

IOT Based Home Automation Using E-Mail

G.Nagaraju

M. Tech (Embedded System),
Aurora's Engineering College,
Bhongiri, Yadadri-Bhongiri.

R.Sravan Kumar, M.Tech

Associate Professor,
Aurora's Engineering College,
Bhongiri, Yadadri-Bhongiri.

ABSTARCT:

Security is primary concern everywhere and for everyone. 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.

Introduction:

Today the technological world's centralized principle is to automate each conceivable thing for simplicity in life, providing security, saving electricity and time. In that home automation is one of the major things to automatically on and off the home appliances. Home automation can be characterized as a method for doing something without human inclusion. It may incorporate brought together to control of lighting, heating, ventilation, air-conditioning, machines, security door locking and different systems, to provide improved convenience, comfort, energy efficiency and security. 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.

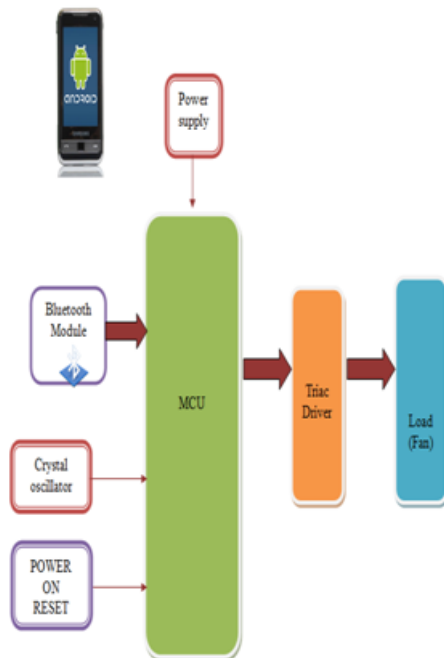
Wireless Systems:

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.

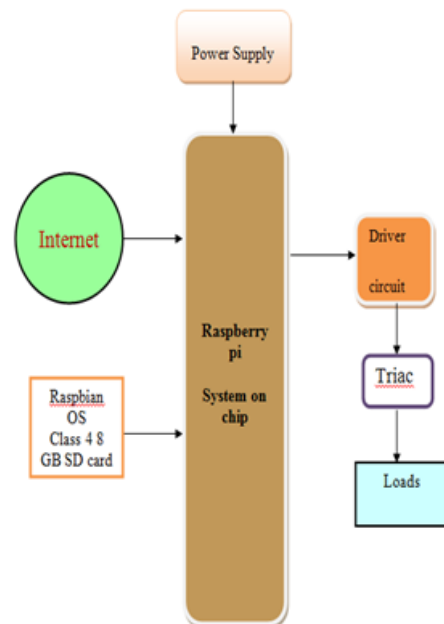
Existing System:

One of wireless communication system is Bluetooth communication system. This is not only used in industry but also used in Domestic Purpose as home appliances controlling using Bluetooth remote, some persons who are unable to walk to switch board such type of persons need this type of project and also elder people can control the speed of the fan with remote, without moving away from their place. Remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation. This project is based on the android application, android application send command through Bluetooth. In this project we have an electrical load i.e fan. In extension to the project in some Industries we have different types of loads at different locations. We can control all loads at a time from one place (control room) without connecting any physical wire between loads and control room. In this project we are using Bluetooth module for communication Android phone as our remote, controller, and some discrete components.

BLOCK DIAGRAM:



Block Diagram



Drawback:

Bluetooth can be implemented with only shorter distance.

Proposed System:

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. 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 BCM2836/2837 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.

RASPERRY-PI:



The **Raspberry Pi** has a Broadcom system on a chip (SoC).

Features:

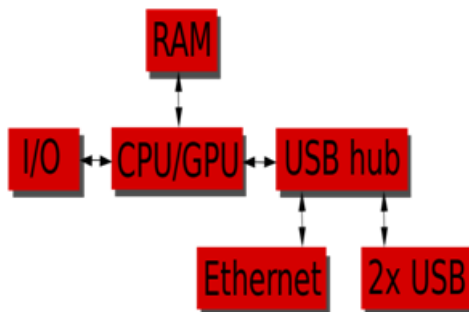
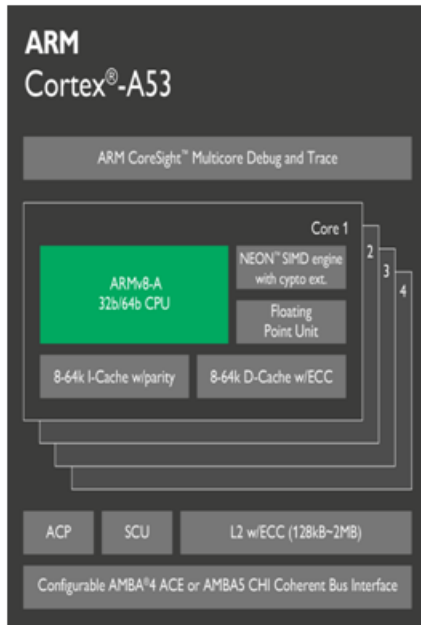
- System Memory – 1GB LPDDR2
- Storage – micro SD card slot (push release type)
- Video & Audio Output – HDMI and AV via 3.5mm jack.
- Connectivity – 10/100M Ethernet
- USB – 4x USB 2.0 ports, 1x micro USB for power

- Expansion
 2×20 pin header for GPIOs
 Camera header
 Display header
- Power – 5V via micro USB port.
- Dimensions – 85 x 56 mm

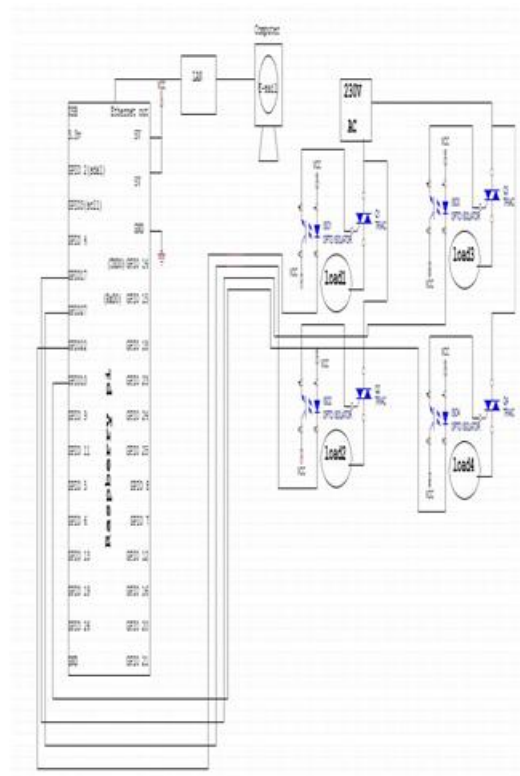
Image of the board showing SD card



OS used in Raspberry pi is Linux

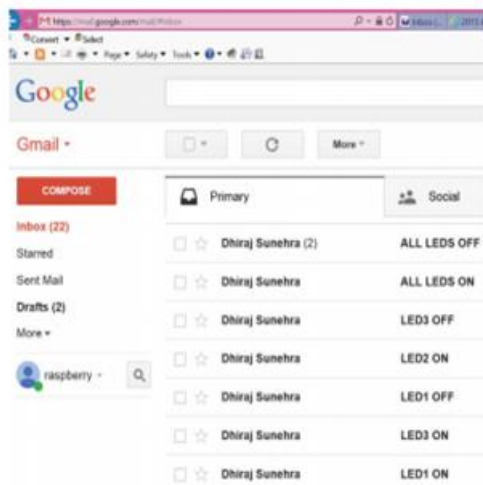


Basic Hardware of Raspberry-PI



Schematic diagram

Project implementation screen shot



Inbox of Raspberry Pi email account showing various requests in the subject field of email received from the user

Advantages:

- Highly-flexible
- Fit & Forget System
- No need of human effort

Conclusion:

Here we have implementing a home automation via E-mail using Raspberry pi.

REFERENCES:

- [1] Access control of door and Home Security by RaspberryPi through internet by Md. Nasimuzzaman Chowdhury, Md.Shiblee Nooman, Srijon Sarker. The Inter-national Journal of scientific & engineering research, Volume4, Issue11, November 2013, ISSN:2229-5518.
- [2] Android based Home automation Using Raspberry Pil, by Shaiju Paul, Ashlin Antony and Aswathy. B, IJCAT International Journal of computing and Technology, Volume- 1, Issue1, February2014.
- [3] Home Automation System using android and Wi-Fil by R.S.Surya-vanshi, Kunal Khivensara, Gulam-Hussain, Nitish Bansal, Vikash Kumar. Inter-national journal of Engineering and computer science, ISSN:2319-7242, Volume3, Issue:10, October2014. Page No:8792-8794.

[4] Design and implemen-tation of home automation system using raspberry pill by Bruhathireddy, Dr.G.N.Kodandaramaiah, M.Lakshm-ipathy. International Journal of Science, Technology& Management, www.ijstm.com, Volume No.03, Issue No.12, December2014,ISSN:2394-1537.

[5] Raspberry PI and Wi-Fi Based Home- Automation by P.Bhagya lakshmi, G.Divya, L.Aravinda. International Journal of Engineering Research and Applications (IJERA), ISSN:2248- 9622 (NCDATES-09th & 10th January 2015).

[6] GSM Based Home Automation System Using App-Inventor for Android Mobile Phone by Mahesh N. Jivani. An ISO:3297: