

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

## IOT based Theft Premption and Security System

Safa.H<sup>1</sup>, Sakthi Priyanka.N<sup>2</sup>, Vikkashini Gokul Priya.S<sup>3</sup>, Vishnupriya.S<sup>4</sup>, Boobalan.T<sup>5</sup>

U.G. Student, Department of Electronics and Communication Engineering, Sri Eshwar College of Engineering,  
Coimbatore, Tamil Nadu, India<sup>1</sup>

U.G. Student, Department of Electronics and Communication Engineering, Sri Eshwar College of Engineering,  
Coimbatore, Tamil Nadu , India<sup>2</sup>

U.G. Student, Department of Electronics and Communication Engineering, Sri Eshwar College of Engineering,  
Coimbatore, Tamil Nadu , India<sup>3</sup>

U.G. Student, Department of Electronics and Communication Engineering, Sri Eshwar College of Engineering,  
Coimbatore, Tamil Nadu, India<sup>4</sup>

Assistant Professor, Department of Electronics and Communication Engineering, Sri Eshwar College of Engineering,  
Coimbatore, Tamil Nadu, India<sup>5</sup>

**ABSTRACT:** Internet of things has been governing the electronics era with cloud services dominating the ever increasing electronics product segment. Security and safety has always become a basic necessity for urban population. The paper proposes a novel security system based on Open source cloud server “things speak .com” and a low cost esp8266 Wi-Fi module. The project includes a PIR module which constantly monitoring the Home or Work space to be monitored .When the PIR module detects a intruder it sends a signal to the Atmega 328p microcontroller and the controller is connected to a Esp8266 wifi module and also to a alarm system. The System transmits an alert signal to the Open source cloud which provides a alert signal on the users mobile phone. The system employs a second esp8266 module which is programmed to act as a web server, which allows the user to activate or deactivate the security system by means of any device with internet. The system also employs a thumb print reader rs305 which controls the opening and the closing of a safety locker door. Thus the system uses esp8266 Wi-Fi module and atmega328p to control the security system from the users mobile phone by means of any device with a potential internet connection.

**KEYWORDS:** IOT, esp8266 Wi-Fi, thingspeak, Web server, Theft detection, PIR

### I. INTRODUCTION

The Internet of Things (IoT) is the physical network of things or objects—devices, buildings, vehicles, and other items—embedded with electronics, software, sensors, and network connectivity that enables these things or objects to collect and exchange data. An anti-theft system is any device or method used to prevent or deter the unauthorized appropriation of items considered valuable. Theft preemption based on IOT provides a system. Internet of Things is expected to produce high degree of human to machine communication along with machine to machine communication. This project proposes the security system using IOT, which prevents theft in home, bank etc. The primary objective of this project is to reduce human work. Automation has always been a prime factor for security system. We aimed in the project is to design and implement a security system. System that offers controllability through a hand held mobile phone by means of IOT. The commands from a mobile phone are used to switch ON and OFF the alerting system. This project is implanted as prototype model.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

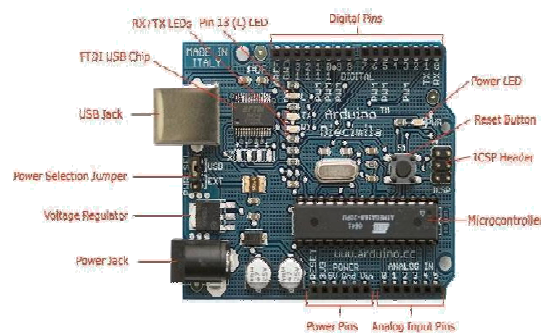
## II. INTERNET OF THINGS

The internet of things is the network of physical objects or “things” embedded with electronics software, sensors and connectivity to enable it to achieve greater value and service by exchanging data with the manufacturer, operator and/or other connected services. Each thing is uniquely identifiable through its embedded computing system but is able to interoperate within the existing internet infrastructure. Typically, IOT is expected to offer advanced connectivity of devices, systems and services that goes beyond machine to machine communication (M2M) and covers a variety of protocols, domains and applications. The interconnection of these embedded devices is expected to usher in automation in nearly all fields, while also enabling advanced applications like a smart grid. These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices.

### Esp8266 Wifi

ESP8266 is a WIFI module . This makes putting your sensors on the net actually feasible. There's a lot of excitement about this sensor on the Internet currently, and people have done an amazing job deciphering the obscure command structure of this device. There's a lot of excitement about this sensor on the Internet currently, and people have done an amazing job deciphering the obscure command structure of this device The ESP8266 is a WIFI module that costs less than 5 USD. This makputting your sensors on the net actually feasible. There's a lot of excitement about this sensor on the Internet currently, and people have done an amazing job deciphering the obscure command structure of this device that comes from China. There seems to be three ways of using this module, in order of increasing complexity:

1. Sending it AT commands from a computer via an USB to serial adapter. This is mostly useful for testing and setup.
2. Interfacing with 75 ARDUINO or any other microcontoller and using this board as a peripheral.
3. Programming the module directly and use its GPIO pins to talk to your sensors, eliminating the need for a second controller.



Photograph by GigaPaw Electronics. Used under the Creative Commons Attribution-ShareAlike 3.0 license.

Fig (a) shows esp8266 module

### Arduino Uno (atmega 328P)

Nowadays, there have been many advancement in the field of Electronics and many cutting edge technologies are being developed every day, but still 8 bit microcontrollers have its own role in the digital electronics market dominated by 16-32 & 64 bit digital devices.

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

Command	Description
AT	Check if serial interface and GSM modem is working.
ATE0	Turn echo off, less traffic on serial line.
AT+CNMI	Display of new incoming SMS.
AT+CPMS	Selection of SMS memory.
AT+CMGF	SMS string format, how they are compressed.
AT+CMGR	Read new message from a given memory location.
AT+CMGS	Send message to a given recipient.
AT+CMGD	Delete message.

## Communication Options

ATmega32 has three data transfer modules embedded in it. They are

- Two Wire Interface
- USART
- Serial Peripheral Interface

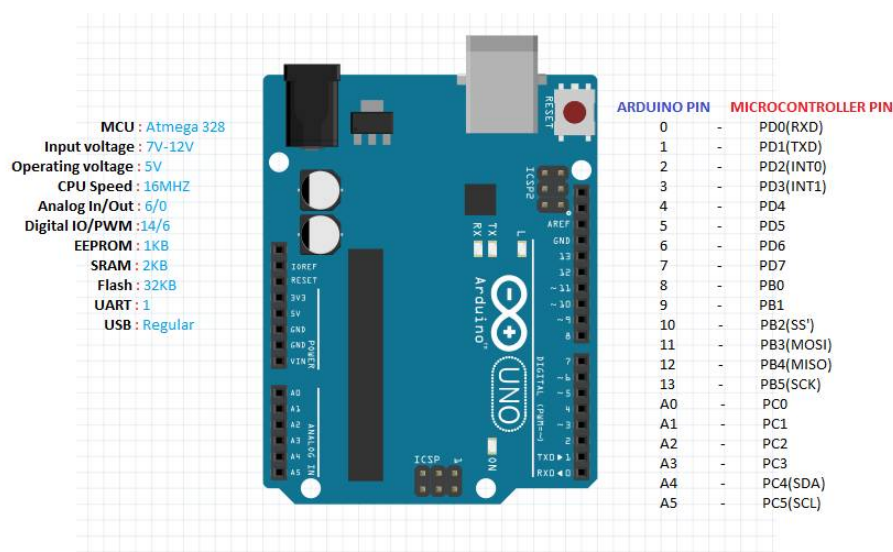


Fig (b) shows the arduino pin configuration

# International Journal of Innovative Research in Science, Engineering and Technology

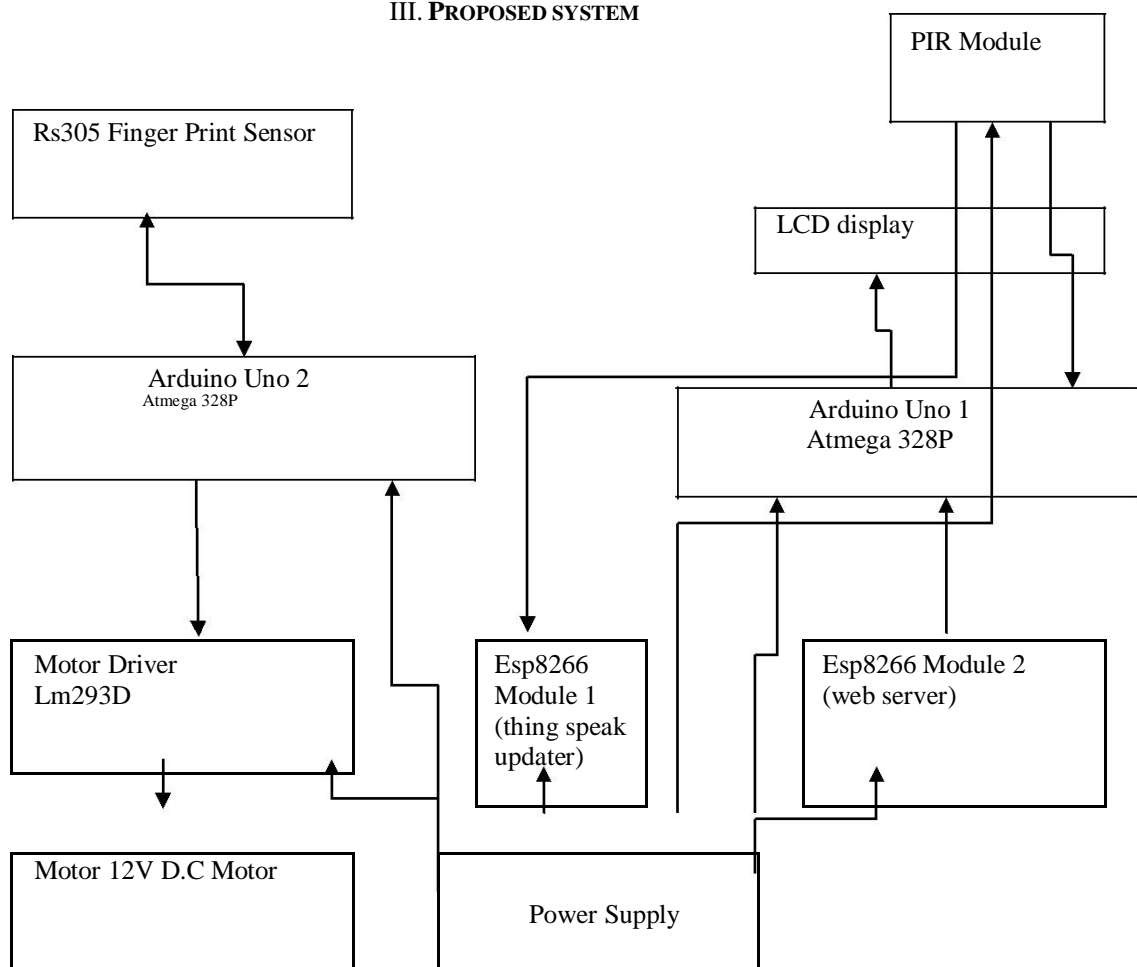
(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

## Rs305 Biometric finger print sensor

The analysis of fingerprints for matching purposes generally requires the comparison of several features of the print pattern. These include patterns, which are aggregate characteristics of ridges, and minutia points, which are unique features found within the patterns. <sup>[1]</sup>It is also necessary to know the structure and properties of human skin in order to successfully employ some of the imaging technologies.

### III. PROPOSED SYSTEM



Block Diagram

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

## IV. EXPERIMENTAL RESULT

### Thingspeak graphic interface:

The Internet of Things provides access to a broad range of embedded devices and web services. ThingSpeak is an open data platform and API for the Internet of Things that enables you to collect, store, analyze, visualize, and act on data from sensors or actuators, such as Arduino, BeagleBone Black, and other hardware. For example, with ThingSpeak you can create sensor-logging applications, location-tracking applications, and a social network of things with status updates, so that you could have your home thermostat control itself based on your current location. The primary element of ThingSpeak activity is the channel, which contains data fields, location fields, and a status field. After you create a ThingSpeak channel, you can write data to the channel, process and view the data with MATLAB<sup>®</sup> code, and react to the data with tweets and other alerts. The typical ThingSpeak workflow lets you:

1. Create a Channel and collect data
2. Analyze and Visualize the data
3. Act on the data using any of several Apps

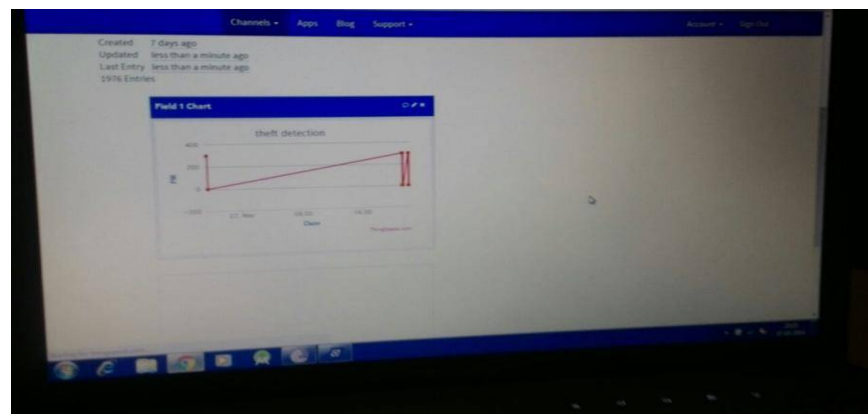


Fig ( c ) shows the Graphical Representation of Thingspeak

### Hardware Implementation

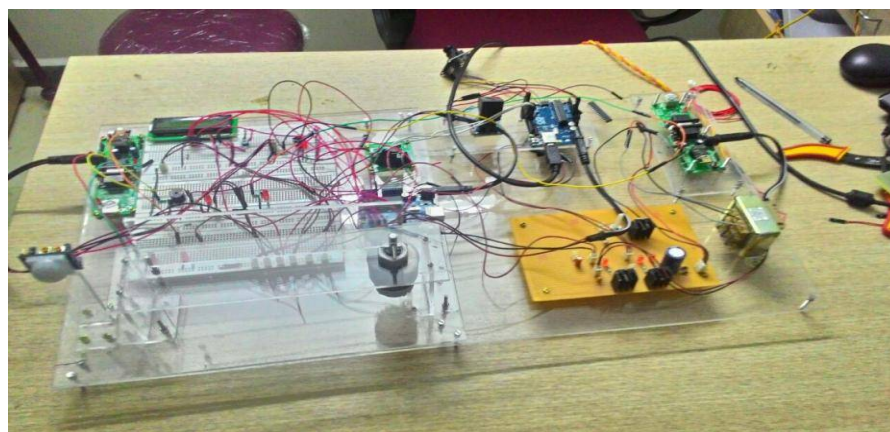


Fig (d) shows Hardware of Complete Project

# International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

## V. CONCLUSION

The project “**IOT BASED THEFT PREPTION AND SECURITY SYSTEM**” has been successfully designed and tested. Integrating features of all the hardware components used have developed it. Presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. Secondly, using highly advanced IC's and with the help of growing technology the project has been successfully implemented.

Embedded systems are emerging as a technology with high potential. In the past decades microprocessor based embedded system ruled the market. The last decade witnessed the revolution of Microcontroller based embedded systems.. With regards to the requirements gathered the manual work and the complexity in counting can be achieved with the help of electronic devices

## Future Scope

The ongoing research in the field of IoT and its implementation in full or partial manner will definitely improve the quality of life of human civilization Today IOT is being implemented everywhere which is of human concern like Smart city, smart environment, security and emergencies, smart business process, smart agriculture, domestic and home automation and healthcare. In the near future the system will be augmented with the parameter monitoring security subsystem. This will supplement to get information about home monitoring, finger print protection, etc. We can give alarm to nearby resident and the owner of the house in case of theft. This system can be placed in bank lockers, questionnaire room.

## REFERENCES

- [1] Rana , G.M.S.M., Khan, A.A.M., Hoque, M.N. and Mitul, A.F. (2013) Design and Implementation of a GSM Based Remote Home Security and Appliance Control System. *Proceedings of the 2nd International Conference on Advances in Electrical Engineering*, Dhaka, 19-21 December 2013, 291-295.
- [2] Ahmad, A.W., Jan, N., Iqbal, S. and Lee, C. (2011) Implementation of ZigBee—GSM Based Home Security Monitoring and Remote Control System. *IEEE 54th International Midwest Symposium on Circuits and Systems*, Seoul, 7-10 August 2011, 1-4.
- [3] El-Medany , W.M. and El-Sabry , M.R. (2008) GSM-Based Remote Sensing and Control System using FPGA. *Proceedings of International Conference on Computer and Communication Engineering*, Kuala Lumpur, 13-15 May 2008, 1093-1097.
- [4] Yuksekkaya , B., Kayalar, A.A., Tosun, M.B., Ozcan, M.K. and Alkar, A.Z. (2006) A GSM, Internet and Speech Controlled Wireless Interactive Home Automation System. *IEEE Transactions on Consumer Electronics*, **52**, 837-843.
- [5] Golzar, M.G. and Tajozakerin, H.R. (2010) A New Intelligent Remote Control System for Home Automation and Reduce Energy Consumption. *4th Asia International Conference on Mathematical/Analytical Modelling and Computer Simulation*, Kota Kinabalu, 26-28