

# HOME ALONE E-LIVE SURVEILLANCE PROTECTIVE SYSTEM

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## ABSTRACT

Home Automation refers to the branch of automation that deals with the methods dedicated to the reduction of human efforts and involvement in achieving tasks. The main objective of these Home Automation systems(HAS) using internet of things(IoT) is to inhibit automatic and electronic control of household features activity and appliances. These features of connectivity, scalability, power saving can be achieved by the use of Raspberry Pi, which acts as an interface between the hardware and the software of the entire system which can be connected to number of peripherals using USB ports or HDMI port and GPIO, it can be connected to the internet using the Ethernet port or by Wi-Fi connectivity. Home automation system provide the user with remote control of various lights and appliances within their home. This system is designed to be low cost and expandable allowing a variety of devices to be controlled.The server will be interfaced with a relay circuit board that controls the appliances running in Home. The server communicates with the corresponding relay. By this we offers a scalable and cost effective Home automation system.

Keyword: - Home Automation, E-Live Surveillance, Wi-Fi connectivity, Internet of Things (IoT)

## 1. INTRODUCTION

The “Home Automation” concept has existed for many years. The terms “Smart Home”, “Intelligent Home” followed and has been used to introduce the concept of networking appliances and devices in the house. Home automation Systems (HASs) represents a great research opportunity in creating new fields in engineering, and Computing. HASs includes centralized control of lighting, appliances, security locks of gates and doors and other systems, to provide improved comfort, energy efficiency and security system. HAS becoming popular nowadays and enter quickly in this emerging market. However, end- users, especially the disabled and elderly due to their complexity and cost, do not always accept these systems. Due to the advancement of wireless technology, there are several different of connections are introduced such as GSM, WIFI, and Bluetooth. Each of the connection has their own unique specifications and applications. Among the four popular wireless connections that often implemented in HAS project, WIFI is being chosen with its suitable capability. The capabilities of WIFI are more than enough to be implemented in the design. Also, most of the current laptop/notebook or Smartphone come with built-in WIFI adapter. It will indirectly reduce the cost of this system.

## 2. PROPOSED SYSTEM

### 2.1 Principle

An embedded web server creates an easy way for monitoring and controlling any device which is at remote place. For designing the system we require remote pc along with the internet facility at the remote locations.

### 2.2 Components

Essential components used in RPi hardware are:

1. SD card having Linux Operating system.
2. USB keyboard.
3. TV or monitor having HDMI, DVI, Composite or SCART input.
4. Power supply.
5. Video cable suited with the TV or monitor used.

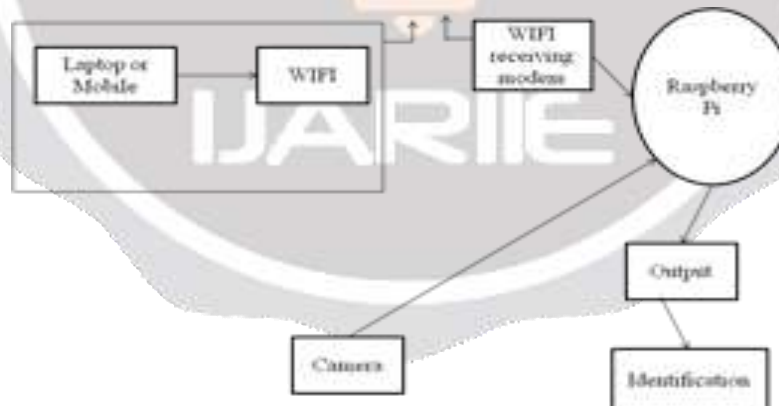
Optional components are:

1. USB mouse.
2. Internet connection, Model A or B: USB Wi-Fi adaptor.
3. Powered USB hub.
4. Case.

### 2.3 Working

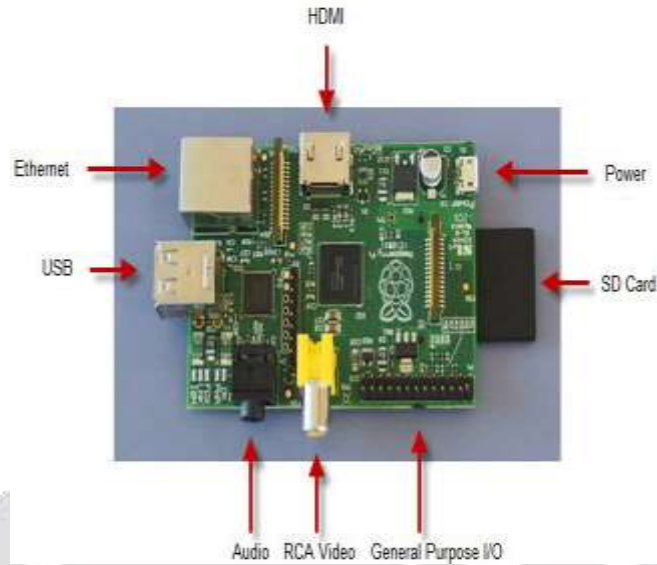
In the proposed system, Raspberry pi 3(controller) is used. The supply is provided to the Raspberry pi board. Cayenne application is used for control of lamp using GPIO. Using Putty software, a coding is entered in order to view the live stream in anytime and in anywhere .

## 3. BLOCK DIAGRAM OF PROPOSED SYSTEM



**Fig -1:** Block diagram

An embedded web server creates an easy way for monitoring and controlling any device which is at remote place. For designing the system we require remote pc along with the internet facility at the remote locations. Usage of wired technologies are not worthy as the cables will get damaged after a certain period of time or due to some environmental factors. So the wireless transmission technology is preferred. The industrial monitoring protocol should be designed such that the system must have a reliable end to end data delivery. The data which is collected from sensors should be transmitted without any delay and loss of data. Some of the techniques like Bluetooth, and Wi-Fi.



**Fig -2: Raspberry Pi Board**

The Raspberry Pi is a credit card sized single board computer developed in the UK by the Raspberry Pi Foundation with the intention of promoting the teaching of basic computer science in schools. The Raspberry Pi is manufactured in two board configurations.

### 3.1 Cayenne

- Add and remotely control sensors, motors, actuators, GPIO boards, and more.
- Customizable dashboards with drag-and-drop widgets for connection devices.
- Create triggers and threshold alerts for devices, events and actions.
- Schedule one-time or multi-device events for easy automation.
- Quick and easy setup-connect your pi in minutes.



**Fig -3: Cayenne login**

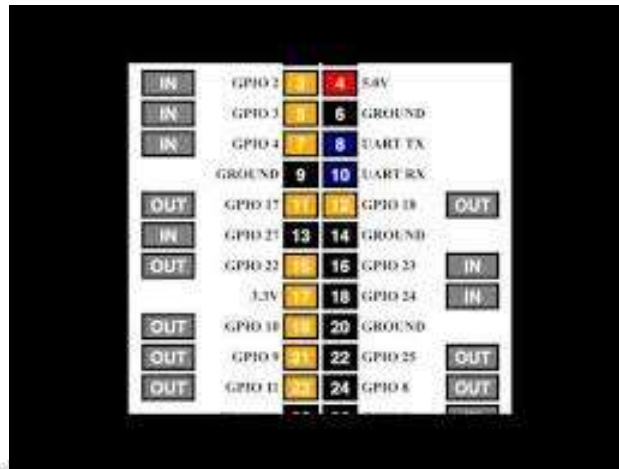


Fig -4: GPIO connection

### 3.2 Putty

The great advantage of connecting this way is that it can even supply the power for your Pi and you do not need keyboard, mouse or display attached to the Pi to log into it. You will need to install terminal emulation software (Putty) if you are using Windows and also USB drivers for the Console Lead. The Mac Terminal comes with its own software. Putty is simply an SSH Client and does not have the same functionality as WinSCP or Tunnelier. There is no interface for uploading or downloading files.

Run application – you will see security warning window, click run to start application. Depending on which cluster you are using.

Enter 141.163.170.133 (fotcluster1) or 141.163.170.236 (fotcluster2) in the host Name.

Ensure Connection Type is SSH. Enter Cluster or something you will remember in Saved Sessions. Click to save.



Fig -5: Putty

### 3.3 ADVANTAGES

- A. Fully Automised control.
- B. Easy Controls.
- C. All types of Android Mobile can be used.
- D. Surveilence is done by using WiFi.

#### 4. CONCLUSIONS

The system as the name indicates, 'Android based home automation' makes the system more flexible and provides attractive user interface compared to other home automation systems. In this system we integrate mobile devices into home automation systems. A novel architecture for a home automation system is proposed using the relatively new communication technologies. The system consists of mainly three components is a wifi module, raspberry pi board and relay circuits. Wifi is used as the communication channel between android phone and the raspberry pi board.

We hide the complexity of the notions involved in the home automation system by including them into a simple, but comprehensive set of related concepts. This simplification is needed to fit as much of the functionality on the limited space offered by a mobile device's display. These kinds of home automation systems are required because human can make mistakes and forgot to switch off the appliances when there is no use and in this case, they are useful in order to utilize the power effectively and also in a secured manner.

#### FUTURE SCOPE

To ensure that the prototype created during this project can achieve its maximum potential, there are a number of improvements and changes that can be implemented. Also, the problems encountered throughout this project should be addressed.

Foremost, the most prominent would be the Raspberry Pi working as a central unit connecting the consumer to devices in his/her home. Therefore looking into a two way communication between the Raspberry Pi and the device. For the Raspberry Pi, that would be the use of Z- wave putting into account the low price of the attachment module and its compatibility with home appliances allowing the control of them wirelessly.

#### 6. REFERENCES

1. VinaySagar K N, Kusuma S M, "Home Automation Using Internet OF things", International Research Journal of Engineering and Technology (IRJET), Volume: 2, Issue :03 June -2015, pp 1965 - 1970.
2. Ahmed Elshafee, KarimAlaaHamed, "Design and Implementation of a Wi-Fi based Home Automation System", International Journal of Computer, Electrical Automation, Control and Information Engineering Vol:6, No:8, 2012, pp 1074 - 1080.
3. N. Sriskanthan, F. Tan and A. Karande, "Bluetooth based home automation system", Microprocessors and Microsystems, Vol. 26, no. 6, pp. 281-289, 2002.
4. HariCharanTadimetri, ManasPulipati, "Overview of Automation Systems and Home Appliances Control using PC and Microcontroller", Volume 2 Issue 4, April 2013.
5. Prof. M. B. Salunke, Darshan Sonar, NileshDengle, SachinKangude, DattatrayaGawade, "Home Automation Using Cloud Computing and Mobile Devices", Vol. 3, Issue 2 (Feb. 2013), ||V2|| PP 35-37.