MYTHIC BLOOM SPECULUM

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Abstract - *The paper describes the design, construction and working of the Mythic Bloom Speculum. Every morning our day begins by watching ourselves at least once in mirror before leaving our homes. We interact with it psychologically to find out how we look and how our attire is."Mythic Bloom Speculum" or Magic Mirror is one of the applications of Raspberry Pi. A computer screen embedded in mirror looks very futuristic. The Raspberry Pie stays at back scenes and controls the data displayed on mirror. While looking at mirror you can look at various notifications from social sites as well news, weather forecast and more things. Such mirrors can be programmed to work as AI and control home appliances by voice input or touch screen. The Raspberry Pie is connected to monitor via HDMI as well as it also has inbuilt Wi-Fi and Bluetooth interfaces so we can just swipe music and videos to mirror.*

***KeyWords*: RasberryPi, Relay, PulserateSensor, Microphone, HomeAutomation, Google Assistance.**

1. INTRODUCTION

The smart mirror must offer benefits of using modern technology while integrating seamlessly into the standard bathroom routines of most people. The smart mirror must be simple and as intuitive as possible. The smart mirror would be used to merge technology and the need for information into anyone's daily schedule. With the mirror in place, the User could interact and obtain the information they want during their normal morning and night bathroom routines. This smart mirror aims to reduce and possibly eliminate the need for the user to make time   in their daily morning or nightly routine to check their PC, tablet, or smart phone for the information they need. The mirror will provide the information with little to no effort from the user with the goal of not being a burden that he or she must maintain. The mirror wouldn't be another activity, rather an enhancement to the already common use of mirrors in most modern bathrooms. The mirror will do the thinking for the user. First, it will turn on and off by itself. Then, it will update with the user's calendar schedule, to-do lists, Twitter, news, and weather. The information wouldn't be thrown in the user's face, but unobtrusively displayed on the edges of the mirror to still allow use of the actual mirror. The use of touch-less gestures will keep things simple and easy to use. No keyboards to try to keep dry and clean. The gestures will also allow the user to still use the mirror despite whether their hands are wet or dirty. The mirror provides common information most people check their smartphones or tablets for, such as weather, news, Twitter and schedules. This allows the users to read, think, and plan their day while getting ready in the morning or night. The mirror has to be fun as well. It will provide music playback that can be controlled by their voice so there is no need for a mouse or keyboard.

The objective of this project is to make a mirror which does the smart things like it shows weather, date and time, News etc. All these smart features are to be done using Raspberry Pi. Due to use of smart mirror time can be saved. It was to design and prototype a device that acted as a "Magic Mirror" by displaying the user image and providing customizable information on the display. A "Mythic Bloom Speculum" is a device that acts as a traditional mirror while also superimposing informational data, which can be customized by the user. The mirror also allows for touch free user interaction with some of the data displays. Users are able to create and customize the visual interface to display what specific data feeds they want.

1.1 Specifications

Table -1: Components

Sl.No	Specifications	Description
1	Rasberry Pi	Model B
2	Gas Sensor	MQ2
3	Pulse Rate Sensor	5v
4	Power supply	
5	LCD Display	14 inch

2. SYSTEM MODEL

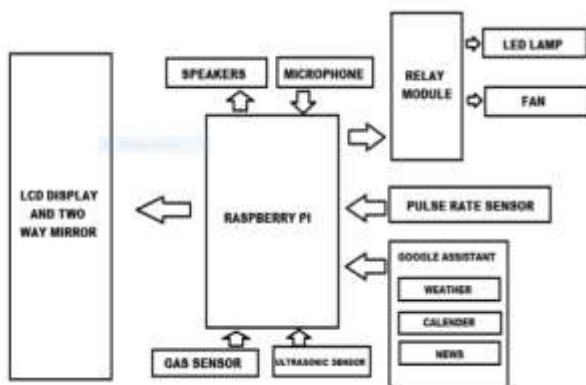The figure 1 shows the block diagram of Mythic bloom speculum using Rasberry pi model B.

Fig -1: block diagram

A mythic bloom speculum is a Raspberry pi powered monitor behind a double sided mirror. A mostly black web page allows you to add some widgets to the mirror's reflection as if by magic. This version includes widgets for displaying the weather forecast, the date/time and a nice randomly generated greeting. No low level hardware hacking required, just some basic woodworking and some code put together.

2.1 Hardware

The various components used in "Mythic Bloom Speculum" are;

Rasberry Pi 3

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.

Display

For the display a 14 inch monitor was bought, which also has built in speakers and comes with a remote control which is useful to easily turn o the device screen. The monitor is much smaller than the mirror so a black sticker was used to cover the parts of the glass which are not covered by the display. An HDMI cable was used to connect the display to the Raspberry Pi for video and audio.

Microphone

One mode of interaction with the smart mirror is through microphones. Two microphones were used to power the voice recognition capabilities of the device. USB microphones had to be used because the Raspberry Pi does not have a regular microphone input.

Pulse Rate Sensor

This pulse sensor fits over a fingertip and uses the amount of infrared light reflected by the blood circulating inside to do just that. When the heart pumps, blood pressure rises sharply, and so does the amount of infrared light from the emitter that gets reflected back to the detector.

2.2 Software

SD formator

SD Formator is designed specifically for SD/SDHC/SDXC memory cards. The utility differs from operating system format utilities that are meant to format a variety of storage media SD Formator works with a number of Windows and Mac operating systems. It can be used with the following devices Secure Digital slot on computer – Important for SDXC card users: contact your computer manufacturer to confirm the SD slot on your computer is compatible with SDXC cards and for availability of the SDXC driver.

USB Secure Digital memory card reader PC Card, Card Bus or Express Card SD adapter.

Etcher

Etcher is a software which is used to burn the OS image to make it compatible to install into storage disk, here we installed raspbian.

Raspbian

Raspbian is the main and basic software for RPi devices, officially supported by the Raspberry Pi Foundation. In fact, it is an operating system, based on Debian and optimized for Raspberry Pi hardware.
It comes with lots of pre-installed pieces of software appropriate for most of ARM users and developers. And in this blog post, I am going to look through almost all possible operating systems, as well as the Raspberry Pi images, compare and review major types of other software you can use for your complicated Raspberry Pi Projects. But the main operating system, ready-to-use and optimized to the needs of the most developers and makers is Raspbian. So, first thing firstly, let's dig deeper this type of OS for RPi.

3. FUNCTIONALITY

Figure 1 shows a schematic view of the proposed smart mirror. The mirror is eventually a technologically augmented interaction device.The objective of designing the mirror is to provide a natural interface in the ambient home environment for accessing various services such as location based weather, time, calendar etc. as well as provide access to YouTube, Soundcloud, maps etc. The project includes downloading the Raspbian operating system based on Debian and extracting the image on SD card, inserting thecard in the Raspberry PiSD slot an then performing the required steps. We plan to deliver a working prototype i.e. design and development of a futuristic Smart Mirror on Raspberry Pi 3 for the ambient home environment as well as for commercial uses in various industries.Most people have mirrors at home, so the concept of a smart mirror that you can interact with is attractive and can be fantasized by anyone.At times no one has time to read the newspaper or switch on the TV right in the morning to check the news headlines or the weather forecast. If a mirror serves to this purpose, one can imagine the amount of time it will save and be of such a great use. The device was to look like a regular mirror but would have a screen inside. The project which would collect real world machine data such as location based latest news and headlines, weather reports, and as well as show us the local time. The data would be transmitted from the machine and would be managed in a central database. We have also worked on including Artificial Intelligence in the Smart Mirror wherein a Voice enabled assistant will cater to the needs of the user.

4. CONCLUSION

The goals of the smart mirror were to aim to reduce time needed in a user's daily routine and provide a merger of user and technology that becomes an enhancement, not a new burden. The functionality must meet these descriptions in the design. The smart mirror did the thinking for the user with intelligent, commonly used applications. Apps like their calendar, music, news, Twitter, to-do lists, and weather will be available. The apps were unobtrusively displayed on the screen, hidden by the two-way mirror, as to look like a seamless experience. The user didn't even have to worry about turning on and off the system because the mirror will detect motion and do the work for them. A good project can't be produced without proper research first. Similar projects and products were analyzed for similarities, improvements, and flaws. The group researched each important parts of the mirror system such as the gesture control, voice control, MCUs, and others. Once enough information was collected about specifications and prices, strategic components were selected to be part of the project from both a hardware and software perspective.

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