**IOT THEFT DETECTION DEVICE**

by

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A project report submitted to

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in

**B. Tech. COMPUTER SCIENCE AND ENGINEERING**

****

**Vandalur – Kelambakkam Road**

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**NOVEMBER 2020**

**BONAFIDE CERTIFICATE**

Certified that this project report entitled “**IOT THEFT DETECTION DEVICE”** is a Bonafide work of ANIL M 19BPS1047, SURYA PRAKASH 19BPS1052, HANUMAN SAI 19BPS1066, VIJAY G 19BPS1078 **who** carried out the Project work under my supervision and guidance for **CSE2010- COMMUNICATION FOR CPS.**

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**ABSTRACT**

This project is about the development of an Internet of Things (IoT) based smart wireless home security system, which sends an alert on intrusion. A PIR sensor is used to detect the motion of any human being in its vicinity. NODE MCU ESP8266 is used to connect the system to internet through Wi-Fi. Whenever a movement is detected by the PIR sensor, a message is sent to a smart phone by the NODE MCU.

* Keyword: NODE MCU ESP8266, PIR Sensor, Blynk App, Arduino IDE

**ACKNOWLEDGEMENT**

We wish to express our sincere thanks and deep sense of gratitude to our project guide, **Dr. FlorenceGnanaPoovathy J,** Associate Professor, School of Computer Science and Engineering, for her consistent encouragement and valuable guidance offered to us in a pleasant manner throughout the course of the project work.

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**NAME WITH SIGNATURE NAME WITH SIGNATURE**

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1. **INTRODUCTION**
   1. **OBJECTIVES AND GOALS**

IERC defines IoT as "The Internet of Things allows people and things to be connected Anytime, Anyplace, with Anything and Anyone, ideally using Any path/network and Any service.". Number of connected IoT devices is increasing exponentially worldwide and it is expected to reach 75 billion by 2025. IoT has wide spread application in many fields of engineering in providing real time data and real time decisions and controlling the connected devices seamlessly in real time. IoT (Internet of Things) is the environment in which physical items interact with each other and user–to–computer communications, machine – to- machine communications are enabled and this communication is extended to “things”.

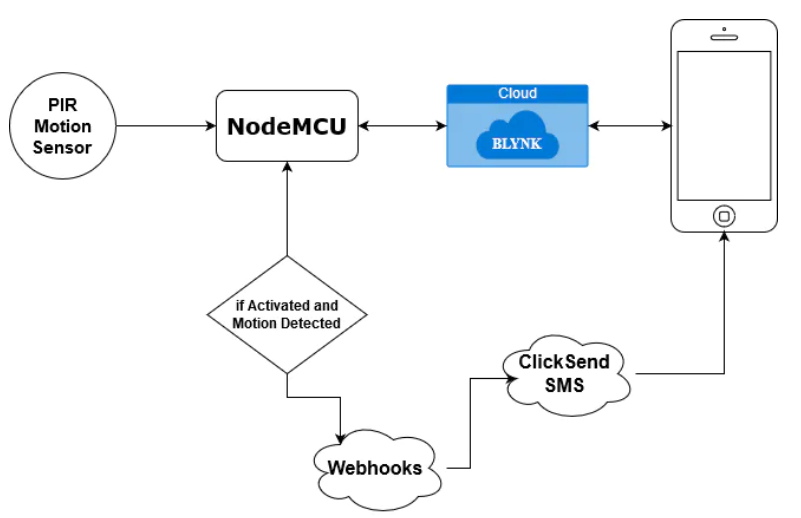
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| 1.2 | APPLICATIONS |

Security is one of the useful applications of IoT. Intrusion detection is one of the challenges in home security. The common type of security system uses CCTV cameras and image processing and we are using it to create an inexpensive security system for homes as well as industrial use. The IoT network consists of embedded electronics, sensors and software from their home, they want to be assured that their home is protected by intruders and thieves while they are gone. This is why the proposed system keeps the owner informed in the real time about the security status of their home. With the tendency of house safety protection, the detecting

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| 1.3 | FEATURES |
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**2 . DESIGN**

**2.1 BLOCK DIAGRAM:**

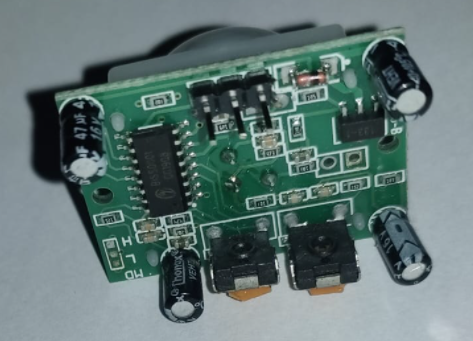
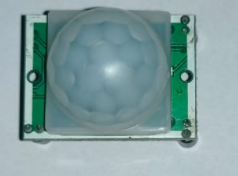


**2.2. HARDWARE ANALYSIS:**

**I. PIR MOTION SENSOR**

PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out. For that reason, they are commonly found in appliances and gadgets used in homes or businesses. They are often referred to as PIR, "Passive Infrared", "Pyroelectric", or "IR motion" sensors.

PIRs are basically made of a [pyroelectric sensor](http://en.wikipedia.org/wiki/Pyroelectric) which can detect levels of infrared radiation. Everything emits some low-level radiation, and the hotter something is, the more radiation is emitted. The sensor in a motion detector is actually split in two halves. The reason for that is that we are looking to detect motion (change) not average IR levels. The two halves are wired up so that they cancel each other out. If one half sees more or less IR radiation than the other, the output will swing high or low.



1. **Node MCU**

Node MCU is an open-source [LUA](https://www.lua.org/start.html)based firmware developed for ESP8266 Wi-Fi chip. By exploring functionality with ESP8266 chip, Node MCU firmware comes with ESP8266 Development board/kit i.e., Node MCU Development board.

Since Node MCU is an open-source platform, its hardware design is open for edit/modify/build.

Node MCU Dev Kit/board consist of ESP8266 Wi-Fi enabled chip. The **ESP8266** is a low-cost [Wi-Fi](https://en.wikipedia.org/wiki/Wi-Fi)chip developed by Espress if Systems with TCP/IP protocol. For more information about ESP8266, you can refer to [ESP8266 WiFi Module.](http://www.electronicwings.com/sensors-modules/esp8266-wifi-module)



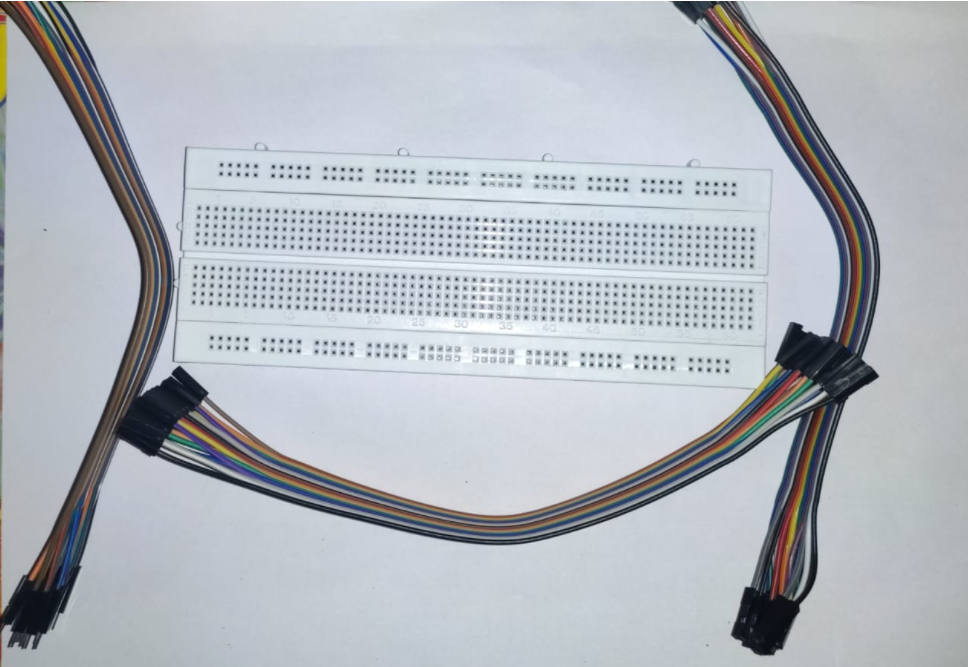
Node MCU Development Board/kit v1.0 (Version2)

**3.BreadBoard**

A breadboard is a rectangular plastic board with a bunch of tiny holes in it. These holes let you easily insert electronic components to prototype (meaning to build and test an early version of) an electronic circuit, like this one with a battery, switch, resistor, and an LED (light-emitting diode).

**4.Jumper Wires**

Jumper cables is a smaller and more bendable corrugated cable which is used to connect antennas and other components to network cabling.

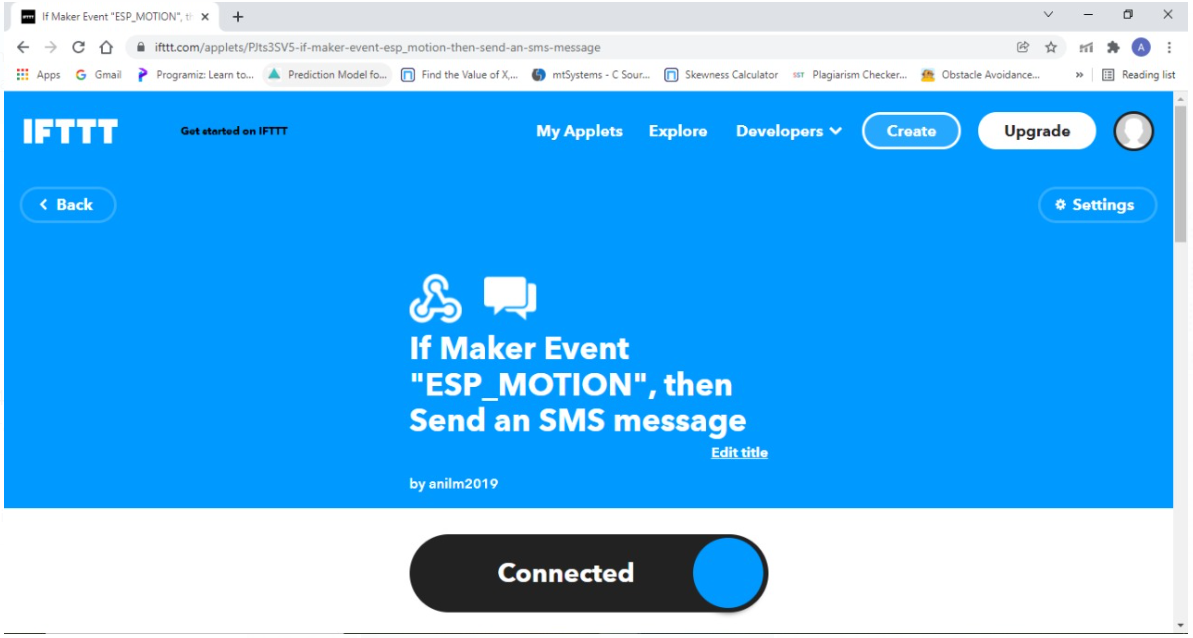


BREAD BOARD AND JUMPER WIRES

**2.3. SNAP SHOTS-PROJECT, TEAM, RESULTS**

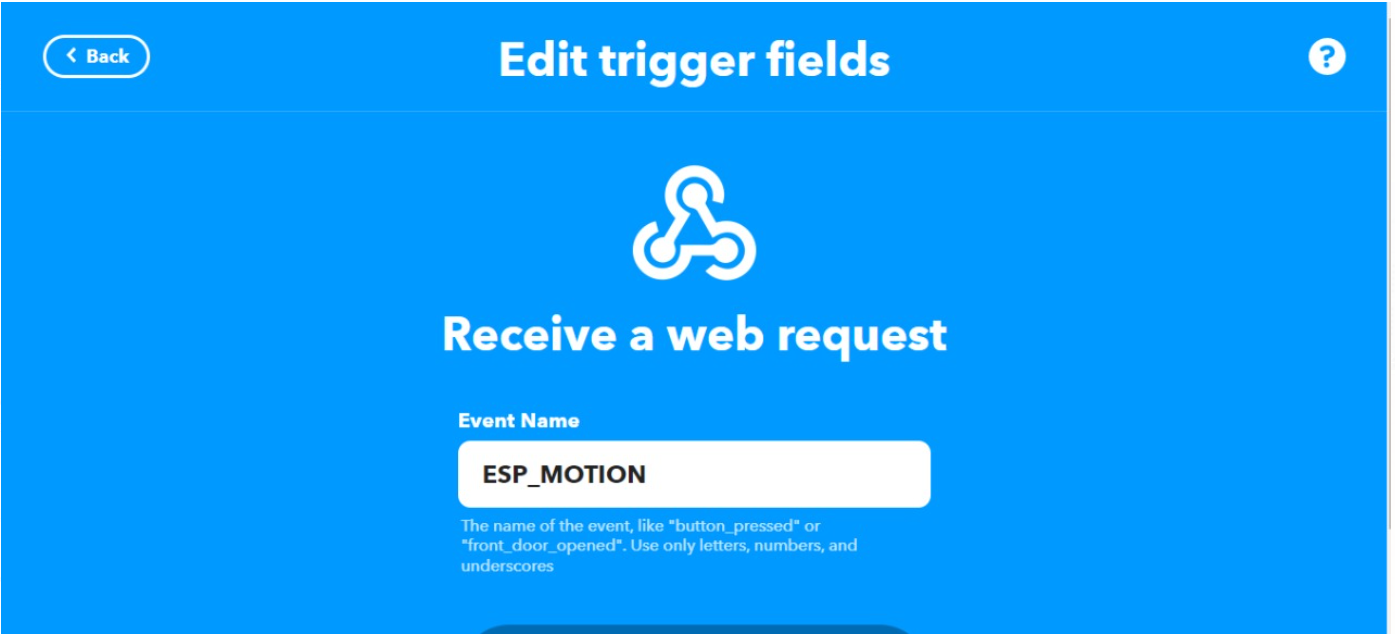
**IFTT SNAP SHOTS:**

**GIVING CONNECTION TO COMMUNICATE**

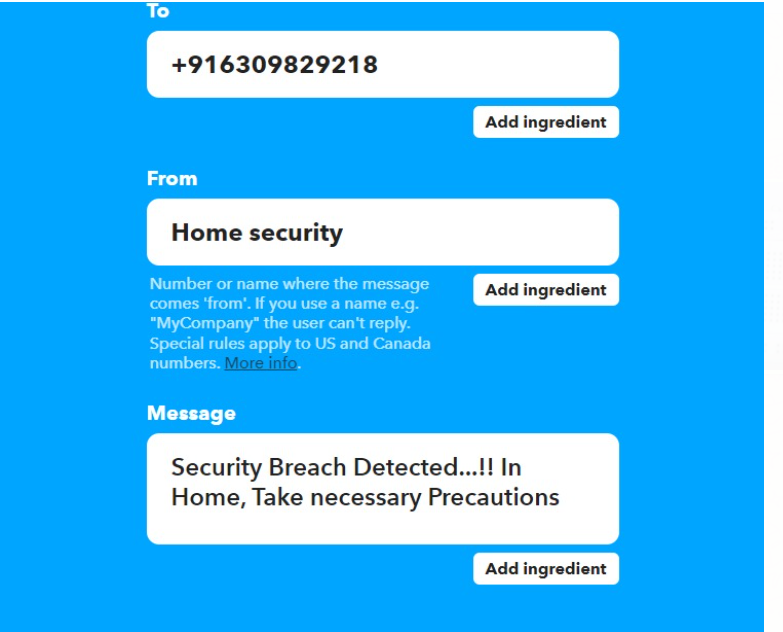


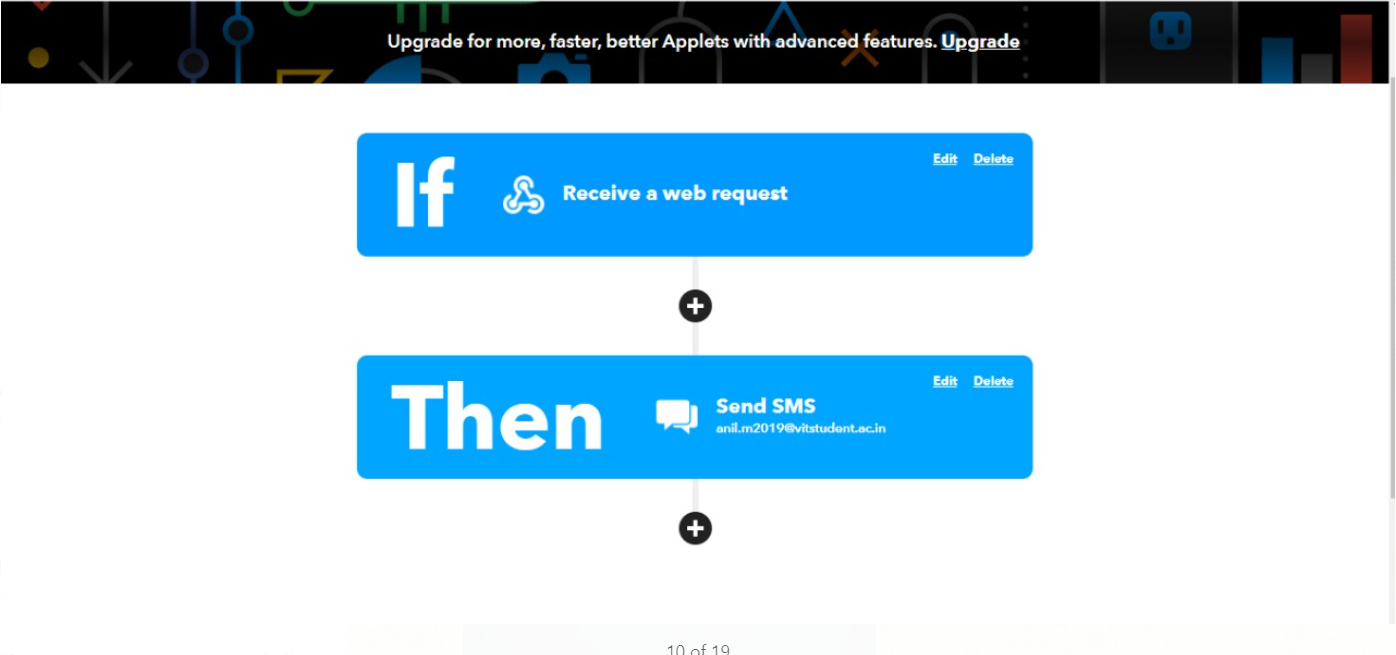


ADDING OUR EVENT NAME AS ESP\_MOTION

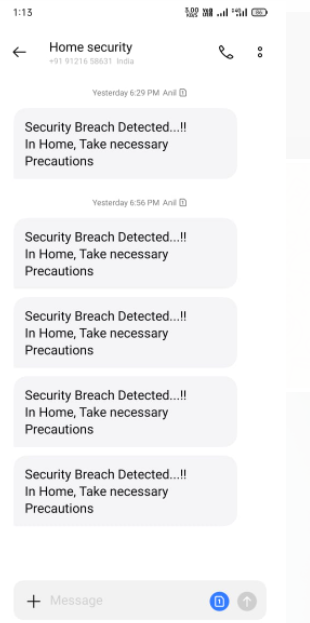


ADDED OUR MOBILE NUMBER:

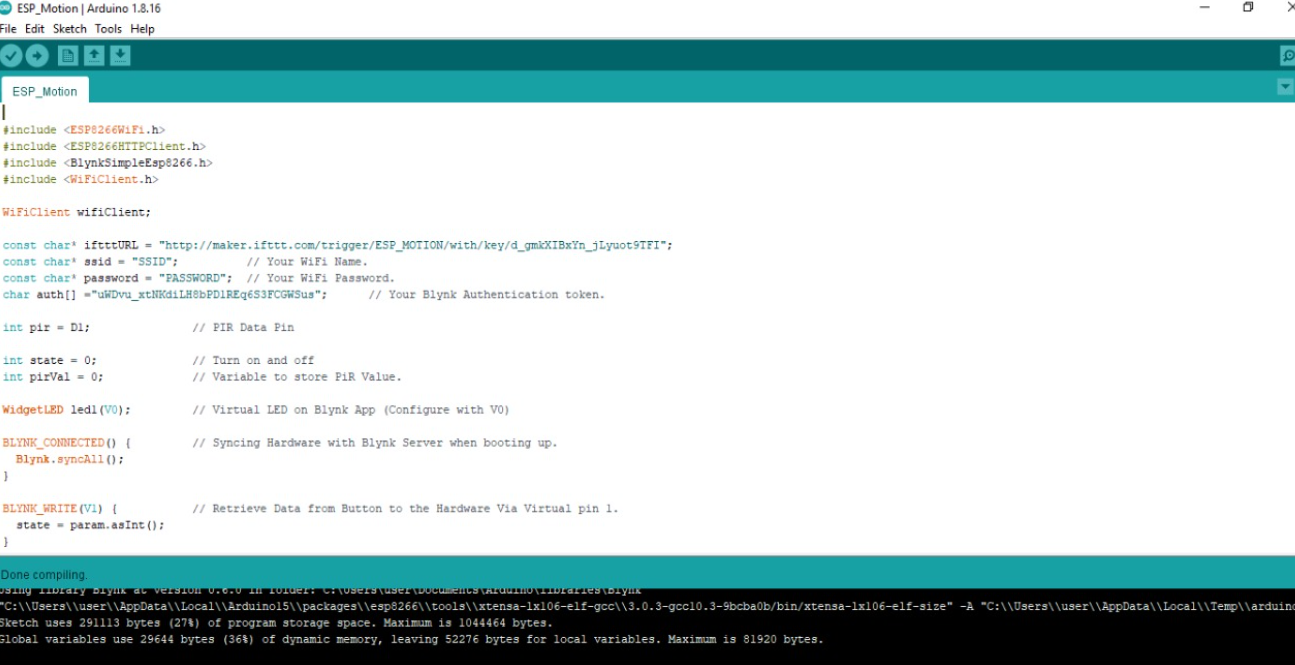


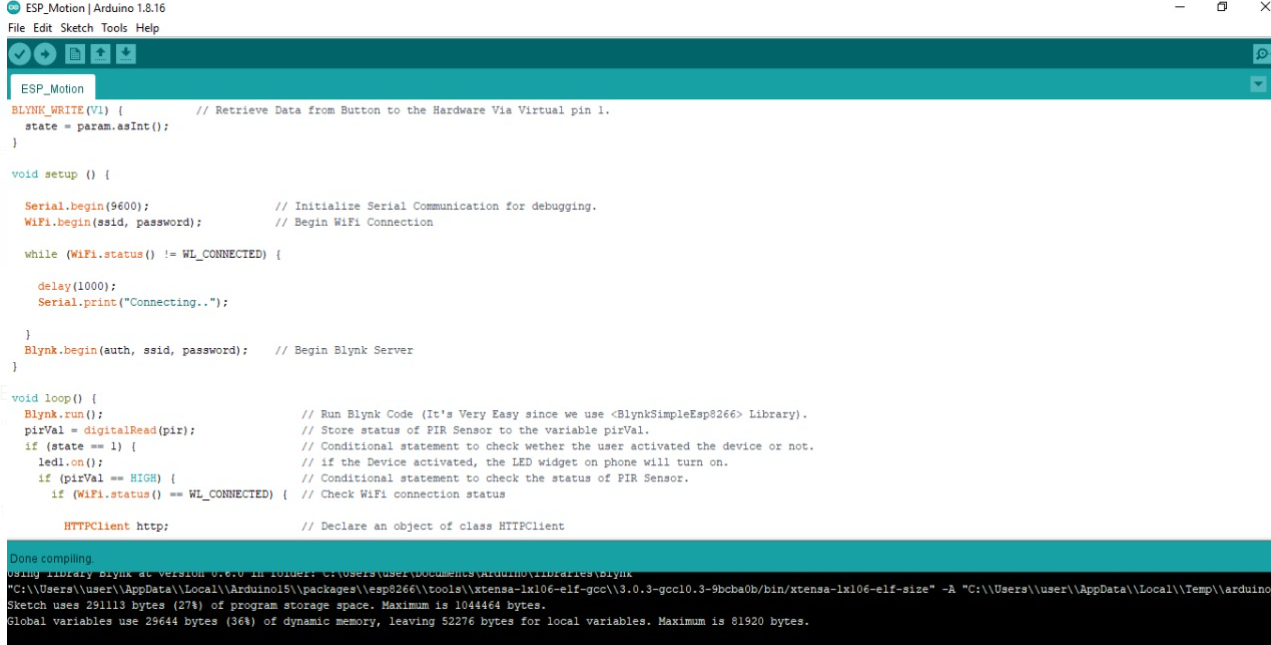


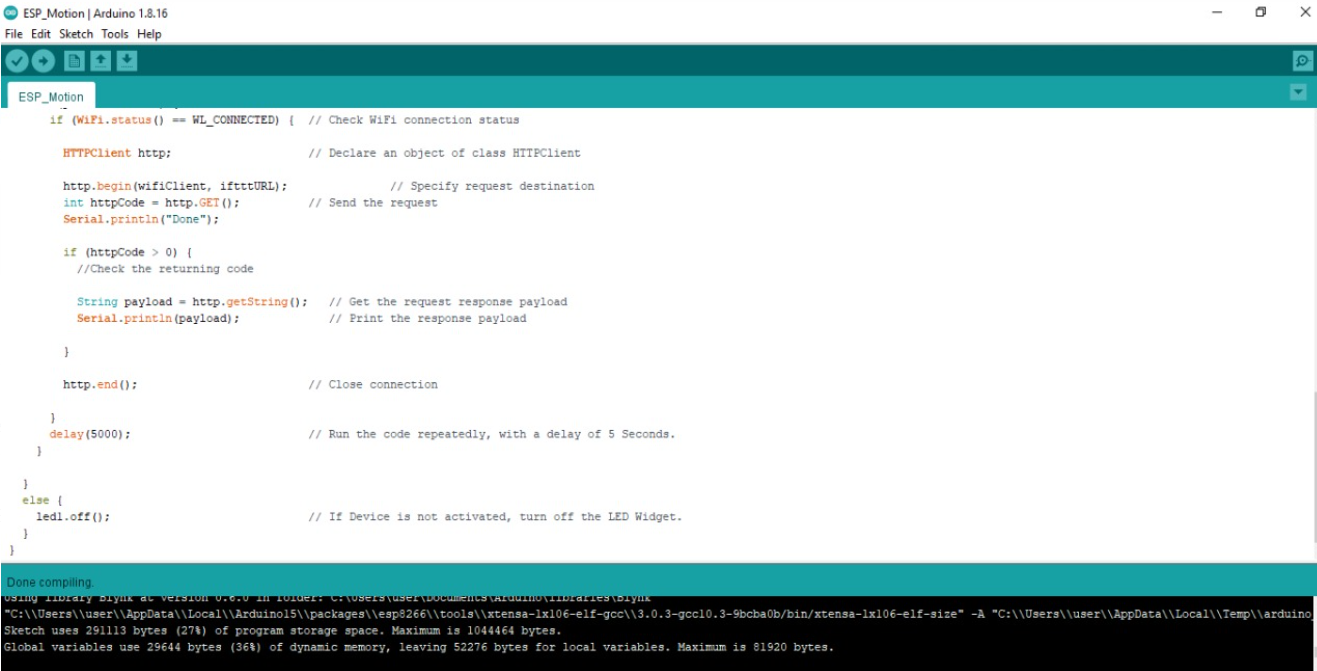
THE FINAL RESULT TO THE OWNER MOBILE WHEN THE PIR SENSOR SENSES THE MOTION:



|  |
| --- |
| **3.1 . SOFTWARE –CODING AND ANALYSIS** |
| **(SNAPSHOTS OF CODING AND RESULTS)**  **ARDUINO CODING PART** |







**4.CONCLUSION AND FUTURE WORK**

**4.1 - RESULT, CONCLUSION AND INFERENCE**

The sensors placed on the door inform the home owner as soon as the door is opened by sending a Push notification. The user will get this notification irrespective of whether the phone is locked or unlocked or even if any other app is opened at the moment. This was the main objective of the project. This setup can also be used in commercial offices where some areas are restricted for certain personnel, such a system will immediately inform the administrator of any unauthorized personnel trying to access such an area. The developed system can also be used to in industrial and commercial applications such as offices, warehouses and other areas where some areas are reserved for authorized personnel only or other places where safety and precautions are of primary concerns such as internet server room of a big MNC from where corporate data can be stolen. The system can also be easily upgraded to add extra safety features such as cameras for increased safety. The system can also further be developed by adding an RFID scanner so that the authorized users need only carry a RFID or NFC tag with them on their person. The RFID scanner will work by scanning the tag wirelessly and if the user is authorized to enter, the alarm system will be disabled for some time so that the user can enter.

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