Review Paper on Home Automation and Security using IOT

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Abstract-   **In this paper we have proposed a home automation and security which is based on IOT and having the parameters like accuracy, reliability and low cost. IOT offers very large potential for development of various types of automation, this paper also deals with the design and implementation of Raspberry pi based home automation and security using IOT concept. This project can get security to their home and all the devices can controlled by using android apps just by using in their smart phone .The raspberry pi is a mini computer. It is totally Raspbian platforms. The components of smart home system designed to take care of various issues such as devices adaptability security and privacy. Camera module is used for main security which is capture the images and upload internet. Raspberry pi module can have the feature to save the same images in SD card**
Keywords- **IOT, Raspberry pi-3, PRI motion sensor, Buzzer, PI camera**

I.   INTRODUCTION

There are several planned or ongoing large-scale deployments of IOT, to enable better systems & management of cities. For example, South Korea, Songdo first of its kind fully equipped & wired smart city, is near completion. Autonomous control & ambient intelligence are not part of original concept of Internet of Things. & autonomous control & ambient intelligence do not necessarily require Internet structures [1]. The dual aspect of the projects are home automation and home security. If any human being can come infants of camera then it sense and capture the image near the entrance of the home and then the alarm raises optionally upon the user discretion. Many people always move from place to place leaving all their household appliances without any kind of monitoring and control at different intervals depending on the time of the day. Lots of energy is consumed by some devices if these devices are not controlled properly. This energy may leads to extra expenditure on electricity. To produce improved convenience, comfort, energy potency and security. In existing System, the control of home appliances is provided through

landline by dialing the designated number for the particular load. The home phone can dial or call can be made to the home number from outside.

This system is designed based on digital logic using the technology called Dual Tone multiple frequency (DTMF) without using a programmable microcontroller. To develop the digital output, the system receives the command from the landline phone [2]

The raspberry pi is a low cost and powerful credit card size computer. The processor for a sophisticate home security system.it has the processing interface and power available system the same set of sensor using the dual problem of home security and home automation .Automation and security performs an increasingly vital role in daily experience and global economy.

II. LITERATURE SURVEY

The security of one's belongings when a person leaves his/her house is always a concern with increasing number of incidents of robbery, theft etc. Many automated systems has been developed which informs the owner in a remote location about any intrusion or attempt to intrude in the home. . However, this paper looks into the development of an android application which interprets the mobile device receives message on possible intrusion and subsequently a reply SMS which triggers an /buzzer/alarm in the remote home making others aware of the possible intrusion. They can provide several useful services such as support for the disabled people and elderly, environmental monitoring, access control, and home automation. Furthermore, with the widespread diffusion of mobile devices and their integration with new auto-identification technologies, the need to control and manage the smart home through these devices is increasing.[3]. Raspberry pi home automation with wireless sensors using mobile phone Home Automation System has been developed with Raspberry Pi by reading the algorithm and subject of Email. Raspberry Pi guarantees to be an efficient platform using raspbian for implementation powerful, and economic smart home automation. Home automation using Raspberry pi is better than any other home automation and security methods in

Several ways. For example, DTMF (dual tone multi-frequency) using home automation, the call tariff is a big demerit, which is not the problem in their proposed method. In Home Automation using web server, the design of web server and the memory space required is not use this method, because it just uses the already established web server service given by G-mail. LEDs were used to identify the switching action. This System is efficient and flexible reliability and low cost interactive

III. ADVANTAGES

- This low cost system with minimum requirements takes care of both home automation as well as home security.
- The system cannot be accessed by any other unauthenticated user.
- Although Raspberry pi is as small as the size of credit card, It work as if a normal computer at a relatively low price.
- Grouping a set of Raspberry pi to work as server is more cost effective than a normal Server.
- This idea overcomes the common fault in many existing home security systems which causes unnecessary embarrassment by triggering security alarm due to the systems inability to judge a special condition in which it should not have triggered the alarm.
- If all light traffic server are changed into Raspberry pi.
- It can certainly minimize an enterprise's budget Creator right off the bat thinks about different botnet location machine learning procedures through system conduct investigation like Bayesian Network, Support Vector Machine and utilized choice tree classifier machine learning calculation.

IV. DISADVANTAGES

- High dependency on sensor devices which makes the system vulnerable if sensor fails
- Even through Raspberry pi can perform different tasks, there are some limitations due to its hardware.
- Some common one like windows and linux distros are not compatible. In addition some application which required high demands on CPU processing are off-limits.
- It can work as a self-computer, but cannot replace it.
- Replacing humans is dangerous
- May take time and learning
- Security concerns
- Vulnerable to attacks
- Most of the times range is restricted

V.COMPONENT REQUIRED

1. Raspberry pi 3 model B
2. Pir motion detector sensor
3. Alarm (Buzzer)

4. Mobile phone to receive message in E-mail
5. Pi camera

VI. RASPBERRY PI 3 MODEL

The Raspberry pi consist of application are microprocessor and memory including in 1 GB RAM. Its features include:
- Video: Full HDMI port
- Audio: jack and composite video
- 40 general purpose input-output pins
- Camera interface
- Display interface
- Storage: Micro SD card or via USB-attached storage
- Four USB 2.0 with 480Mbps data transfer
- CPU: 1.2GHz quad-core 64-bit ARM

Specifically, Raspberry pi makes the following contribution
1. Motion sensor and operates the camera which also used for security purpose
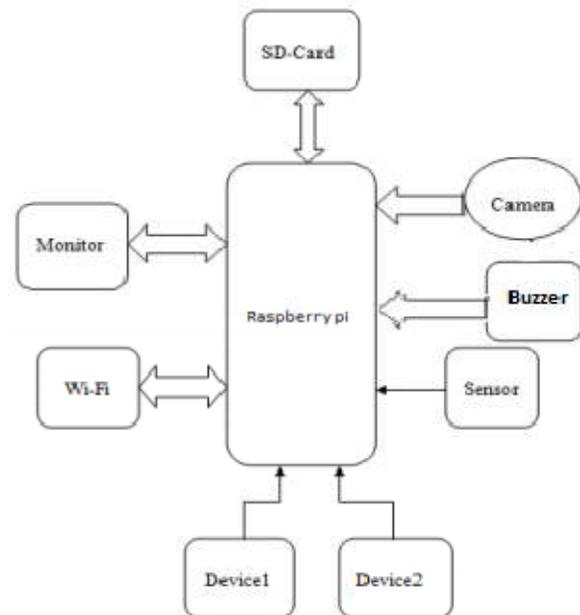2. home appliances Operation

Fig.1: Block Diagram of Raspberry pi 3 Model B

The Raspberry pi is open hardware, with the primary chip on the raspberry pi, the Broadcomm SoC (System on Chip), which run many of the main computer of the board –CPU, memory, graphic, the USB controller, etc Many of the project made with a raspberry pi are open and well- documented as well and and are things you can build and modify.

Raspberry pi is slower than a modern laptop or desktop but is still a complete raspbian computer and can provide all the expected abilities that implies, at a little power consumption level

Fig.2: Raspberry pi model B

VII.PIR MOTION SENSOR

Passive infrared motion sensor is an electronic device which is designed to detect this IR wavelength when human detect being is in proximity pir sensors allow to sense motion always used to detect whether a human has moved in or out of the pir motion sensors range. Human beings of wavelength around 9-10 micro meter everyday.
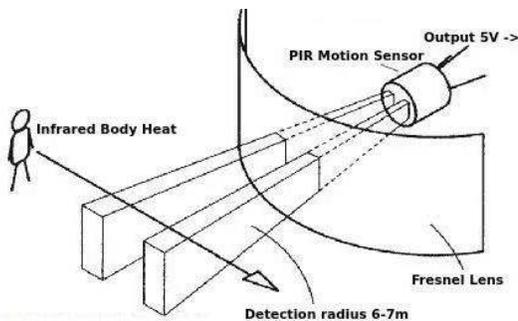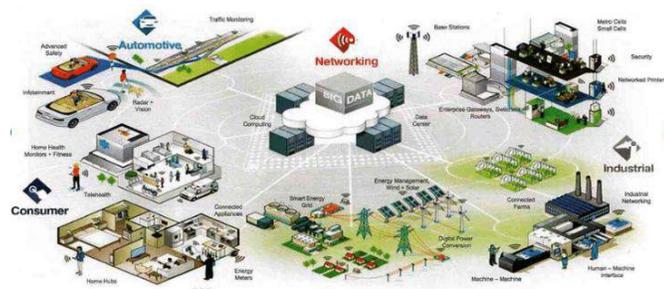

Fig.3: PIR motion sensor

Fig.4 Application of IOT

VIII.CONCLUSION:

The IoT is a powerful and great platform for building low cost, but highly capable, embedded system. The inclusion of a dedicated camera interface and networking interface give you everything you could possible need for an inter-connected home automation and security. In this way we fully completed the paper on home automation and security using Pi camera and raspberry pi.

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