UBIQUITOUS HOME CONTROL AND MONITORING SYSTEM USING INTERNET OF THINGS

Prof. C.R. Dongarsane[1].Mr.Chougule Salim F.[2]

Miss. Dardi Madhura Rajendra[3] Miss. Kumbhar Amruta Dilip[4]

[1]Assistant Professor, Department of E&TC,SETI,Panhala,India
[2]Student VIII SEM,B.E. , E&TC Engg. ,SETI,Panhala, India

---***---

Abstract-This paper presents for comfort and security low purpose having low cost Home Control & Monitoring system using Java programming based Android App. This system requires pc based web server. This proposed system easy to handle home appliances such as fan, light and security system. Home control and monitoring system we using the sensors, temperature, humidity and current. Home automation allow to increasing work efficiency, comfort and security.

Keywords: IoT, Arduino, Ubiquitous

I. INTRODUCTION

The IoT's can be connecting everyday object such as sensors, actuators, internet TV and smart phone. This device is directly connected through internet. We can connect object to internet at anytime, anyone and anywhere. So we can save time and save money with better security. IoT's technology can be applied for wide development for smart homes to provide security and comfort. Home automation system is used for busy families.

Now days, Different home devices and the appliances being connect to internet such as Air conditioner, lighting and home security. So smart phone and smart tablets are works as controlling remote. Hence home environment will contribute reduction of cost and saving the energy in today's life. The remaining paper is organized in following sections such as problem definition, brief discussion of conceptual architecture, design implementation and advantages of this proposed system are presented in section. And finally the conclusion is presented.

II. PROBLEM DEFINATION

In this proposed design, presented a smart home environment system accessed by Internet. An overview of proposed system architecture is shown in fig. The system consists of Android platform and 8051 microcontroller. The 8051 microcontroller is the main microcontroller that hosts the micro web-server. The relays are directly interfaced to main 8051 microcontroller. Any internet connection can be used for this system like Wi-Fi or 3G/4G.

Figure1- System architecture of the proposed ubiquitous smart home.

By using this proposed system we can also control lighting, fan, door lock, air conditioner and electric gate.

III.   CONCEPTUAL ARCHITECTURE

This proposed architecture is divided into 3 parts: Remote environment; home gateway & home environment shown in figure.
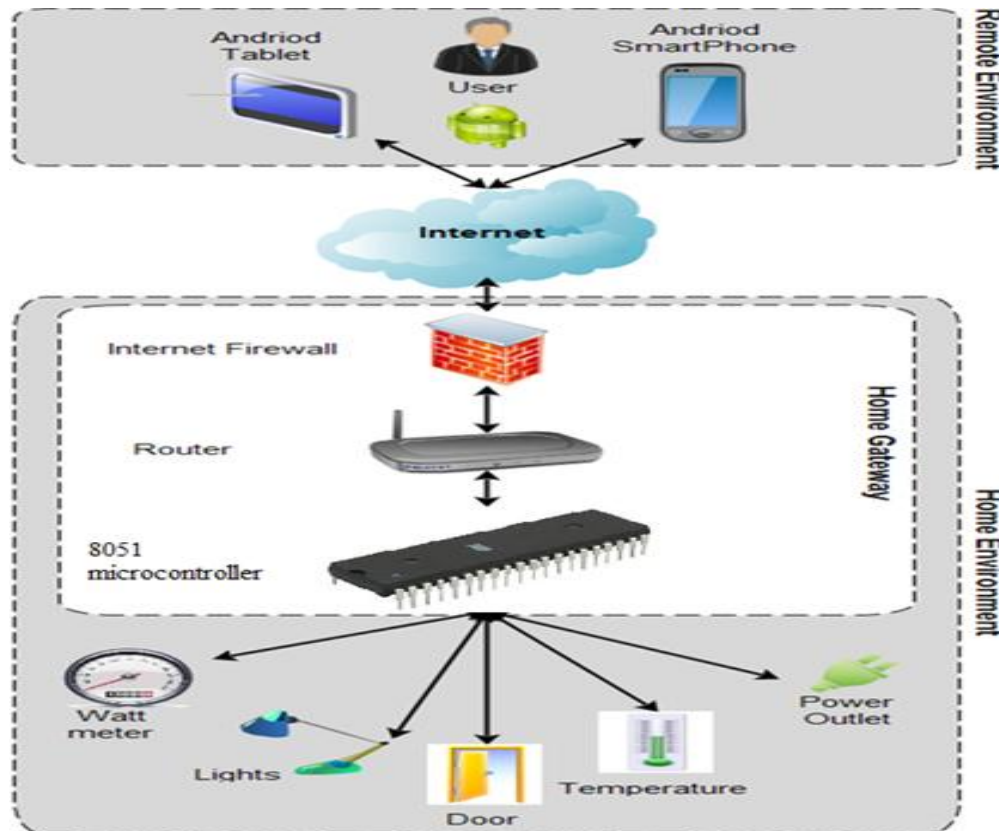

figure2. Conceptual Architecture

An app developed using the Android platform and 8051 microcontroller based micro web-server.

The 8051 microcontroller is the main controller that host the web-server and performs the particular actions. The sensors and actuators/relays are directly interfaced to the 8051 controller.
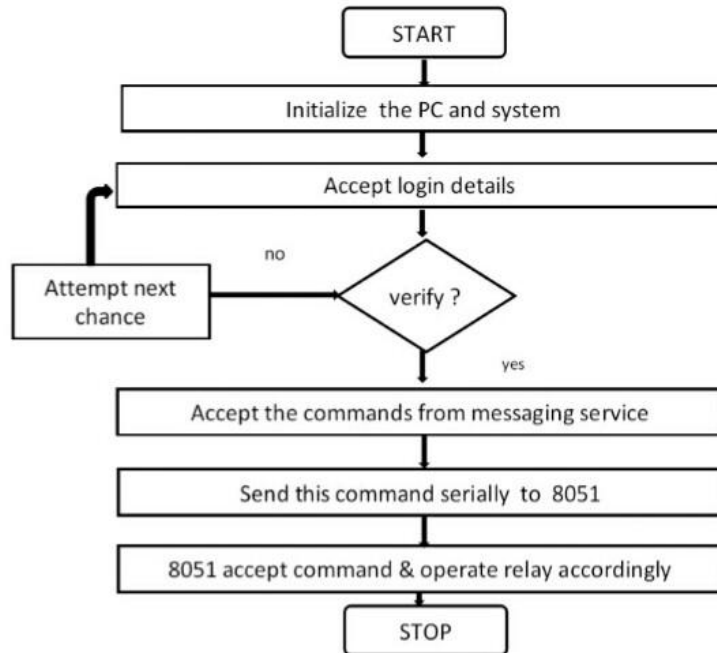
The smart home environment can be controlled and monitored from a remote location using the smart phone. All communicate with the micro web-server via the internet. Any internet connection via Wi-Fi or 3G/4G network can be used on the user device.

I.   **DESIGN IMPLEMENTATION**

FLOW CHART FOR TRANSMITTER
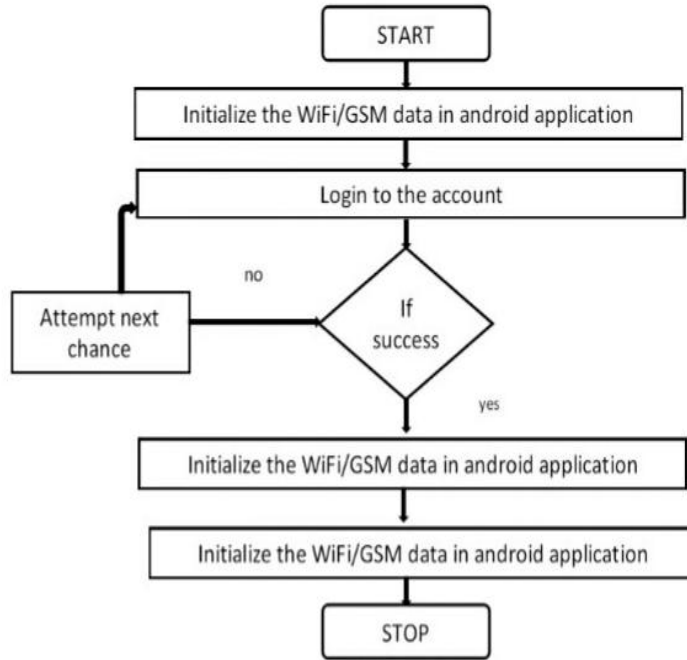
FLOW CHART FOR RECEIVER

V. CONNECTIVITY WITH INTERNET

Twitter web page accessed by internet. Command will send to 8051 microcontroller through twitter. The sensors and actuators/relays are directly interfaced to the 8051 controller.

Search latest command into twitter and compare last command with latest command. Provide the command to device and twitter the command. Commands as following:

Md2-54 projectIoT D1 ON

Md2-54 projectIoT D1 OFF

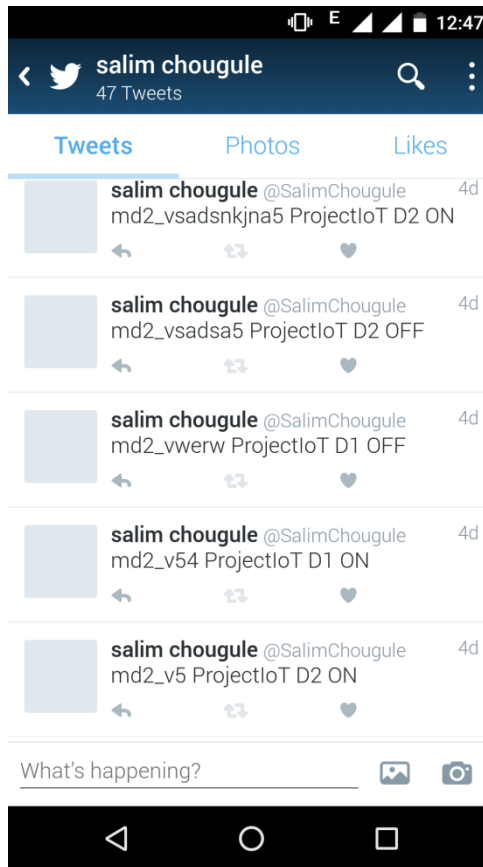Md2-54 projectIoT D2 ON

Md2-54 projectIoT D2 OFF

Fig3. Controlled by Internet App Twitter

VI.   ADVANTAGES

Reduced installation costs: First and foremost, installation costs are significantly reduced since no cabling is necessary. Wired solutions require cabling, where material as well as the professional laying of cables is expensive.

Using home automation system easily operates home devices so it's saves time. This system provides security and comfort. Also this system makes quality of life.

VI.   CONCLUSION

In this paper the main part of proposed system is to implement a new architecture for easy and restful life using Android based smart phone. This system is communicating between user and the home devices. The home automation using Internet of Things has been proven to at single place we can control all home devices through Internet.

VII.   FUTURE SCOPE

Using this system, the system can be expanded to include various other options which could include home security feature like capturing the photo of a person moving around the house and storing it onto the cloud. This will reduce the data storage than using the CCTV camera which will record all the time and stores it. The system can be expanded for energy monitoring, or weather stations. This kind of a system with respective changes can be implemented in the hospitals for disable people or in industries where human invasion is impossible or dangerous, and it can also be implemented for environmental monitoring.

REFERENCES

[1] Daniel Obodovski author of "The silent intelligence-The Internet of Things"

[2] G. Kortuem, F. Kawsar, D. Fitton, and V. Sundramoorthy, "Smart objects as building blocks for the internet of things," *Internet Computing, IEEE,* vol. 14, pp. 44-51, 2010.

[3] J. Potts and S. Sukittanon, "Exploiting Bluetooth on Android mobile devices for home security applications," in *Southeastcon, 2012 Proceedings of IEEE* Orlando, FL 2012.

[4] C. C. Ko, B. M. Chen, S. Hu, V. Ramakrishnan, C. D. Cheng, Y. Zhuang*, et al.*, "A web-based virtual laboratory on a frequency modulation experiment " *IEEE Transactions on Systems, Man,and Cybernetics, Part C: Applications and Reviews,* vol. 31, pp. 295-303, 2001.ando, FL 2012.

[5] N. Swamy, O. Kuljaca, and F. L. Lewis, "Internet-based educational control systems lab using NetMeeting " *IEEE Transactions on Education,* vol. 45, pp. 145-151, 07 August 2002.

[6] K. K. Tan, T. H. Lee, and C. Y. Soh, "Internet-based monitoring of distributed control systems -An undergraduate experiment," *IEEE Transactions on Education,* vol. 45, pp. 128-134, May 2002 2002.

[7] A. Z. Alkar and U. Buhur, "An Internet based wireless home automation system for multifunctional devices," *Consumer Electronics, IEEE Transactions on,* vol. 51, pp. 1169-1174, 2005.

[8] J. Potts and S. Sukittanon, "Exploiting Bluetooth on Android mobile devices for home security application," in *Southeastcon, 2012 Proceedings of IEEE*, 2012

[9] K. Kaur, S. C. Mukhopadhyay, J. Schnepper, M. Haefke and H. Ewald, "A Zigbee Based Wearable Physiological Parameters Monitoring System", IEEE Sensors Journal, Vol. 12, No.3, March 2012, pp.423-430.

[10] A. Gaddam, S. C. Mukhopadhyay and G. Sen Gupta, "Elderly Care Based on Cognitive Sensor Network", IEEE Sensors Journal, Vol. 11, No. 3, March 2011, pp. 574-581.