International Journal of Research
Available at https://edupediapublications.org/journals
p-ISSN: 2348-6848
e-ISSN: 2348-795X
Volume 02 Issue 11
November 2015

Android Supported Outdoor Home Automation System

Mr. Dadasaheb Gofane[1], Ms. Pawar Pooja[2], Ms. Nalawade Harshal[3], Ms. Poonam Avhad[4]

BE, Dr. D. Y. Patil College Of Engineering, Ambi, Pune[1, 2, 3, 4].

dadasahebgofane@gmail.com[1], pawarpooja326@gmail.com[2],
harshalnalawade18@gmail.com[3], avhadpoonam19@gmail.com[4].

ABSTRACT:

The objective is to develop a system which can control the electrical appliance through a mobile handset. For this we interfaced analog electric board with digital circuitry which is completely controlled by the server at end of a specific area. Task like controlling and history checking is provided. Low cost microcontroller is used to control whole system. The current status will be transmitted wirelessly to the local server along with the meter number. This data will be processed by the server and generates the result automatically. The user will be able to view current status and modify it.

INTRODUCTION:

Traditional home automation systems involve the control of digital devices which provide functions such as heating, lighting and shading. Due to the rapid growth of information technology and modern entertainment systems in recent years, these primary functions are required to be enriched with additional services (i.e. music system volume reduction when the telephone rings [1]). In [2], the benefits of home automation systems (the smarthouse systems) are listed as safety, comfort, power saving and communications. In order to provide these benefits, some technical requirements must be also respected, such as low cost, plug and play, flexibility, ease of use and reliability [2].

The requirements are itemized in detail:

- The wireless home automation systems should be scalable to facilitate the integration of new devices.

-The system should provide a user-friendly interface on the host side, so that the devices can be easily setup, monitored and controlled. The system interface should

also provide some diagnostics services to track potential problems.

Automation lowers the human judgment to the lowest degree possible but does not completely eliminate it. Depending on the location of its usage, automation differs in its name as industrial automation, home automation etc. With the development of low cost electronic components home automation migrated from being an industrial application to home automation. The home automation, our point of concern deals with the control of home appliances from a central location. Market researches claim that most of the homes will be equipped with home automation systems in the very near future.

MOTIVATION:

One of our two main motivations for developing the proposed system is the increasing popularity of smart homes. Although ready to use home automation systems exist, nevertheless there is a need for a new system which considers networked smart homes, rather than the systems based on individual homes. Our second motivation is to decrease the cost of such pervasive systems by using free and open tools provided by emerging technologies.

LITERATURE SURVEY:

There has been a significant amount of research and numerous approaches to the home automation systems. Although the idea of controlling home appliances via different methods is not new, there is a need to reconsider the management of smart homes. We believe that the proposed system contributes to the research in smart home automation by merging different advanced networking technologies with its Android-enabled and cloud-based structure.

[1] Sriskanthan N, Tan F and Karande A. Bluetooth based home automation system. In, the Bluetooth based home automation system is presented. The system involves a primary controller and a set of Bluetooth sub-controllers in which each controller is physically connected to an individual home device. The sub-controllers are responsible for sending all messages to the primary controller. Although the system reduces physical wiring through the use of Bluetooth technology, it has the disadvantage of incurring an access delay due to the sharing of a single Bluetooth module between numerous devices.

[2] Al-Ali AR, Al-Rousan M. Java-based home automation system. In a Java based home automation system, an embedded board integrated into a server is physically connected to all home devices. Java technology used in the system provides built-in security. However, the use of a high end computer and the wired installation per home increases the expense of the system.

[3] Gill K, Yang SH, Yao F, Lu X. A ZigBee-based home automation system. The discussion of the potential of ZigBee standards in home automation systems, a particular home automation system based on ZigBee and Wi-Fi network is presented and a virtual home is constructed. It is reported in the study that ZigBee technology has advantages, such as lowering the expense of the system and intrusiveness of the respective system installation compared to existing technologies. Since our aim in the study is to provide a distributed solution to the management of multiple home-automation systems and compare different technologies used in related work, the details of communication protocols/standards in the previous studies are not examined.

[4] Golzar MG, Tajozzakerin HR, A new intelligent remote control system for home automation aims to reduce energy consumption, and is based on an embedded controller connected to the home web-server and the sensors/actuators at home. The users control home devices through the web site on the home web server. The user and control data are stored at home.

[5] Ardam H, Coskun I. A remotecontroller for home and office appliances by telephone. Unlike the numerous systems using the Internet, communication is all performed over a fixed telephone line. The advantage is that it can be accessed via any telephone. However disadvantages include the lack of graphical user interface, the need to remember the user access code and the device codes. Due to the limited resources and difficulties of expanding the scope of home automation applications, the cloud infrastructure is becoming extremely appropriate for home automation by enabling on demand access to shared pool of configurable computing devices and storages.

Many researchers have carried out studies focusing on the use of cloud computing in home automation to process and analyze

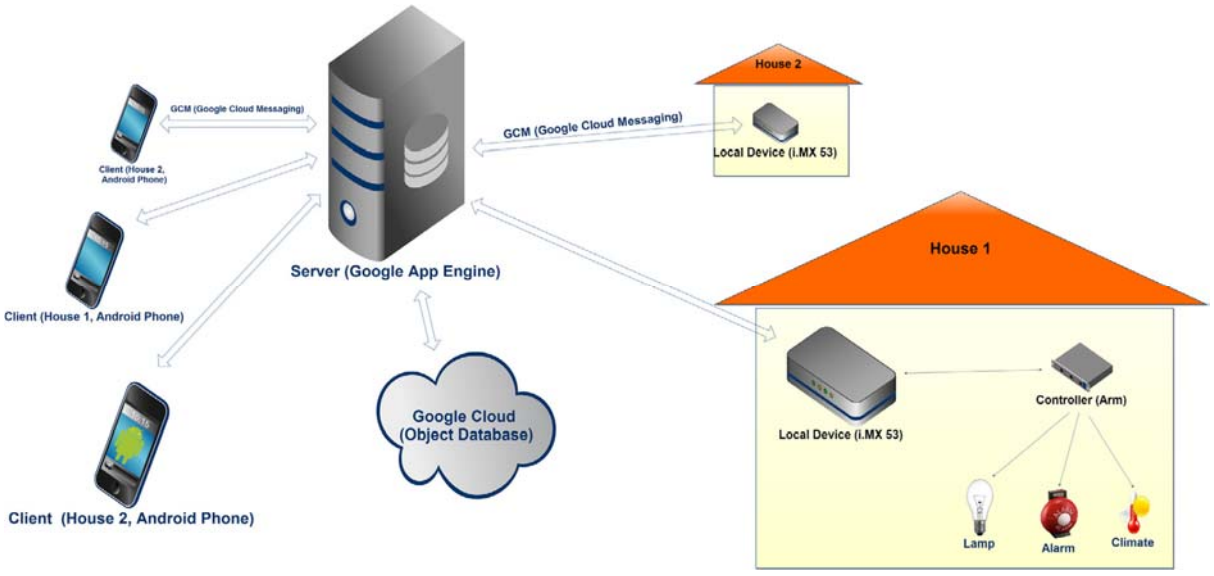
the huge amounts of data generated by sensors deployed throughout smart homes.

EXISTING SYSTEM:

Existing System consists of following:

1. Web Server
2. Google Cloud Platform
3. ARM cortex A-8 Processor.
4. Android Smart Phone.

Architecture of Existing System:



Disadvantages of Existing System:

-Existing System Consists of GCM (Google Cloud Messaging) which is very hectic task.

-Also Contains a High Cost Microcontroller (i.e. ARM Cortex 8).

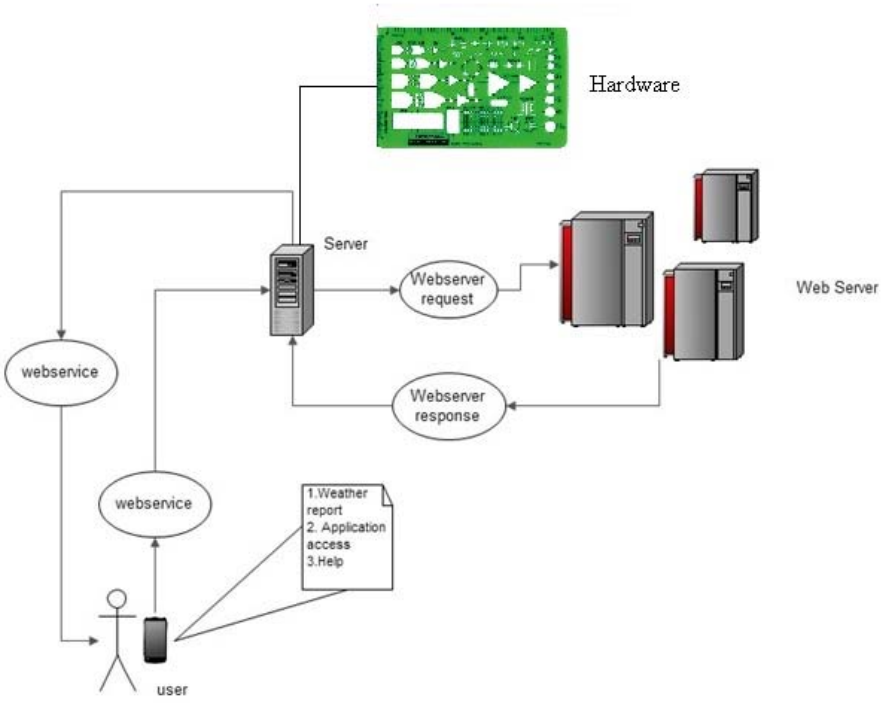
PROPOSED SYSTEM:

Proposed System Consists of Following:

1. Arduino Board
2. Motion Sensor
3. Android Based Smart Phone
4. LPG Gas Sensor
5. Motion Sensor
6. Web Server.

International Journal of Research
Available at https://edupediapublications.org/journals
p-ISSN: 2348-6848
e-ISSN: 2348-795X
Volume 02 Issue 11
November 2015

Proposed System Architecture:



Components of Proposed System:

1.Web Server :

Web Server stores customer records, and Serves the other components in the system.It manages the communication between the local device and mobile smart device, and the communication between local device and web site. It is used to support the bidirectional communication between home local device and web server, and also between the mobile device and web server.

2. Android Supported Smart Phone:

Android Supported Smart Phone does the working of sending request to web server for changing /checking current status of the device.

3. Hardware:

Hardware consists of Arduino which provides the connectivity to devices in the home. And also provide connectivity to different sensors established in the home as Motion Sensor,LPG gas Sensor, Temperature Sensor etc,Through which devices are controlled.

Advantages of Proposed System:

1. Consists of low cost Hardware.

2. Use of only web server instead of cloud.

3. Reduces the cost of the system.

CONCLUSION:

In This Paper, We presented the Study of various home automation System.This application is pretty much useful to the user in various aspects. The user got the capabilities for various tasks to perform from single application in hand. It enables user to perform history checking, monitoring current usage and also the appliances can be controlled via signal of activity. Thus we can conclude that the usability and performance of application can be a great use for anyone who accesses this application.

REFERENCES:

1] Sriskanthan N, Tan F, Karande A. Bluetooth based home automation system. Microprocess Microsyst 2002;26/6:281–9.

[2] Al-Ali AR, Al-Rousan M. Java-based home automation system. IEEE Trans Consum

[3] Golzar MG, Tajozzakerin HR. A new intelligent remote control system for home automation and reduce energy consumption.

[4] Gill K, Yang SH, Yao F, Lu X. A ZigBee-based home automation system. IEEE Trans Consum

[5] Ardam H, Coskun I. A remote controller for home and office appliances by telephone. IEEE Trans Consum Electron 1998;44/4:1291–7.

[6] Internet access technology based on the embedded devices. Xiaoneng Gao

[7] Embedded server and client system for home appliances on real-time operating system, Nonaka T,Ryukok university,ostu,Japan,Shimano,Uesugi