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ACUTE IMAGER

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Abstract:

This paper describes the construction and working process of the acute imager. Acute imager is an application of Raspberry Pi. The Raspberry Pi controls the data displayed on mirror. You can look at various notifications from social media as well as news in your mirror looks very futuristic.

Keywords **—social media notification, temperature, fan and light control.**

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I. INTRODUCTION

Acute imager is an optimistic vision of the future that is ready to feed you whatever information needed at this moment. Basically it looks like a normal mirror but when someone comes in front of it scene changes. Switching home appliance will be very easier with the imager.

Smart home can be developed using the acute imager with embedded artificial intelligence. Virtual dressing, a smart way of having trails with your fashion sense make things quite easy in malls.

II. PROBLEM STATEMENT

1. In this busy world we have no time to be aware about our surroundings. We cannot spend a time space for readings news [2]. The acute imager will help us to be aware of our surroundings by the use of embedded and IOT things.
2. In the real time we don't have time to monitor our own electrical equipment [3]. This leads to the loss of energy and power and it reduces the life span of the equipment working [4]. This can be overcome by our acute imager by interfacing the equipment with the acute imager.

3. Every application status and day to day news are given as notification in the mirror [2].
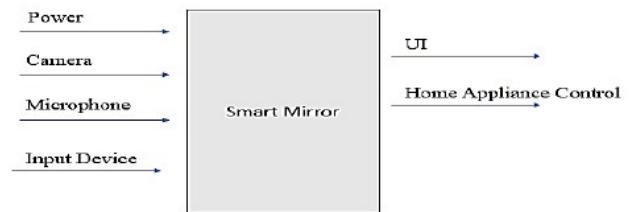
III. WORKING

FIG 1: BLOCK DIAGRAM

This block diagram is the overall working of the system. The required program for Raspberry Pi is created through the software and is fed the devices through the VGA cable or HDMI cable.

After the power supply to the mirror the Raspberry Pi loads OS and directly runs the UI of the mirror. The weather and other internet widgets to display the information completely based on the Wi-Fi network at home.

A power saving mode is also provided to the mirror by attaching an ultrasonic rage detector

sensor at the top of the mirror [5]. As the ultrasonic sensor is used it increases the functionality and power efficiency as it awakes when only someone comes in front [5].

IV.   HARDWARE COMPONENT

In our project, acute imager, we have setup for the mirror and the Raspberry Pi interface and power supply connection. The following are the hardware components used in acute imager:

1. Raspberry Pi 3

2. PC Monitor

3. Two Way Mirror Acrylic Sheet

4. 5V Relay module

5. Arduino

6. Temperature Sensor

7. Humidity Sensor
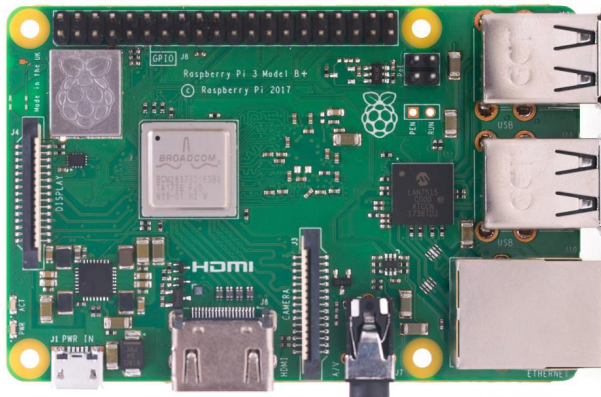
A. RASPBERRY PI 3

FIG .2: Raspberry Pi 3

Raspberry Pi 3 is the third- generation of Raspberry Pi series. It has four USB Ports and 1GB RAM. It is a quad core 1.2GHz Broadcom BCM2837 64 bit CPU.

Raspberry pi is a credit card sized computer. It is a capable little device. It allows people to explore computing languages like scratch and python. The applications of Raspberry Pi are media streamer, Arcade machine and Tablet computer.

Home environment automation is done using Raspberry Pi. SD card formatter is installed. SD card with SD card reader is inserted to format the SD card.

The Win32DiskImager is used to boot the image file(Operating System).

B. PC MONITOR

FIG.3 PC Monitor

It is used to display the raspberry pi outputs like date, time, temperature. Social media notifications can also be shown on monitor. Raspberry pi and monitor are interfaced using VGA cable. Power cable is connected to the monitor to the power supply.
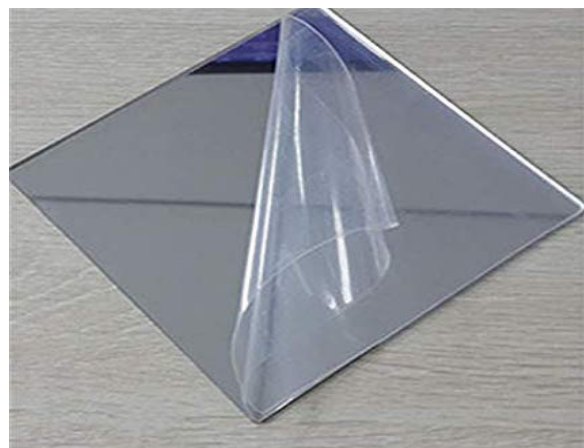
C. TWO WAY MIRROR ACRYLIC SHEET

FIG.4 Two Way Acrylic Mirror

Two way acrylic sheet is used in various areas mainly for surveillance purposes. Now it is used to create smart mirror and hiding television. In acute imager the acrylic sheet is used to make the pc monitor to work as both the mirror and the display.

D. **5V RELAY MODULE**

Fig.5: 5V Relay Module

5v relay module is relay interface board which can be widely controlled directly by the microcontroller like Arduino, AVR, PIC, ARM. It uses low level trigger to controll the relay.
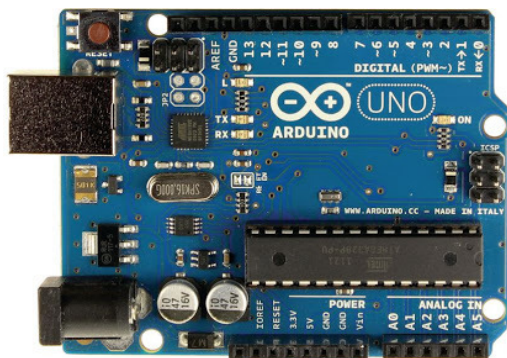
E. **ARDUINO**

FIG.6: Arduino

Arduino is designed to make electronics more reliable to the designers [4]. It has a microcontroller which is programmed using arduino programming language. Arduino has the underpinning technology. Output and input depends upon the generations of the arduino.

Arduino is used for multitasking purpose in the acute imager. It makes interfacing the sensor easier.
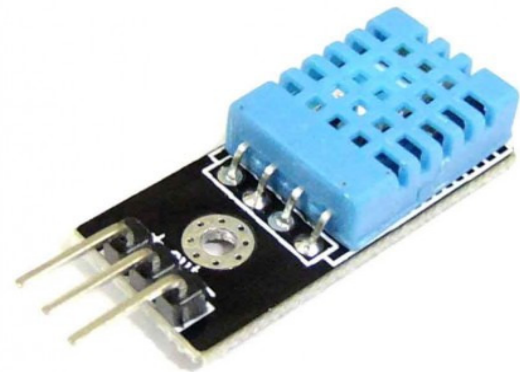
F. **TEMPERATURE SENSOR**

FIG.7 Temperature And Humidity sensor Module

The humidity sensor senses and reports the moisture in the air. It also senses the temperature of the air [1]. This reported temperature is given to arduino which sends it to raspberry pi for the display of the temperature in the screen [1].

The sensitivity of the given sensor indicates the percentage change in the output for the change in temperature [1]. Thermistor is the sensor which easily detects small changes in the temperature.
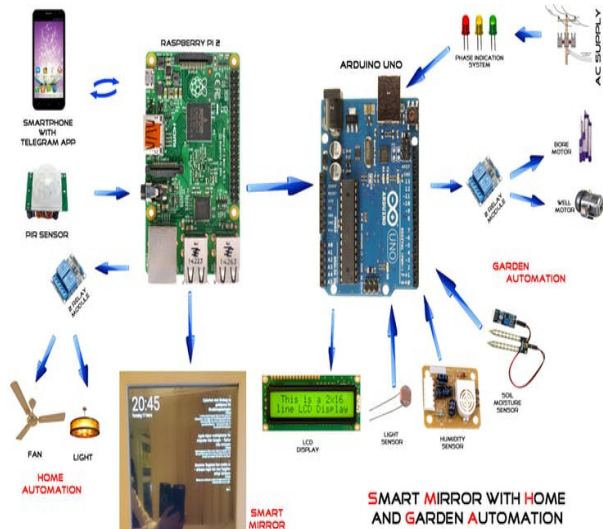
FIG.8 Acute Imager Pictorial Representation

FIG.9: Full View Of Acute Imager

V. CONCLUSIONS

The results mentioned below are achieved through the this work,

1. The smart home concept is achieved through this project by controlling home appliances.
2. The social media notifications made the users full aware of their environment..

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