

Smart Mirror Artificial Intelligence

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Abstract-The smart mirror idea is to integrate technology seamlessly into people's lives by putting it where everyone's routine eventually collides, bathroom. The goal of the smart mirror is to increase the a user's productivity by saving time. The smart mirror provides a near effortless experience that allow the user to just walk up and be greeted with information they would typically need another device. Despite the fact this information can be found on the user's devices. The smart mirror has the necessary applications and features needed for the time efficiency focused device .It also provides real time interaction users. The Smart Mirror CPU is the Raspberry pi 3 computer and the framework that retrieves the data from the web through the Wi-Fi connectivity. Through facial recognition and speech recognition model ,smart mirror can identify the user.

key words: Smart mirror ,facial recognition ,artificial intelligence, raspberry pi.

1. Introduction

Everyone knows what a mirror is. It is an object found in most people's homes. In mirrors, we see our reflections. But what happens when you combine the idea of a mirror with technology? What possibilities are there and how smart could a mirror be? These are some of the questions that inspired my choice of final year project, a project which aimed to develop a smart mirror and a small operating system to power it.

The main goal of this project was to develop a smart mirror device as well as an operating system to run on similar devices. The device was to look like a regular mirror but would have a screen inside.

The operating system would support running apps and would show weather, time, calendar, recent email, news and compliments depending on the time. Magic Mirror is a mirror device built with a cardboard frame, a flat screen monitor, a Raspberry Pi 3 and software running on a web browser and a tool called Electron.

The module system is very simple and even allows others to develop their own modules. The default installation comes with some basic widgets for time, calendar, weather and news.

2. Design

2.1 Dataflow Diagram

It is a graph representing movement of data values between different processes. It shows flow of data, type of input and output data to and from the system. Hence, it is the first step of the design phase that would further functionally filter the requirements into its lowest level of detail.

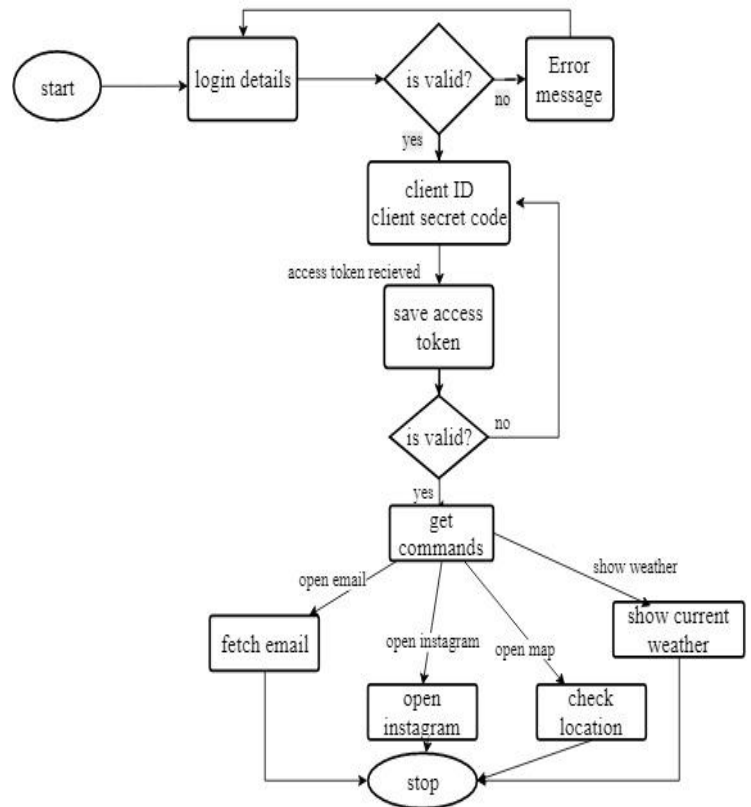


Fig 1: flowchart of user part.

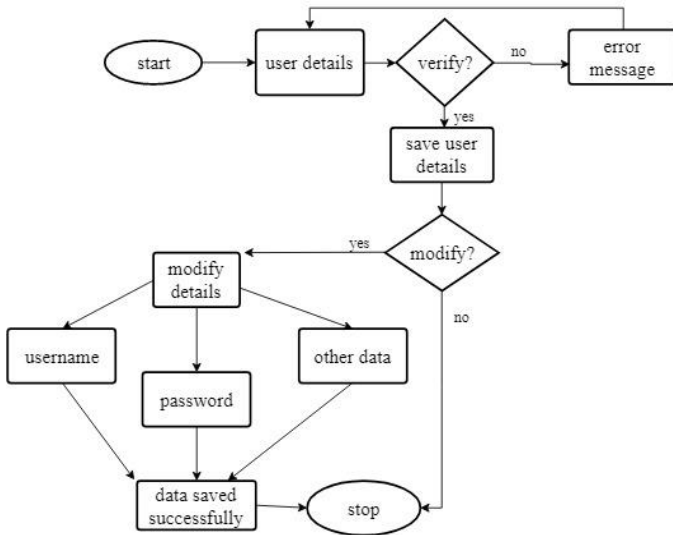


Fig 2 :flowchart of admin part.

2.2 Use-Case Diagram

It is defined as a set of actions or events, taking place between the system and actors of the system, for a certain purpose. It must contain all the necessary system activities which has user interaction. Use case diagram are often used to depict missions of a system.

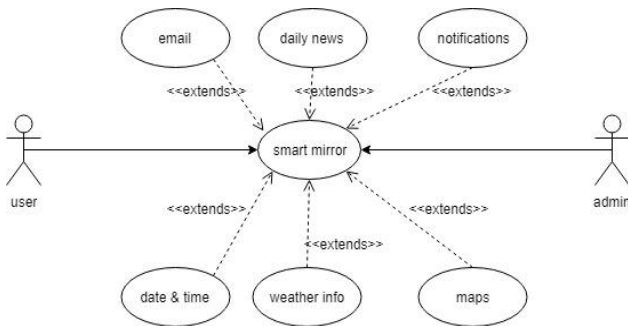


Fig 3 :use case diagram

3. Implementation

3.1 Hardware

For the hardware we used 24" LG computer monitor, a 50x90x0.5cm one way mirror, a raspberry pi 2, two USB microphones and two ultrasonic sensors. Everything is put together in a wooden frame.

3.2 Software

All the software runs on the Raspberry Pi 2. We chose to use Raspbian which is the official Linux distribution from the Raspberry Pi Foundation because it has a lot of support and documentation. It was downloaded from the official

Raspberry Pi website and we copied it on a microSD card. Then we inserted the card on the Raspberry Pi, started it and followed the setup instructions, which are quite simple. Once Raspbian was installed, the distribution was updated with the latest packages and then we configured the basics of the OS and everything was ready to go.

4. Conclusion

The main strengths of this project are that this is a new kind of smart device that people don't see every day and it looks very spectacular. The platform has a very simple API that makes it very easy for developers to make apps

The smart mirror idea was created to give instant access to information in a convenient and time-saving environment, the bathroom. All other aspects of the mirror's design developed from these ideas and inspirations.

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. Modules like their calendar, news, mail and weather will be available. These modules are unobtrusively displayed on the screen, hidden by the two-way mirror, as to look like a seamless experience. Smart Mirror can be great example of how AI can be integrated into home appliances to make our life easier, efficient and more enjoyable.

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