

# Home Automation Using IOT

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**Abstract**— Internet of things is a conceptualization that motivation all objects throughout us as part of internet. Internet of thing covers a very wide scope of objects and includes diversity of objects like smart phones, tablets, digital cameras and sensors. When all devices is connected to one another, they enable more and more smart services and processes that support our everyday needs, environment and health. Cloud based programmed help to connect to the things thought out us so we can access anything at any time and any location in a user-friendly means using customized portals and built-in applications. Hence, cloud can be said to act as a front end to entry internet of thing. Applications that link with devices like sensors and digital cameras have special need for great amounts of storage to store big data, massive computation power to enable the real time processing of the data into information. we present a home automation system with the help of this paper (has) using Arduino Uno..

**Keywords:** sensors, cloud, IOT (internet of things), home automation system, Arduino Uno

## I. INTRODUCTION

The internet of things can be look as connecting daily objects like internet allow LG, Motorola smart Mobile Cell phones, actuators and sensors to the internet.

The supply for sending alert messages to concerned security work force in case of reprovig situation is also set up into the system. It's forecast that the number of devices join to the internet will increase from 100.4 million in 2012 to 2.3 billion by the year 2022, this growing is at a rate of 37% per year.

In the year 2012, 80% of machine to machine (m2m) link were made over mobile networks such as 3g and 4g and it is trust that by 2022, the ratio will increase to 93% since the sell for connected with machine to machine over set networks are in general more costly than mobile networks. Non identical devise and machines in the home such as air condition, lightings, entertainment systems and home safe future can now be attach to the internet in order to permit the user to authority those remotely using tablets or smart phones.

Thus make use of the same set of sensors, the dual issue of home security besides home automation can be solved on a supportive basis.

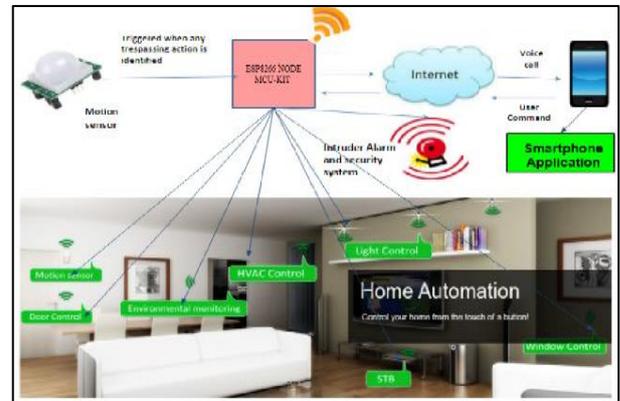


Fig. 1: Home Automation

## II. ADVANTAGES

This inexpensive cost system with lower limit essential takes care of both home security in to the bargain home automation

- this home security system does not make use of any smartphone application or any kind of user hang together as a replacement uses digits from the keypad on the phone, the system is platform self-supporting and hence can be gain access to from a extensive range of phones with different operating systems.

To set off home security system the user be in need of not have data connection license in his phone. The system move excellent with the launchpad connected to wi-fi at home/office.

- the possibility smart Mobile cell phone application takes care of the actuality that the user may also desire to command his home appliances without sensors being activate.

To carry out of operation home security system the user need not have data connection qualify in his phone. The system move ne with the launchpad connected to WI at home. The noncompulsory smart Mobile cell phone application take hold of care of the element that the user may also wish to command his home appliances in the nonappearance of sensors being activate [5].

Since the launchpad sends a voice smart Mobile Cell phone to only a single number which is available in the web API there is no require to be concerned about security leakage as the system cannot be gain access to by any other unauthenticated user. This in turn increases the accuracy of the security system.

- the use of wi-fi enabled launchpad in the system allow the system to be in control of from any part of the universe contrary to blue-tooth manage or IR remote manage existing home automation suspension that too without any net connectivity in the phone.

Since the same set of motion sensors can be position for home automation as well as security system the system is easy and low priced?

- this system does not demand the customer to instruction activate an alarm but motionless it supply the customer with the upper hand of analyzing the situation and then activate the security alarm remotely from his cell.

This idea get the better of the control fault in many existing home security systems which source unnecessary self-consciousness by activate security alarm due to the systems power lessness to judge a special situation in which it should not have activate the alarm.

### III. IMPLEMENTATION

#### A. Components Required

- 1) ESP8266 NODE MCU-KIT.
- 2) JUMPER WIRE.
- 3) BLYNK APP FOR MAKING SWITCH.
- 4) ARDUINO SOFTWARE FOR INSERT LIBRARIES AND CODING.
- 5) ACCESSIBLE WIFI INTERNETR WITH HIGH QUALITY.
- 6) PIR MOTION DETECTOR SENSOR WITH GOOD QUALITY.
- 7) GOOD QUALITY ALARM.
- 8) RELAYS FOR CONNECTING HOME APPLIANCES, ELECTRO MECHANICALLY CONTROLLED DOORS OR WINDOWS.
- 9) MOBILE PHONE TO RECEIVE VOICE CALL.

### IV. PROPOSED SYSTEM FUNCTIONS

The given home automation system has the ability to control the following components in the user's home:

- 1) LIGHTS ON/OFF
- 2) LED ON/OFF
- 3) RGB LED ON/OFF
- 4) FAN ON/OFF

ESP8266 NODE MCU-KIT consists of applications microcontroller, wi-fi network processor, and power-management subsystems which is work very fast. It uses arm cortex m4 core processor at 80 MHZ it has embedded memory including ram (256 kb) which is good for working.

The dedicated arm micro-controller also has a network processing subsystem in it. Its features include:

- 1) USB interface using FTDI USB drivers for working.
- 2) The board is powered through USB for the MCU Node-Kit and external booster pack it is work very fast.
- 3) It is operated from 2 aa- batteries.
- 4) Standalone development plan provides features such as sensors, LEDES and push-buttons. which is work very good for motion.
- 5) On-board antenna and U.FL connector can be selected using a.
- 6) capacitor re-work. Its depend on plan .what they want to do. it supports 4 wire J TAG and 2 wire SWD.
- 7) Gnu debugger (GDB) supports on top of open on chip debugger (open OCD).
- 8) two 20-pin connectors enable agreement with booster packs which have added purpose.
- 9) Flash memory is updated to the other USB using simple link programmer the board can be programmed to the other energeia ide over the USB cable. Working very well the accessible wi-fi used by the board should be proxy less and can be of WPA or WEP type.

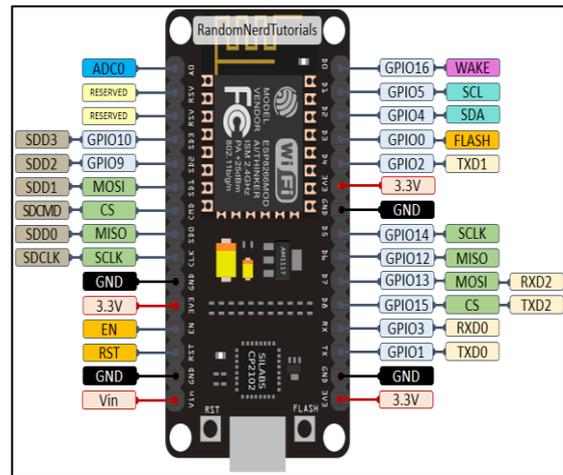


Fig. 2: ESP8266 Node MCU-KIT

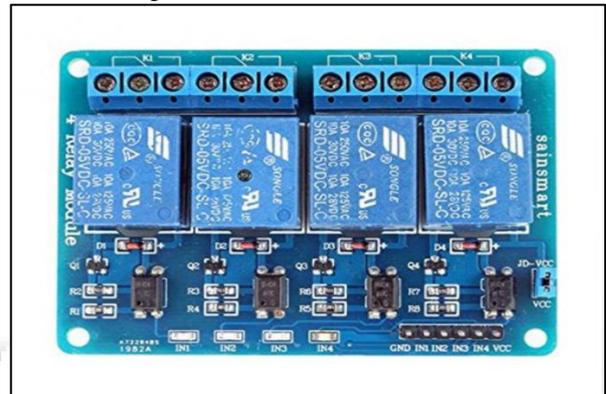


Fig. 3: Relays

### V. SETUP

The motion sensor is attach to a digital in-out pin of Texas board. The board is powered up by outside 12v battery or 12v adapter. The home appliances are join to mains through transfer which in turn is join to a future digital pin of the board. Work properly the board is programmed to have access to the local wi-fi. The voice phone feature of the mobile cell should be license.

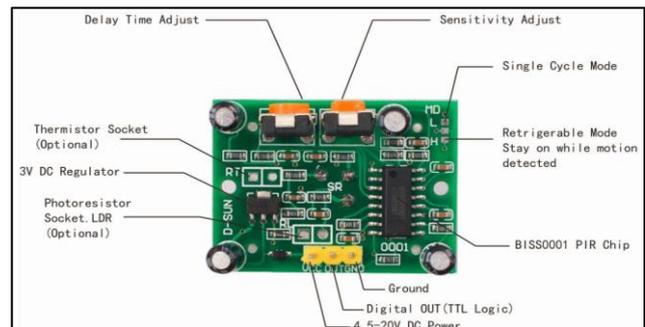


Fig. 4: PIR Motion Sensor

### VI. WORKING OF PIR MOTION SENSOR

- 1) The sensor motion work very well according to the last experiment. Human beings emits current energy of wavelength on all sides 10-11 micro-meter every day. Pyroelectric or passive coral sensor (PIR) [6], [7] is an electronic device which is outline to detect this IR wavelength when a human being is in its proximity.

- 2) To have a wide range for detection a uncomplicated lens is used. Sensors may also be uniform in such a method so as to take no notice of domestic pets by setting a higher responsiveness threshold, or by ensuring that the level of the room remains care less focus.

### VII. METHOD OF PROTO TYPE

For working there are two type of method for protocol working:

- 1) As a smart security system which is work very well and properly.
- 2) As a smart home automation system working style automatically.

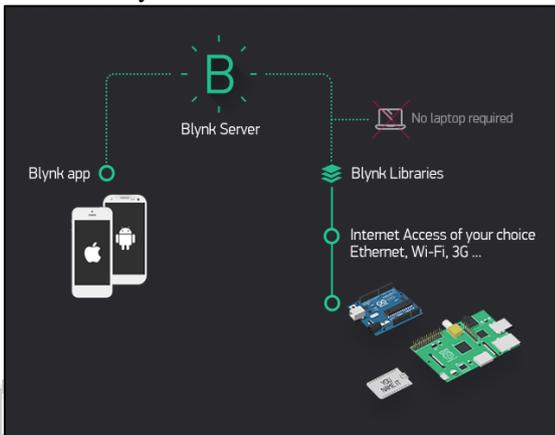


Fig. 5: BLYNK APP



Fig. 6: ARDUNIO SOFTWARE

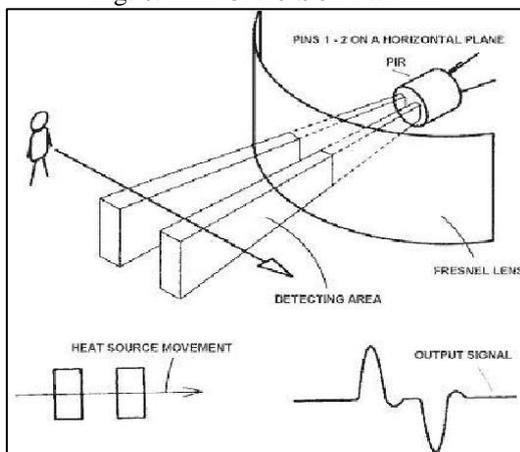


Fig. 7: PIR Motion Sensor Working Principle

### VIII. AS A SMART SECURITY SYSTEM

- 1) PIR motion sensors are installed at the coming of a building. These sensors as explained advance detect the arrival of human beings. This signal which detects their presence becomes the input activated for the micro-controller.
- 2) The holder, who may or may not be present in that building, will be receiving a voice phone on his mobile phone and tablets (whose number is predefined in the program) stating that 'there is an inter looper in the house'. To turn on the lights and alarm at house so that the interloper will be warned, the holder can press '1' from his mobile keypad.
- 3) Moreover if the holder finds that his building is not protected, he can send an SMS [8] to the concerned authority in police department and working very fast explaining his location. The element will turn off the alarm and lights after a fixed time hold up. The phone will be activated again as soon as the element detects any unexpected motion and the holder will receive the phone again and the process continues so on.
- 4) To make sure the safety from other entrances too, motion sensor should be installed at those places and will be controlled by a single micro-controller. Its very good for now days because everybody want to control automatically single micro for working. As a smart home automation system this application of the element can be explained by an example for showing working power.
- 5) Assume the holder is expecting a guest at his house but he is not available there for working. Now, as the guests hold out at his house the holder will receive a video call. But now the holder can press digits other than 1 (such as 3 for lights, 4 for fan, 5 for A.C., and so on) or even can impair the security system.
- 6) Similarly if the Customer or important person Left the house, the user will still receive a video call and audio call and this time we can switch off and switch on the appliances or can enable the security system again by pressing proper digits known to him for working. Since the appliances are attach to mains contribute through a relay they can be easily measured using micro-controller.

### IX. CONCLUSION

- 1) The home automation based on internet of things. Home automation or demotics is construction automation for org and home, called a smart home or smart house. Has been experimentally demonstrate to work by connecting simple appliances to it. These appliances were successfully skillful remotely through the interne of things. The designed system instigates a process on the authority to the user's requirements, for example switching on a fan when it gets hot.
- 2) A home automation control's and coordinates lighting, weather conditions, entertainment system, and appliances. It also include home security as entrance control and alarm systems sensors can be implemented to store data which can later be used to analyses the system at hand.

## X. FURTHER SCOPE

As the Automation system is conditional on the user's circumspection and judge ability of the set of circumstance (whether it is a guest or an trespasser enters into house) use of camera and other devices connected to the microcontroller help the user in making a decisions in regard to activate the security of a system or welcome the known guest. Future scope for the home automation systems involves making homes even smarter.

The picture of the guest or unknown person after face observation, is mailed to a user. Homes can be inter faced with sensors including motion sensors, light sensors and temperature sensors and provide automated toggling of devices based on conditions. Work very good and very fast. The user can forward same photograph and videos to the police officer if he wishes with in short time.

Further the system may be made more synchronized by integrating the voice call feature activated within the same smart Mobile Cell Phone application which the user and customer can control his home appliances without voice call and video being encountered to his phone. It offers a global standards for inter-opera table products.



Fig. 8. Implementation Setup

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