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IOT BASED HOME AUTOMATION USING EMAIL

Asst. prof. Kawale Jayashri[1],Umesh Kolhe[2], Renuse Mahesh[3], Dhumal Akshay[4], Chavan Prachi[5]

[1,2,3,4,5]*Department of Electronics & Telecommunication,*
G.S.Moze College Of Engineering, Pune, (India)

ABSTARCT

Security is primary concern everywhere and for every one. Every person wants his home, industry etc to be secured. This project describes a security system that can control an industry and home. This is a simple and useful system and easy to install. Here our application uses Raspberry Pi as its controller and this can be placed where ever required so that one can operate the loads through internet. As the technology improves day by day everyone seems to automate most of the possible things to take advantage in providing ease in life, secure and save electricity. The main objective of this paper is to automate all the devices i.e. home appliances through E-mail using Raspberry Pi,

We can place this module home or at offices, factories or any other place where we need controlling for the purpose of security/safety.

The Raspberry Pi is a credit-card-sized single-board computer developed in the UK by the Raspberry Pi Foundation . The Raspberry Pi has a Broadcom BCM2836 system on a chip. It does not include a built-in hard disk or solid-state drive, but Uses an SD card for booting and long-term storage.

This project uses regulated 5V, 1A power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac out put of secondary of 230/12V step down transformer.

Keywords:- Raspberry Pi, Relay, Loads, Power Supply.

I.INTRODUCTION

Today the technology is getting improved and used for the ease in our day to day life. The life is getting automated for the simplicity, security, saving electricity and time. In this, home automation is the major things to automate the home appliances. Home automation can be done without human efforts. In home automation we can control the devices which can be ON and OFF with a single switch like fans, tubes, air conditioner, security of door lock system, also the sensor helps in gas leakage and saves electricity. It provides convenience, comfort, security and saves energy. The idea of home automation is been coming from many years ago, it was started with connecting two wires to the battery and close the circuit with the load. Later many of the organization developed it with devices like actuators, sensors, microcontroller, buses and interfaces. Also it came with the two types of system depending on hardware systems and wireless systems. In hardware systems it includes the Ethernet, fiber optics, telephone lines and coaxial wires. This comes under the part of home automation. Now in

wireless systems includes radio frequencies, Bluetooth, Wi-Fi. Now a days there are many new systems for home automation which includes hardware and wireless systems, as it is the combination of both the systems. This system will be having the hardware part and the software programming setup for the knowledge systems. The home automation is getting expanded because of the new techniques, easiness and straightforwardness through the smart phones, internet and wireless communication. Quality of services is getting improved by automation facilities provided through the Internet of Things.

The idea of automate each appliances in home is done from many years ago, it started with connecting two electric wires to the battery and close the circuit by connecting load as a light. Later it can be developed by different organizations, creates its own automation systems with different devices like sensors, controllers, actuators, buses, and interfaces. There are few methods for controlling home automation systems. These can be separated into two main structures:

i) Wireless systems and

ii) Hardwired systems.

Wireless systems: With wireless routines, you can utilize distinctive media, like Bluetooth, infrared, or radio frequencies, to control the automation system.

Hardwired systems: With hardwired routines, you can utilize Ethernet links, like fiber optic links, electrical wirings, telephone lines, and even coaxial links are normally utilized as a part of home security system. In present days most of the automation systems utilizes the combination of hardwired and wireless systems for control the appliances. It should have both equipment and programming set up for proficient systems.

II.PREVIOUS WORKS

Raspberry Pi has been chosen as the processing unit for the system because of its user friendly features and economical benefits. Further, python coded algorithm has been fed into the raspberry Pi and is connected to the internet through Modulator/Demodulator (MODEM) interface to access and send e-mails to the consumer. The Devices to be controlled have been interfaced with raspberry Pi using relay driver circuit due to different power ratings of devices and raspberry Pi. A display (optional) may also be connected to view the instantaneous status and processing of raspberry Pi.

the concept of Home Automation to existed earlier by scheduling and controlling the automation process through an E-mail. Here the subject of the e-mail is read by the developed program which is fed into the Raspberry Pi. The system responds to the corresponding algorithm and instructions. The proposed system is very interactive and flexible. The automation process can be scheduled for the time desired by the user. In order to switch on a lamp at 7:00pm, an e-mail can be sent to the system hours before 7:00pm or even days before it. The time and day has to be maintained properly to execute it in an effective manner. Even interrupting E-mail to stop the current on-going task could be sent. Not only has that, but Raspberry Pi in turn returned the status of the task. This Raspberry pi based home automation process which needs the power to control the appliances, to consume the power this process is used without power it cannot be detected.

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III.BLOCK DIAGRAM

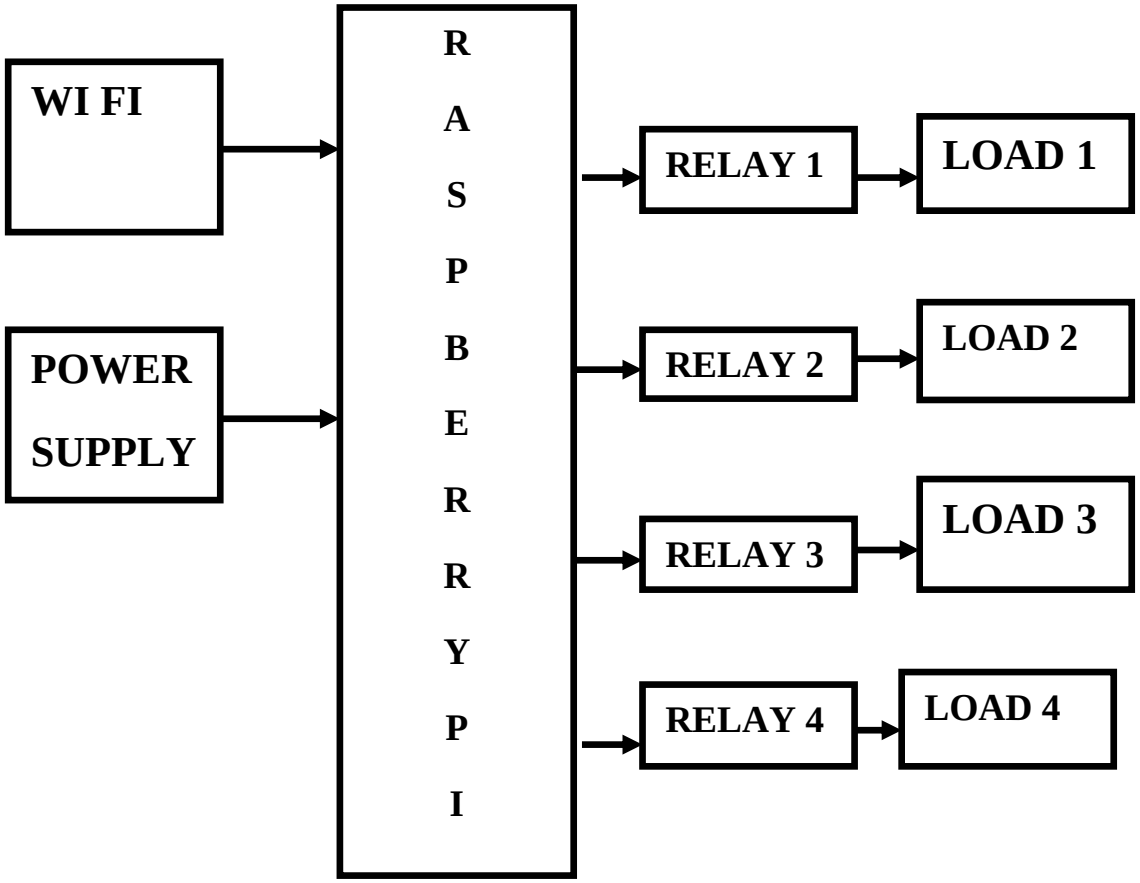

Figure: Block Diagram

In order to overcome the drawbacks of previous methods, and improves the flexibility, efficiency, instructiveness, and provides easy life, saving electricity in accordance with the user needs, proposed these interactive home automation system by taking Raspberry Pi as a processing unit, HDMI to VGA cable is connected to view the display of instantaneous status and processing of raspberry pi, LAN as internet connecting device to access and receiving E-mails to user, key board and mouse is to operate the raspberry pi and relay board for the controlling and switching operations. When E-mail receive by the raspberry pi then the data will read by raspberry and depend on that basis the load will get controlled.

IV.CONCLUSION

In this highly developing era, where directly or indirectly, everything is dependent on computation and information technology, Raspberry Pi proves to be a smart, economic and efficient platform for implementing the home automation. This provides a basic application of home automation using Raspberry Pi which can be easily implemented and used efficiently. The code provided is generic and flexible in a user friendly manner and can be extended for any future applications like power control, surveillance, etc, easily. Moreover, this technique is better than other home automation methods is several ways. For example, in home automation through DTMF, the call tariff is a huge disadvantage, which is not the case in proposed method. Also, in Web server based home automation, the design of web server and the space required is eliminated by this method, because it simply uses the already existing web server provided by G-mail.

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