A REVIEW ON HOME AUTOMATED SYSTEM (HAS)

Keshav Kumar Singh [1], Prof. D.L.Bhuyar[2]

[1] PG Student, [2] Professor

[1] Department of E&TC, CSMSS College of Engineering, Aurangabad (MH), India.

Abstract : Now a day's Home Automation System (HAS) is the researchers and companies interest area, and adopting new technologies to improve the performance of HAS. Home Automation System (HAS) is a controlling type of system which controls the electrical instruments or appliances like fan, tube, television, air conditioner, refrigerators, security system, set top box, computer system etc. remotely from anywhere. This paper provides the overview on smart home automation systems developed and gives the comparative of recent years developed system.

IndexTerms - Home Automation System (HAS), electrical instruments or appliances, remotely.
_____

I. INTRODUCTION

Automation is the demand of smart word, because of it provides the comfort to the system user. This type of home automation improves the lifestyle and it is combination of computer and information technology to control the home appliance. Figure 1 shows application of home automation system, like Office Automation, Building Automation, Home Automation and Power Automation, etc. Here, in the Office automation different systems are controls the computer machinery and software's, in the building automation system controls the different building appliances like water pump, parking light etc., power automation system control the different instruments of power plant and in the home automation different home appliances and instruments are controlled [5].
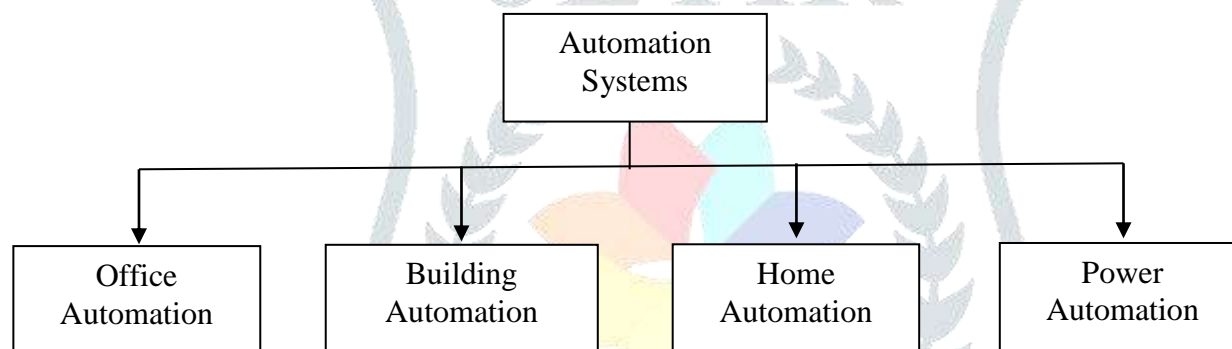

Figure 1 Automation systems.

II. EXISTING SYSTEM

Mohamed Abd El-Latif Mowad et al. [1] Smart Home Automated Control System Using Android, in which main four modules for Smart Home System (SHS). This proposed system controls the home automation and remote monitoring, environmental monitoring (this module contains humidity, temperature, fault tracking and management) and also the health monitoring. For controlling some application in the home, proposed system used different types of micro controllers, which are PIC30f4013-PIC 16f627A-PIC12f652- PIC18f, Arduino UNO. By using RF wireless and Bluetooth connectivity between remote or smart phone and micro controller was done. SHS was supported by remote control system as a sub- controlling system. Shiu Kumar [2] present low cost smart home system. This proposed system was based on the Android app, which communicate with the micro-web server providing more than the switching functionalities. This proposed system contains app (which was developed using the Android platform), Arduino Ethernet based micro web-server, and Arduino microcontroller (this is main controller that hosts the micro-web-server). This proposed system will control Home Appliances by using any type of internet connection via Wi-Fi or 3G/4G network can be used on the user device.

Sougata Das et al. [3] present household appliance control system using global system for mobile communication (GSM) technology. In this proposed system, home owner control the home appliances via mobile phone set by sending commands in the form of SMS. This system contains GSM mobile Handset, GSM modem SIM300 from SIMCON ltd.), Microcontroller (ATmega8), and Communication protocols (RS-232). Vijay P. Jadhao [4] develop two remote monitoring systems using cell phone i.e. first system simply switch on/off appliances like lights, fan, T.V, etc. by using ARM LPC2148 microcontroller and second system is Doorbell application in which image capture and store image into cell phone memory of system and makes successful communication between system user and outdoor unknown visitor. Olusanya O. Olamide and Ayeni O. A. Joshua [6] present an SMS driven microcontroller for home automation. In which home appliances are controlled by SMS from mobile phone together with microcontroller (PIC16F876).SMS translated into a Hexadecimal file using Custom Computer Services (CCS) Compiler and then microcontroller is then interfaced with the mobile phone such that when this phone receives SMS.

Manish Kumar and Ramandeep Singh [7] present control of home appliances like refrigerator, fan, and air conditioner etc wirelessly using computer and Zigbee wireless communication protocol. This proposed embedded system contains two parts; transmitter (contains Zigbee transmitter and RS232 circuit) and receiver (contains Zigbee receiver and ATMEGA128 which is connected with relay and appliance i.e. fan, bulb, motor etc). The user sends the command pc by using Zigbee transmitter. Zigbee receiver receives the command and decodes it and sends it to ATMEGA128 microcontroller, according to the command microcontroller will work. Vinay sagar K N and Kusuma S M [8] present

Internet of Things (IoT) based Home Automation system, which uses computers or mobile devices to control basic home functions and features automatically through internet from anywhere around the world. This proposed system monitors the sensor data, like temperature, gas, light, motion sensors, as well as stores the sensor parameters in the cloud (Gmail) in a timely manner.

III. COMPARISON REPORT BETWEEN EXISTING SYSTEMS

Satish Palaniappan et al. [9] provides the consolidated comparison of different systems.

Table 3.1: Comparison of different systems

System	Primary Communication	Remote access	Number of Devices	Cost	Speed	Real Time
GSM	SMS messages	Access from anywhere in the world	Unlimited	High cost due to SMS charges	Slow due to delivery issues	No
Bluetooth	Bluetooth and AT commands	Restricted to Bluetooth range- 10 metres	Unlimited	Fast due to proximity	Fast due to proximity	Yes
Phone Based	Phone lines	Anywhere with a phone line	12 due to 12 frequencies of DTMF	Fast	Fast	No
Zigbee	Zigbee and AT commands	Around 10 metres	Unlimited	Fast	Fast	Yes
Wireless	Radio, infrared or other waves	Depending on range and spectrum of waves used	Unlimited	High cost due to licensing and other spectrum issues	Slow due to interferences	Yes

IV. ADVANTAGES OF HAS [10]

- Makes life easier and more convenient
- also provide peace of mind
- the smart home will alert you to what's going on Whether you're at work or on vacation
- also provide some energy efficiency savings
- Smart home technology promises benefits for an elderly person living alone.
- Useful for Physically Challenged Individuals

IV. CONCLUSION

Home Automation System is emerging technology of technical world; this type of system can be monitor or operate remotely from anywhere. This paper provides the details of existing home automation system (HAS) as well as comparison of different systems. Literature Survey section provides the different remote based existing system which are developed in the last years and the advantages of the home automation system.

REFERENCES

[1] Mohamed Abd El-Latif Mowad, Ahmed Fathy, and Ahmed Hafez 2014. Smart Home Automated Control System Using Android Application and Microcontroller, International Journal of Scientific & Engineering Research, Volume 5, Issue 5.

[2] Shiu Kumar,2014, Ubiquitous Smart Home System Using Android Application, International Journal of Computer Networks & Communications (IJCNC), Vol.6, No.1.

[3] Sougata Das, Nilava Debabhuti, Rishabh Das, Sayantan Dutta and Apurba Ghosh, 2014, Embedded System for Home Automation Using SMS, IEEE International Conference on Automation, Control, Energy and Systems (ACES), pp. 1-6.

[4] Vijay P. Jadhao, 2013, ARM based Smart Home Automation", International Journal of Science and Engineering, Volume 1, Number 2.

[5] Prity N. Adhagale and R. J. Magar, 2017, Smart Home Automation System using Ethernet Technology, International Journal of Innovative Research in Science, Engineering and Technology, Vol. 6, Issue 11.

[6] Olusanya O. Olamide and Ayeni O. A. Joshua, 2012, Design and simulation of an SMS driven microcontroller for home automation using proteus software", International Journal of Computer Engineering Research Vol. 3(3).

[7] Manish Kumar and Ramandeep singh, 2014, Home Appliance Controlling Using Zigbee on Atmega128 Hardware Platform", International Journal of Research in Engineering and Technology, Volume: 03, Issue: 07.

[8] Vinay sagar K N and Kusuma S M, 2015, Home Automation Using Internet of Things", International Research Journal of Engineering and Technology (IRJET), Volume: 02, Issue: 03.

[9] Satish Palaniappan, Naveen Hariharan, Naren T Kesh, Vidhyalakshimi S, and Angel Deborah S, 2015, Home Automation Systems - A Study", International Journal of Computer Applications, Volume 116, No. 11.

[10] Rosslin John Robles and Tai-hoon Kim, 2010, Applications, Systems and Methods in Smart Home Technology: A Review, International Journal of Advanced Science and Technology, Vol. 15.