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Research Article

HOME AUTOMATION USING SMART MIRROR WITH RASPBERRY PI

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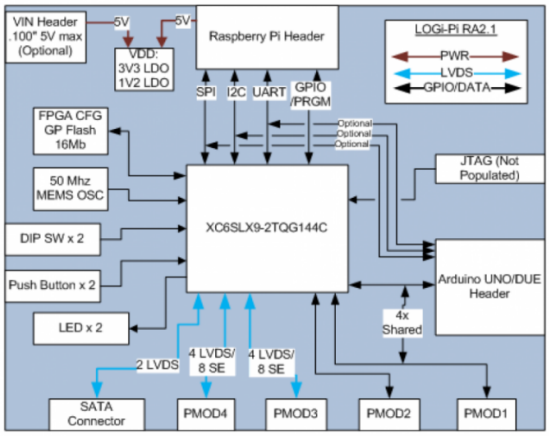
ABSTRACT
Intelligent mirrors, which continue the works today and will take its place in the future technology, provide both mirror and computer aided information services to its users.. The user command is recognized by Raspberry PI through the micro phone in the mirror, in-built microphone and speaker is used for communicate with the mirror. That mirror shows time, calendar, reminders and headlines.

Keywords: smart mirror; smart home; home automation

INTRODUCTION

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote teaching of basic computer science in schools and in developing countries..The raspberry pi comes in two models, they are model A and model B. The main difference between model A and model B is USB port



RASPBERRY PI ARCHITECTURE
Fig 1 Architecture of RASPBERRY PI

The architecture is divided into three parts:

a. CPU: It is the brain of PLC system .It consists of the microcontroller, Memory IC and necessary circuit to store and retrieve information from the memory. The Job of CPU is to monitor status or state of input device, scan and solve the logic of a user program and control ON or OFF state of output device.

b. Memory: The Raspberry Pi uses 1GB of LPDDR2 memory with the frequency range of 800MHZ

c. Input/output: The Raspberry Pi uses set of 40 GPIO pins. And also supports LAN(Local Area Network), HDMI(High-Definition Multimedia Interface), Display & Camera port and 4 USB and 3.5mm 4 pole composite video and audio output jack.

System Implementation

This chapter explains the methodology selected in completing this project. A methodology in this context refers to the splitting of development work to distinct phases containing activities with the goal of a better planning and management. The Raspberry Pi can connected with the LCD display with VGA cable.

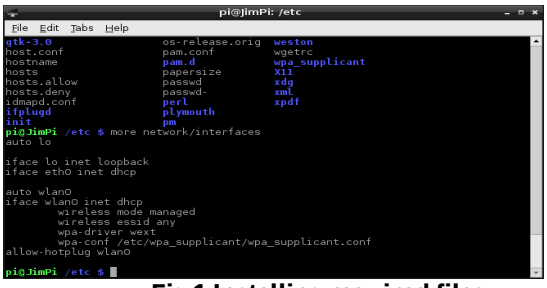


Fig 1 Installing required files

Once the Raspbian is booted up the magic mirror program can installed through the terminal. The figure 1 shows the terminal window which is used to program the micro controller.

Figure 2

After adding the smart mirror module, only the clock will shows as on Figure 2.For multiple widgets the magic mirror can be customized after changing the codes the weather can be showed as on Figure 3, after adding the widgets the forecast location has been changed according to the user location by the postal code, after customize all those things the google SDK can be added for google assistant

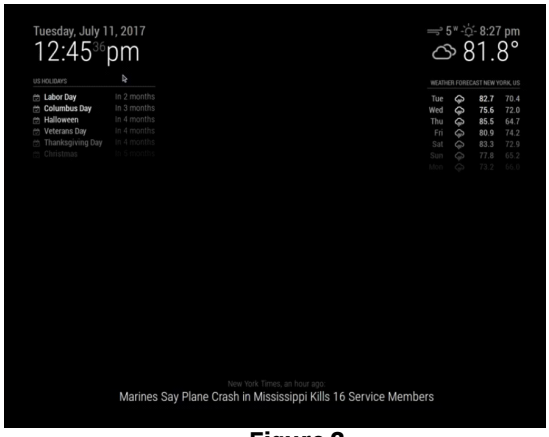


Figure 3

The open source from google is helps to add the assistant in the smart mirror, automation things can be done with assistant, the program for google assistant is shown on figure 4

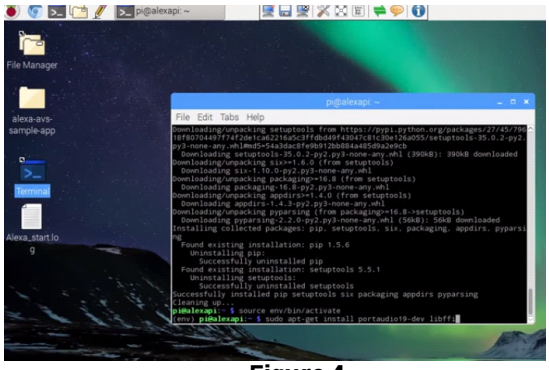


Figure 4

After adding all those things the software part has ended, after that the hardware can be assemble and the display has been fixed with 2 way mirror so the

display shows the content as well as it reflect the users image.

Conclusion

Although the features this device offers are bare minimum of what it could offer. At this time, the purpose of the displayed information on the mirror is to save the time spent in the mornings in search for such information. In the future, additional features will be added to the mirror, allowing it to be more customizable and user friendly. Users will be more in control in terms of selecting which type of information they wish to be presented with. They will also be able to interact with the mirror by using their smart phones. The purpose of this paper was to provide an overview of currently available solutions.

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