

HOME AUTOMATION SYSTEM USING RASPBERRY PI

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Abstract - Today we are living in 21st century. It is necessary to monitor and control the home from remote location. Raspberry pi is a credit-card sized computer aimed at providing a computer to every person in the world. This system requires a Micro SD card with a Raspbian OS. There is a Messaging API which sends text Messages to the user about the changes in house and using the FTP server and he can access the raspberry pi. The system includes the remote control and monitoring of home appliances and security which can do as the Raspberry pi.

Key Words: Home Automation System, Raspberry pi, Remote Control via mobile, PIR (Passive Infrared Sensors), Intruder Detections, SMS Messaging.

1. INTRODUCTION

The home automation system is a mobile web based application. This paper can be customized a lot as it has multiple GPIO port that can be programmed and they can give the user control over various things from his smart phone like security, surveillance, lighting, energy management, access control, entertainment[1]. Home automation system should also provide a user friendly interface on the host side, so that devices can be easily setup, monitored and controlled [3]. The main reason to develop this system is to save time and man power along with maintaining security and convenience [3]. This is how an automated system proves useful to people in providing them security, comfort and easily accessible [1].

2. Proposed System

2.1 For Home Security

In this system there is a PIR sensors which is connected to the door this sensor has 180^o range up to 1 to 2 meter approximately. This sensor is very useful than normal IR sensors which have a range are able to detect people even if they come from side. When a person comes in range of the sensors it sends a trigger pulse which activates an LED array and the camera, the LED provide a good light environment. For the camera to take a good photo and so there is no problem of a bad photo in which the person face is not seen which can cause problem.

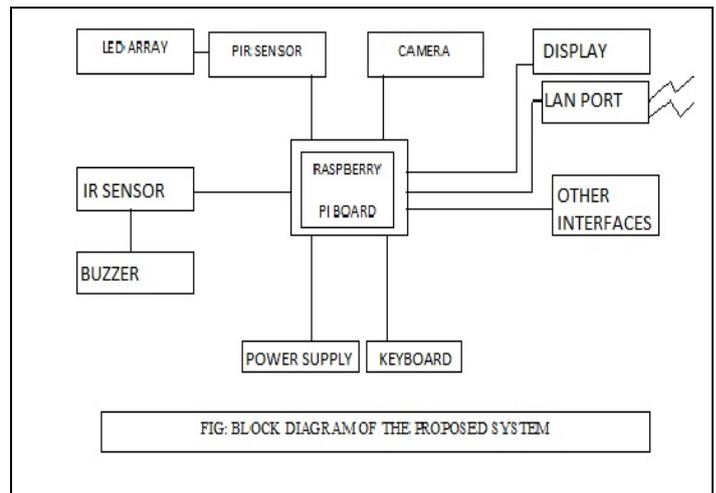


Fig - 1: Block diagram of proposed system

After the camera is activated it takes the photo of the person present in front of the door and sends a message to the user, also it sends the image to the user phone via FTP server which he download to check the person. There are also IR sensors connected in the house through the windows or the back door then the sensor will detect that and send a trigger pulse to the buzzer. And activate it also a message sent to the user phone so that he can take action this precaution is also taken care of in this project. Once the person is recognized by the user the he will allow to enter the house.

2.2 Blinky LED with Open HAB on Raspberry PI

1. OpenHAB "items" represent all properties and capabilities of the user's home automation.

2. OpenHAB uses 'sitemap' to represent control to the user. The use of web Interface from a mobile device, OpenHAB has native and IOT rather than the default browser interface. On the setting screen enter the local URL as the internal IP you have been using until now, including the port number. For remote URL enter <http://myopenhab.org> and your username (email) and password that you entered when you signed up. If you haven't signed up for OpenHAB yet, just leave the authentication and remote URL blank. But you will only be accessing your system from local Wi-Fi.

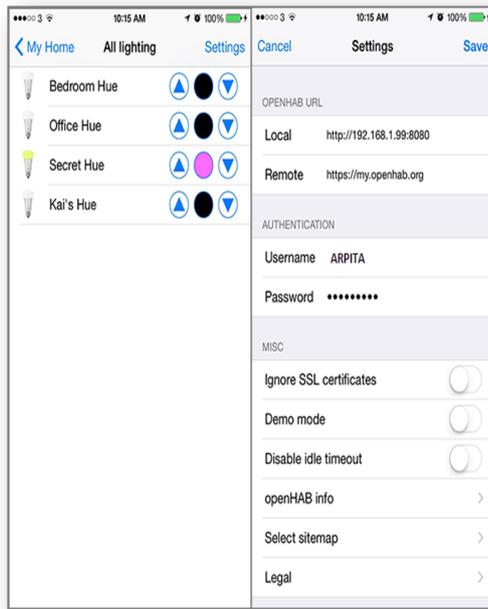


Fig -2: Mobile Interface

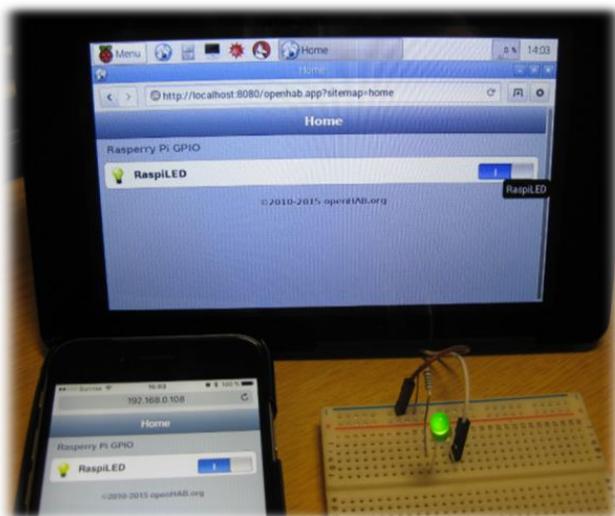


Fig -3: Controlling LED with OpenHAB

3. Future Scope

The Raspberry Pi a small sized compact processor which is having computing power for its size. Now-a-days there is an increase in technologies and various portable devices in those devices may be one day the Raspberry might also be used as it has multiple GPIO pins which can be built by or programmed and used to interface various devices in the real world and controlled by the python programming language.

4. Conclusion

In this research paper raspberry provides security and various ways to control the devices in the house. Because of mobile phones the living is comfortable and at the same time it can be easily accessible through portable devices. It gives users all the rights to decide which makes it reliable as it always asks before taking any decision, it helps when there are any necessary decision, it helps when there are any necessary decisions to be taken and they can be taken fast in case of an emergency.

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