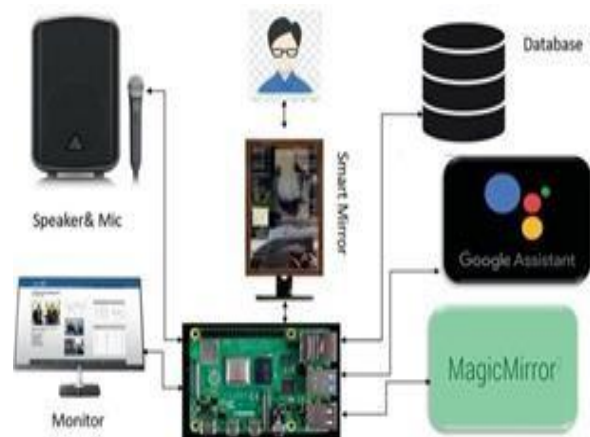
Design of smart mirror:

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Fig 3 relu activation function

It assigns f(x) as 0 when x is less than 0 or is x is greater than zero it assigns f(x) as x. After performing pooling, the 2Demoinsional array from the pooled feature is converted to 1dimensional array. Now the values got from the Flattening is given as the input layer for the artificial neural network.so far the input image is taken then convolutional operation is performed on the image later pooling and flattening process is done.in full connection step, artificial neural network is used to take the data and combine the features in variety of attributes so that the convolutional network can classify the image. After classifying the image put the efficiency test on our network.
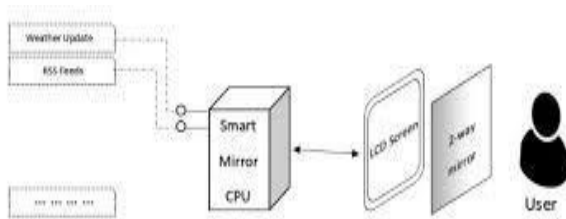
IV.   SYSTEM ARCHITECTURE:

Fig5 system architecture

V. EXTERNAL INTERFACE REQUIREMENTS

USER INTERFACE:

As features The Smart mirror has effective voice assist, accurate weather of the location, date, time and remainder for events. The voice assist feature can be accessed by short logo "G" and the other features can be directly displayed on the smart mirror.

HARDWARE INTERFACE:

The Smart mirror consists of several hardware units like Raspberry pi, Display monitor, Mic, Internet

connection.

SOFTWARE INTERFACE:

Raspberry OS
Google action (google assistant)
Magic mirror software (climate)

VII. RESULT

The following images show the required output we

can see That it is displaying Time and Date, Weather conditions, status, News and Indian Upcoming Holydays.

A user's personalized data such as calendar, news feeds, and other information relevant to their lifestyle have been implemented and displayed . The Smart Mirror uses voice commands to switch between each view, and performs the functions corresponding to the input voice command. Rather than become confined to a home, we can implement t he functionality of our Smart Mirror system to commercial work and public Environments.Each widget and application has been developed using a building block approach, keeping the aspects of future enhancement and scalability

in mind. The voice command to activate the Smart Mirror

is user defined and was set to "Smart Mirror" in our implementation.
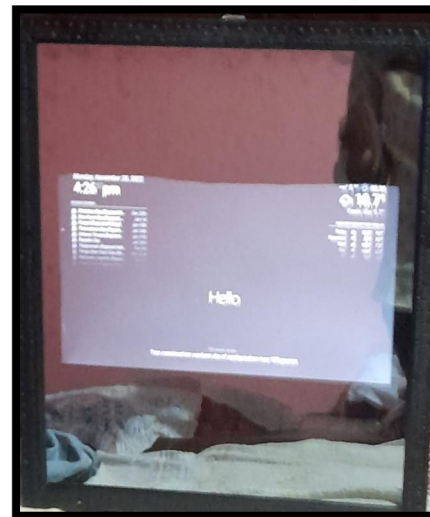

Fig6: Smart mirror output

Fig7: smart mirror interface

VII. FUTURE ENHANCEMENT

In In future we are going to make the smart mirror fully in touch screen. We will add current temperature sensor, Weather forecast data. We also try to improve the user's UI. We also try to add Computer vision & Image processing, Health monitoring, motion detector for the health status.
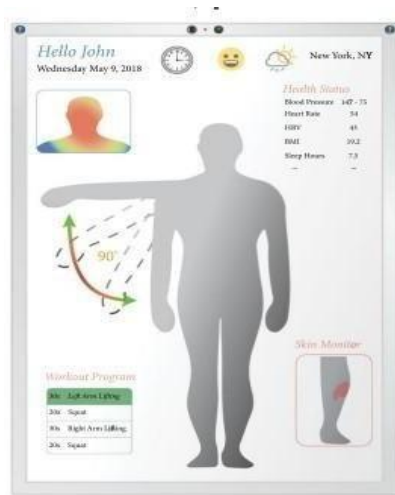
Fig8:[Motion Detector for
the Health Status]

VIII. CONCLUSION

In Conclusion , The smart mirror will be very interactive with the user and it is designed as user friendly way. It will be very useful in the commercial places and workstations where the smart mirror is highly recommended without using the mobile phones

IX.   REFERNCES

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