

Internet of Things Based Smart Home Automation

Harshal S.Bhosale

Dept. of Computer Engineering
All India Shri Shivaji Memorial
Society, Polytechnic
Pune, India

harshalbhosale24@gmail.com

Mrs. V. RPalundarkar

Dept. of Computer Engineering
All India Shri Shivaji Memorial
Society, Polytechnic
Pune, India

Priyesh S.Surve

Dept. of Computer Engineering
All India Shri Shivaji Memorial
Society, Polytechnic
Pune, India

Rahul B. Biswas

Dept. of Computer Engineering
All India Shri Shivaji Memorial
Society, Polytechnic
Pune, India

Abstract – Home Automation is conveniences installed and designed to perform chore in your living place. Smart homes are often referred to as intelligent homes as they perform services that become part of our life. Many of the automated systems that silently perform their jobs unnoticed this is automation at its best. We live in an exciting time where more and more everyday items “things” are becoming smart! “Things” have sensors and can communicate to other “things” and can provide control to more “things”. The Internet of Things, IoT, is upon us in a huge way and people are rapidly inventing new gadgets that enhance our lives. The price of microcontrollers with the ability to talk over a network keeps dropping and developers can now tinker and build things inexpensively. IoT based home automation can be achieved by using low cost ESP8266 ESPino ESP-12 WiFi Module, AVR Controller and Relay’s.

Keywords: AVR Controller and Relay’s, Cloud networking, Home automation system (HAS), Internet of things (IOT), Wi-Fi module

I Introduction

With advancement of Automation technology, life is getting simpler and easier in all aspects. In today’s world Automatic systems are being preferred over manual system. With the rapid increase in the number of users of internet over the past decade has made Internet a part and parcel of life, and IoT is the latest and emerging internet technology. Internet of things is a growing network of everyday object-from industrial machine to consumer goods that can share information and complete tasks while you are busy with other activities [5-8]. Wireless Home Automation system(WHAS) using IoT is a system that uses computers or mobile devices to control basic home functions and features automatically through internet from anywhere around the world, an automated home is sometimes called a smart home. It is meant to save the electric power and human energy. The home automation system differs from other system by allowing the user to operate the system from anywhere around the world through internet connection.

II Related work

In [1] Sirsath N. S, Dhole P. S, Mohire N. P, Naik S. C & Ratnaparkhi N.S, proposes a Home Automation system that employs the integration of multi-touch mobile devices,

cloud networking, wireless communication, and power-line communication to provide the user with remote control of various lights and appliances within their home [14]. This system uses a consolidation of a mobile phone application, handheld wireless remote and PC based program to provide a means of user interface to the consumer.

In [3] Deepali Javale, Mohd. Mohsin, Shreerang Nandanwar The prime objective of this paper is to assist handicapped/old aged people. It gives basic idea of how to control various home appliances and provide a security using Android phone/tab. The design consists of Android phone with home automation application, Arduino Mega ADK. User can interact with the android phone and send control signal to the Arduino ADK which in turn will control other embedded devices/sensors.

In [4] Basma M. Mohammad El-Basioni, Sherine M. Abd Elkader and Mahmoud Abdelmonim Fakhreldin This paper proposes a new design for the smart home using the wireless sensor network and the biometric technologies. The proposed system employs the biometric in the authentication for home entrance which enhances home security as well as easiness of home entering process [12]. The structure of the system is described and the incorporated

Communications are analyzed, also estimation for the whole system cost is given which is something lacking in

a lot of other smart home designs offers. WB-SH is designed to be capable of incorporating in a building automation system and it can be applied to offices, clinics, and other places. The paper ends with an imagination for the future of the smart home when employs the biometric technology in a larger and more comprehensive form. The paper ends with an imagination for the future of the smart home when employs the biometric technology in a larger and more comprehensive form.

III Proposed System

Home automation systems face and difficulty in achieving security. The main objectives of this research is to design and implement a home automation system using IoT that is capable of controlling and automating most of the house appliances through an easy manageable web interface. four main challenges these are high cost of ownership, inflexibility, poor manageability [9-11].

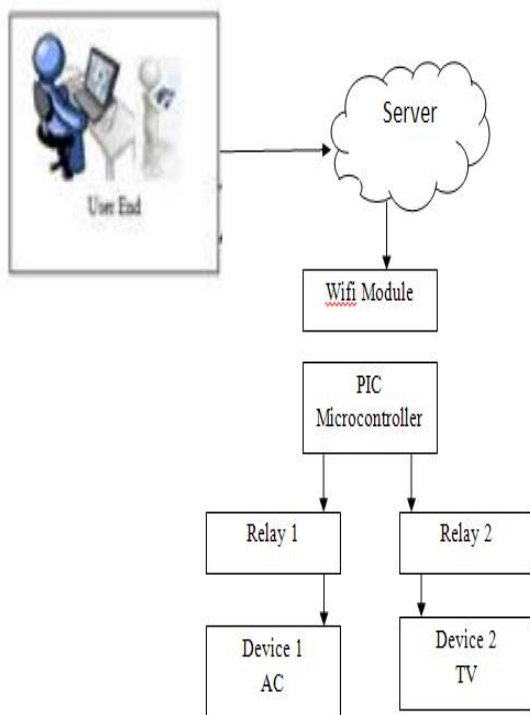


Fig 3.1 Proposed System.

The proposed system has a great flexibility by using Wi-Fi technology to interconnect its distributed sensors to home automation server. This will decrease the deployment cost and will increase the ability of upgrading, and system reconfiguration.

IV Conclusion

The home automation using Internet of Things has been experiment all proven to work satisfactorily by

connecting simple appliances to it and the appliances were successfully controlled remotely through internet. The designed system not only monitors the sensor data, like temperature, gas, light, motion sensors, but also actuates process according to the requirement, for example switching on the light when it gets dark. It also stores the sensor parameters in the cloud (Gmail) in a timely manner. This will help the user to analyze the condition of various parameters in the home anytime anywhere.

References

- [1] Sirsath N. S, Dhole P. S, Mohire N. P, Naik S. C & Ratnaparkhi N.S Department Of Computer Engineering, 44, Vidyanagari, Parvati, Pune-411009, India University Of Pune, "Home Automation Using Cloud Network And Mobile Devices".
- [2] Deepali Javale, Mohd. Mohsin, Shreerang Nandanwar "Home Automation And Security System Using Android Adk" In International Journal Of Electronics Communication And Computer Technology (Ijecc) Volume 3 Issue 2 (March 2013).
- [3] Charith Perera, Student Member, Ieee, Arkady Zaslavsky, Member, Ieee, Peter Christen, And Dimitriosgeorgakopoulos, Member, Ieee "Context Aware Computing For The Internet Of Things: A Survey". Ieee Communications Surveys & Tutorial.
- [4] Charith Perera_Y, Arkady Zaslavskyy, Peter Christen And Dimitrios Georgakopoulosy Research School Of Computer Science, The Australian National University, Canberra, Act 0200, Australia Ycsiro Ict Center, Canberra, Act 2601, Australia " Ca4iot: Context Awareness For Internet Of Things".
- [5] Bill N. Schilit, Norman Adams, And Roy Want, "Context Aware Computing Applications".
- [6] Jayavardhana Gubbi, Rajkumar Buyya, Slaven Marusic, A Marimuthu Palaniswamia, "Internet Of Things (Iot): A Vision, Architectural Elements, And Future Directions".
- [7] S.P. Pande, Prof. Pravin Sen, "Review On: Home Automation System For Disabled People Using Bci" In Iosr Journal Of Computer Science (Iosr-Jce) E-Issn:2278-0661, P-Issn: 2278-8727 Pp 76-80.
- [8] Basil Hamed, "Design & Implementation Of Smart House Control Using Labview" At International

- Journal Of Soft Computing And Engineering (Ijsce)
Issn: 2231-2307, Volume-1, Issue-6, January 2012.
- [9] Basma M. Mohammad El-Basioni¹, Sherine M. Abd Elkader² And Mahmoud Abdelmonim Fakhreldin³, “Smart Home Design Using Wireless Sensornetwork And Biometric Technologies” At Volume 2, Issue 3, March 2013.
- [10] Inderpreet Kaur, “Microcontroller Based Home Automation System With Security” At Ijacs International Journal of advanced Computerscience And Applications, Vol.1, No. 6, December 2010.
- [11] Rosslin John Robles And Tai-Hoon Kim, “Review: Context Aware Tools For Smart Home Development”, International Journal Of Smarhome, Vol.4, No.1, January, 2010.
- [12] Hitendra Rawat, Ashish Kushwah, Khyati Asthana, Akanksha Shivhare, “Lpg Gas Leakage Detection & Control System”, National Conference On Synergetic Trends In Engineering And Technology (Stet-2014) International Journal Of Engineering And Technical Research Issn: 2321- 0869, Special Issue.
- [13] Nicholas D., Darrell B., Somsak S., “Home Automation Using Cloud Network And Mobile Devices”, Ieee Southeastcon 2012, Proceedings Of Ieee.
- [14] Chan, M., Campo, E., Esteve, D., Fourniols, J.Y., “Smart Homes-Current Features And Future Perspectives,” Maturitas, Vol. 64, Issue 2, Pp. 90-97, 2009.