International Journal of Engineering Research-Online
*A Peer Reviewed International Journal*
Articles available online http://www.ijoer.in; editorijoer@gmail.com

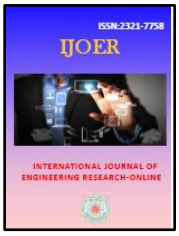
Vol.6., Issue.5, 2018
Sept-Oct.,

REVIEW ARTICLE

ISSN: 2321-7758

# Home Automation using IOT

**CH.NAGA BHUSHANAM[1] & CH.SUHASINI[2]**
[1]Dept. of Physics, K.B.N College, Vijayawada
[2]Dept. of MCA, KBN College, Vijayawada




**ABSTRACT**
Internet of Things (IoT) is based on the idea of remotely controlling and monitoring real world objects (things) through the Internet .This concept can be used to make our house secure, smarter and automated. Our paper focuses on developing a smart home security system which helps the owner in case of any intrude by sending alerts, raising an alarm. The same can also be used for home automation purposes. The main objective of this article is to build a smart home device which can be used to control the home appliances via internet.

**Introduction**

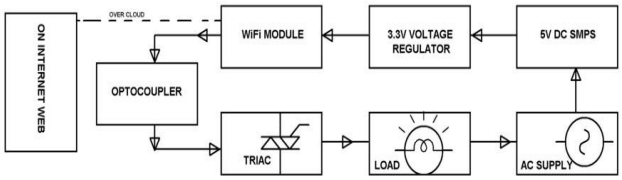
The internet of things (IoT) is rapidly increasing and blowing our lives in the ways we can't even envision. It's a concept that not only has the prospective to impact how we live but also how we work. This is the notion of fundamentally connecting any device with an on and off switch to the Internet. This includes everything from cell phones, coffee makers, washing machines, head phones, lamps, wearable devices and sensors and actuators to the internet where the devices are intellectually linked together. The IoT is a giant network of connected of "things", which is related with people-people, people-things, and things-things. important advancement of IoT over the last couple of years has created a new dimension to the world of information and Communication technologies. The increasing technology is leading to anyone, anytime, anywhere connectivity of things with expectation which will expand and produce an entirely advanced dynamic network of IoT. The IoT technology can be used for new innovation concepts that can be wide used for development space for smart homes system in order to provide intelligence, comfort, safety and improved quality of life.

Wireless home automation using IOT is a pioneering application of internet of things developed to manage home appliances remotely over the cloud. The home automation system project can be developed by following simple steps shown below.

**Materials & Methods**

The vital components and materials for home automation using IOT project can be listed as a Wi-Fi module, Opto-coupler, TRIAC, resistors, capacitors, diode, regulator, loads.

**Required Blocks for Home Automation Project**




Home Automation using IOT Project Block Diagram

The home automation using IOT project consists of various blocks such as power supply, Opto coupler , TRIAC, WiFi module , SMPS (Switch Mode Power Supply), voltage regulator, and load.

**1. Designing DIY Blocks of Home Automation System**

There are various modules and blocks used for designing home automation using IOT project such as WiFi module, Optocoupler, voltage regulator, TRIAC and so on.

**2. Wi-Fi Module**

It is a wireless networking technology used for exchanging the information between two or more devices without using cables or wires. There are various Wi-Fi technologies such as Wi-Fi

802.11a, 802.11b, 802.11g and 802.11n. Here, in this project Wi-Fi module is used to get commands from the internet and make active loads through TRIAC & Opto coupler by carry out a program written within the Wi-Fi module. Hence, no microcontroller is used in this project to constrain loads.

**3. Voltage Regulator**

It is an electronic device used for regulating voltage in a power system. There are a variety of voltage regulators like variable voltage & fixed voltage regulators which are again sub classified into several types like electro-mechanical, automatic voltage, linear, hybrid regulators, etc.,. Here, in this project 3.3V voltage regulator is used to provide required power supply to a Wi-Fi module from 5V SMPS power supply.

**4. Opto-Coupler**

It is a passive optical component which can join or split transmission data from optical fibers. It is an electronic device which is designed to move electrical signals by using light waves in order to supply coupling with electrical isolation between its input and output. The main reason of an optocoupler is to prevent speedy altering voltages or high voltages on one side of a circuit from distorting transmissions or damaging components on the other side of the circuit. An optocoupler have s a light source frequently near an LED which converts electrical input signal into light, a closed optical channel and a photosensor, which sense s incoming light and either modulates electric current flowing from an external power supply or generates electric energy straight. The sensor can either be a photo resistor, a SCR, a photodiode, a phototransistor or a triac.

The parcel of light emitting device and light sensitive device without any electrical connection is called as an Opto coupler or Opto isolator. There will be a beam of light used as a connection between these two devices. The light emitting device is an LED and light sensitive device in this project is a TRIAC. Thus, Opto coupler and TRIAC are used to make loads based on the signal be given from the Wi-Fi module.

**5. Connecting the Home Automation Circuit**

The home automation using IOT project circuit can be connected using a range of electrical and electronic components, modules, blocks & connecting wires.

Home automation makes use of Arduino. These sets up the internet connection to the system and the entire home appliances can turn be connected and controlled by internet. Home automation is the process of controlling home appliances automatically using various control system techniques. The electrical and electronic appliances in the home such as fan, lights, fire alarm, outdoor lights, kitchen timer, etc., can be controlled using various control techniques.

**Conclusion**

This article has proposed the idea of smart homes that can bear a lot of home automation systems. A smart home contains a connection between wireless communications, sensors, monitoring and tracking Smart homes are a huge system that includes multiple technologies and applications that can be used to provide security and control of the home easily. A series of experiments have been done on the proposed smart home. These experiments reveal that how to detect the fire, water, leaking, smoke.

**REFERENCES**

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

[2]. R. J. C. Nunes and J. C. M. Delgado,"An Internet application for home automation," in 10th Mediterranean Electro technical Conference (MELECON2000), Lemesos,2000, pp.298-301.

[3]. R.Piyare and M.Tazil, "Bluetooth Based Home Automation System Using Cellphone,"in IEEE 15th International Symposium on Consumer Electronics, Singapore 2011, pp.192-195.

[4]. S.Anwaarullah and S.V.Altaf, "RTOS based Home Automation System using Android, "International Journal of Advanced Trends

in Computer Science and Engineering, vol.2, pp.480-484,January2013.

[5]. Interactive Applications for Smart Living," in 2nd International Conference on Innovations in Bio inspired Computing and Applications (IBICA2011),pp.309-312.

[6]. D.Javale,M.Mohsin, S.Nandanwar, and M.Shingate, "Home Automation and Security System Using Android ADK, "International Journal of Electronics Communication and Computer Technology (IJECCT),vol.3, pp.382-385,March2013.

[7]. J. Pottsand S. Sukittanon, "Exploiting Bluetooth on Android mobile devices for home security applications" In South eastcon,2012Proceedings of IEEE Orlando, FL2012.

[8]. R.A.Ramlee, M.H. Leong, R.S.S.Singh, M.M.Ismail, M.A.Othman, H.A.Sulaiman,et al., "Bluetooth Remote Home Automation System Using Android Application," The International Journalof Engineering And Science, vol.2, pp.149-153,11,January2013.

[9]. M.Yanand H. Shi, "Smart Living Using Bluetooth Based Android Smart phone, "International Journal of Wireless & Mobile Networks, vol.5, pp.65-72, February 2013.