

# A Review on Smart Home Automated Control System

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**ABSTRACT:** In the recent years Home automation is essential requirement of house owner or households to keep home safe, hence Smart Home Automation Control System is the researchers and companies interest area and tries to implement a system. This type of control system controls the electrical appliance and instrument remotely from anywhere such as an air conditioner, refrigerators, computer system, Television, security system, set top box, light or fan and so on. In the past year different systems or technologies are used to control electrical appliance. This paper provides an overview on smart home automation systems developed in the recent year.

**KEYWORDS:** Smart Home Automation Control System, air conditioner, electrical appliance.

## I. INTRODUCTION

Now a day's Home security and control is one of the basic needs, and this need is attract the researchers and the system developers. Technology changes rapidly with ensure vast Coverage, Remote control, Reliability & Real time operation. For Security and Control in Home Automation systems Wireless technologies are mostly used, Smart Home Automated Control System provides the capability to control the home electrical appliance as well as monitor various household activities [1]. This type of home automation improves the lifestyle of the control of the home devices in short; Smart Home automation Control system is combination of computer and information technology to control the home appliance like telephones, TV outlets, electrical power, broadband wire, a doorbell and door lock. These types of system are developed by not only considering the energy efficiency, security and ease but also are made to reduce the manual labour for example washing machine is were developed for reducing the manual labour for clothes cleaning and for bathing the water heaters also reduced the necessary labour[2].

There are different types of wireless device used in home automation like Bluetooth, Zigbee, and GPRS etc. In this paper we are presenting the different types of Smart Home Automated Control System. In this paper introduction section provides the importance of Smart Home Automated Control System where as the section two i.e. literature survey provides an overview on smart home automation systems developed in the recent year.

## II. RELATED WORK

Mohamed Abd El-Latif Mowad et al [3] designed and implemented a control and monitor system for smart house. Smart house system (SHS) consists of many sub-systems that controlled by Microcontroller software as a main controlling systems as shown in fig.1 proposed system uses a different types of micro controllers, like PIC30f4013-PIC 16f627A- PIC12f652- PIC18f, arduino. In this system connectivity between remote or smart phone and micro controller is established through RF wireless and Bluetooth modules.

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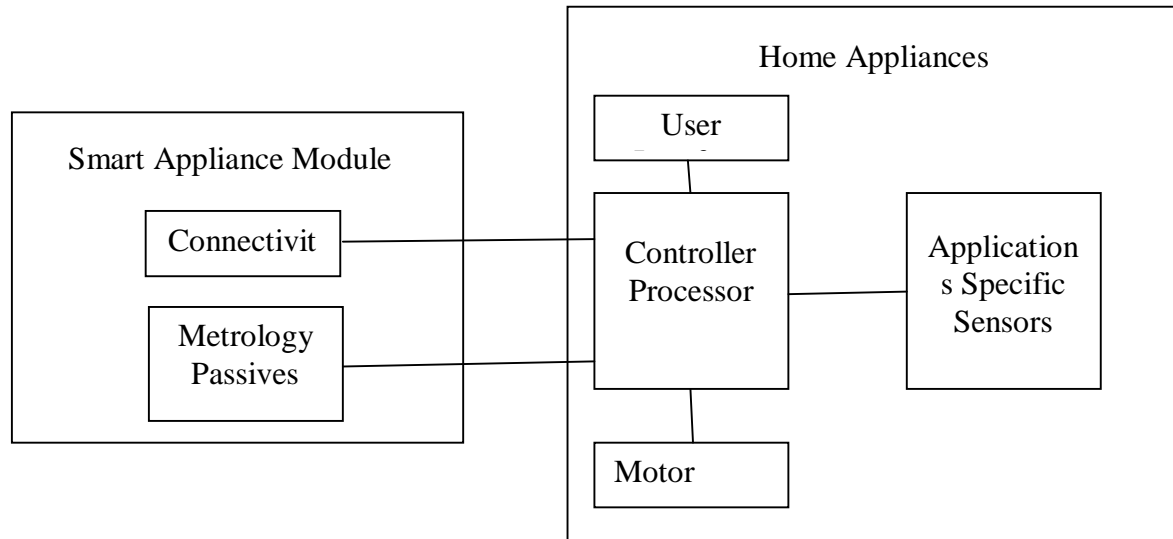


Fig.1 Block Diagram of Complete SHS (Smart house system) [3].

This system consists of microcontroller (PIC16F877 microcontroller can be used as the brain to control a large variety of products, in order to control large devices), Arduino Board (for making computers sense and control more of the physical world than your desktop computer), Android (is a software stack for mobile devices that includes an operating system, middle- ware and key applications) and Bluetooth (communicating mobile with a central system). This system also provides the Smart Home Security Systems (simple and compact security alarm system to protect your home/shop and valuables), Smart Home Lighting Control Systems (able to control the light in SHS by two different ways by smart phone or by PIR sensor automatically), and Smart Home Temperature Sensing System for Air Conditioner.

Mahesh N. Jivani [4] presents GSM (Global System Messaging) Based Home Automation System. This control system uses App Inventor for Android mobile phones which are a latest visual programming platform for developing mobile applications for Android-based smart phones. This proposed system consists of software as well as hardware, software like App Inventor (allows Android Apps to be built and programmed highlighted colorful building blocks easy to understand), Arduino and GSM (Global System for Mobile Communications, originally Groupe Spécial Mobile) and hardware like GSM Modem, microcontroller ATMEGA328, peripheral driver array ULN2803, Relay and a few discrete components.

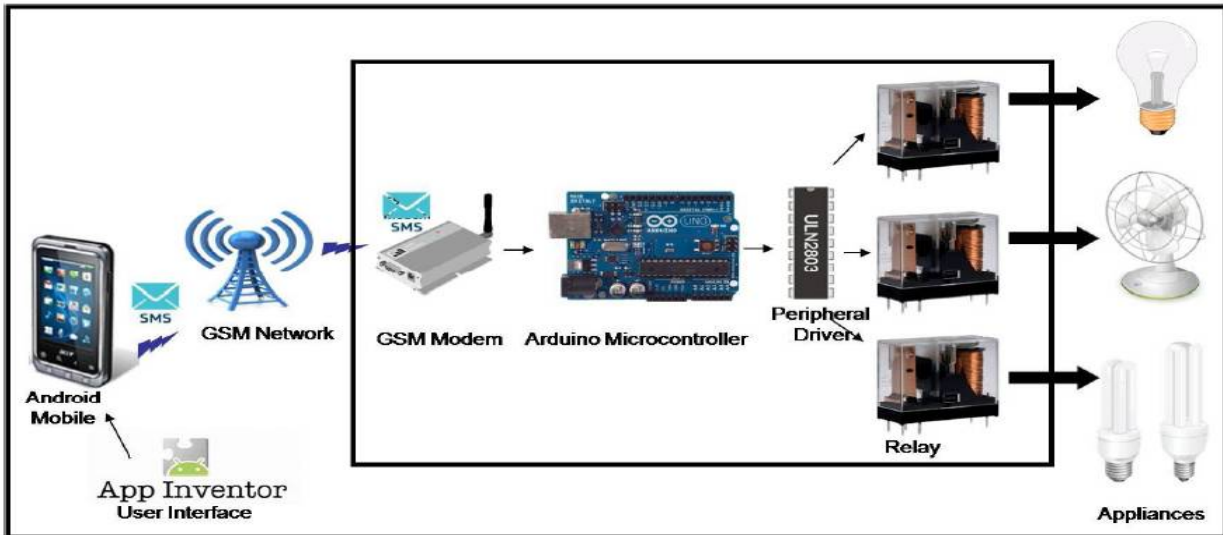


Fig. 2 System Architecture [4]

Sougata Das et al. [5] proposed embedded system for home automation using SMS. This system uses global system for mobile communication (GSM) technology for controlling the household appliance. The proposed system is shown in fig. 3, in which a text message is sent by the user through the GSM network. This text message is received by GSM receiver i.e. GSM Modem. This GSM modem is connected to ATMEGA8 Microcontroller via serial port using internal UART [4] Module of ATMEGA8. Microcontroller ATMEGA8 crops the command text part of the SMM. Microcontroller decodes action required according to the SMS command by a search and match technique. Microcontroller drives the desired relay to control the target appliance. This system allows the user or home owner to monitor and control the home appliances via mobile phone set by sending commands in the form of SMS (short message service) messages and the system also provides current status of the home appliances.

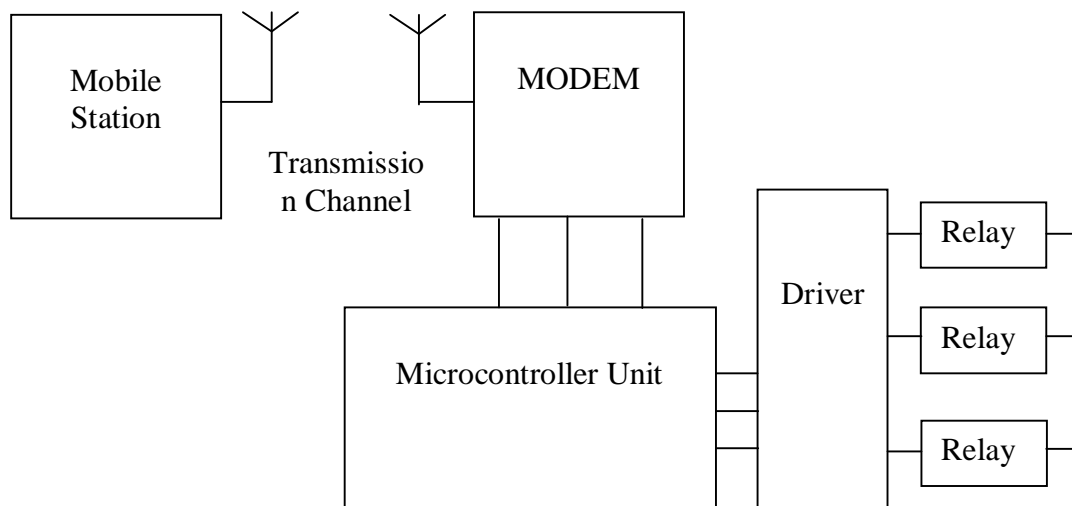


Fig. 3 Block diagram of the system [5].

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Sweatha K N, Poornima M, and Vinutha M H [6] developed new novel technology where the user controls the devices through mobiles. Fig. 4 shows the block diagram of a system, in which an android mobile phone having a Bluetooth interface, a Bluetooth module, a pic microcontroller, a central FPGA controller are used. This proposed system is connected to the robot, bulb and a motor device and these devices are controlled by using the Bluetooth and mobile devices through speech recognition application. This system consists of four blocks: Bluetooth Interface (The central FPGA controller communicates with the Bluetooth module through a serial interface), Mobile Device (requires an android mobile device having a Bluetooth module, which will used for speech recognition.), PIC Microcontroller (used to receive the data from the Bluetooth receiver and also received data is converted to digital form), and Control and Monitoring Devices.

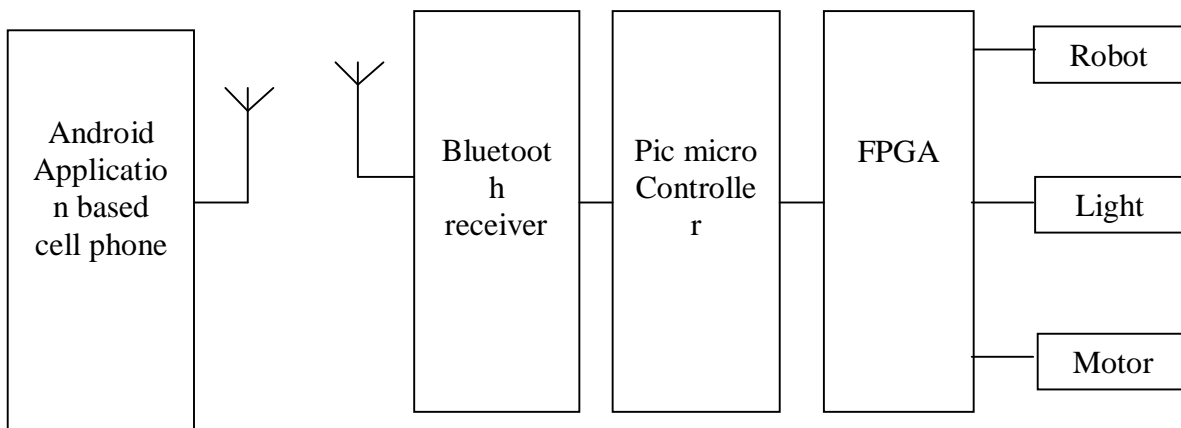


Fig. 4 Block Diagram of proposed system [6].

### III. CONCLUSION

In the recent year's applications of Smart Home Automation System is the new era of the advanced / modern home system and can be monitor or operate remotely from anywhere. This paper provides the system architecture of Smart Home Automation System and provides details about the system. Literature Survey section provides the different remote based existing system which are developed in the last years.

### REFERENCES

- [1] D.Vijendra Babu, Dipeshwar Kumar Yadav, Niteshwar Kumar Yadav, Vivek Kumar Verma, "Mems Based Smart & Secure Home Automation System With Multi-Way Control & Monitoring Facility Using Smart Phone" , International Conference On Recent Advancement In Mechanical Engineering &Technology (ICRAMET' 15), Issue 9: April 2015 ,pp. 357-359.
- [2] Manish Kumar and Ramandeep singh, "HOME Appliance Controlling Using ZIGBEE on ATMEGA128 Hardware Platform", International Journal of Research in Engineering and Technology (IJRET), Volume: 03, Issue: 07, Jul-2014, pp. 469-472.
- [3] Mohamed Abd El-Latif Mowad, Ahmed Fathy and Ahmed Hafez, "Smart Home Automated Control System Using Android Application and Microcontroller", International Journal of Scientific & Engineering Research, Volume 5, Issue 5, May-2014, pp. 935-939.
- [4] Mahesh N. Jivani, "GSM Based Home Automation System Using App-Inventor for Android Mobile Phone", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol. 3, Issue 9, September 2014, pp. 12121-12128.
- [5] Sougata Das, Nilava Debabhuti, Rishabh Das, Sayantan Dutta and Apurba Ghosh, "Embedded System for Home Automation Using SMS" IEEE International Conference on Automation, Control, Energy and Systems (ACES), pp. 1-6, Feb 2014.
- [6] Sweatha K N, Poornima M, and Vinutha M H, "ADVANCE HOME AUTOMATION USING FPGA CONTROLLER", International Journal of Advanced Research in Computer and Communication Engineering Vol. 2, Issue 7, pp. 2680-2682, July 2013.