A Survey on IOT Based Theft Prevention & Security System

Ms. Shubhangi B.Kamble[1], Anjumanara K.Suvarnadurgakar[2], Prasanna P.Patki[3]

Department of Electronics and Telecommunication Engineering

[1, 2, 3]Rajendra Mane College of Engineering, Ambav, Maharashtra

Abstract-*This paper introduces Internet of Things (IoTs), which offers capabilities to identify and connect worldwide physical objects into a unified system In the present age Internet of things (IOT) has entered a golden era of rapid growth. The Internet of things is a concept that aims to extend the benefits of the regular Internet—constant connectivity, remote control ability, data sharing, and so onto goods in the physical world. Everyday things are getting connected with the internet. Also security is main issue for protecting resources. Many people are using various types of security systems. We have found that most of the security systems are developed using Raspberry Pi, because the Raspberry Pi is a powerful small credit card size computer. Raspberry Pi works as computer it allow user to remotely access and control resources, it is affordable system than any other security systems. Using Raspberry Pi user can monitor and provide security to their homes and commercial spaces.*

Keywords*-Internet of Things (IOT),Raspberry Pi, .Camera, Smart Phone.*

I. INTRODUCTION

In this modern world crime has become ultra modern too! In this current time a lot of incident occurs like robbery, stealing unwanted entrance happens abruptly. There are several monitoring systems such as camera, CCTV etc. However, today even if the person is moving from one place to another place person can monitor and prevent the criminal activity. Video surveillance systems play very vital role in various fields of our society such as in personal security, banking, business etc.

However, it is expensive for normal peoples to set up such Kind of system so the peoples are using IOT based low cost security systems which will help them for secure their commercial places. Raspberry Pi[1] is a credit card-sized single board microcomputer developed in UK by the Raspberry Pi Foundation. It was finally released in February 2012. It has provided new opportunities to enhance tools for education. It also helps to enable developers to access in affordable cost and easy to program. It primarily uses Linux kernel based operating system, the latest version of Pi support windows10 operating system.

In raspberry Pi based security systems sensors are installed to detect the intruders, and alarm is generated. Raspberry Pi security system uses wireless technology and smart phones for security purpose. The main Benefits of the current security systems is simple to implement, Small size portable capable with immediate alert, truly Low-cost for residential use. The Raspberry Pi based security system focused to save valuable lives, money and time.

II. LITERATURE SURVEY AND RELATED WORK

We have found different papers related to security system. Different security uses different purposes.

Authors in paper [1] proposed system is being developed to connect any door with the internet so that the access control system can be controlled from anywhere in the world.In this paper raspberry pi is used for interfacing inputs and outputs.

 In input section there is calling bell, PIR sensor & wireless camera. Raspberry pi is equipped with wifi dongle. And on the output terminal there are Lcd, magnetic door lock, emailing & tweeting services. A calling bell is placed on door so that if someone visits the user the person will press the bell and the bell will generate a signal to raspberry pi indicating presence of a person. There is also another way of sensing human and that is passive infra red human motion detection sensor. If any thief tries to break into the house PIR sensor will identify the motion of that human and will transmit an alarm to raspberry pi.

Authors in paper [2] presented smart monitoring system using Raspberry Pi, PIR sensor and mobile device. Authors have also used smoke detector to detect the fire. User will be notifying about the intruder or fire after capturing the image to user mail via Wi-Fi. They have used background subtraction algorithm for motion detection and smoke detection algorithm. They have stated advantages like reliability and privacy.

Authors in paper[3] have implemented security system where if any person comes at door it will be notify to the home owner via e-mail and twitter then the user can see the person comes at door using camera from remote location. The image of person captured and sends to twitter and e-mail. They have stated that user can control the door remotely. They have concluded that this system is useful for preventing unauthorized access [3].

Authors in paper [4] proposes smart surveillance system using thing speak, raspberry pi. In this paper authors designed very a small portable monitoring system for home and office security. The model uses hardware mechanism such as Raspberry pi (model B), Gyro sensor and Raspberry pi camera. In this device the MPU 6050 sensor is used to sense the door movement.MPU6050 consists of 3-axis accelerometer and 3-axis gyroscope.When a normalised movement signal is detected, theRaspberry Pi captures the picture using Raspberry Picamera and then send out an alert email along with the image to the user by using Wi-Fi adaptor as per the program written in python environment in software implementation .Authors also shows the result and concluded that the system is very small and portable.

III. IMPROVEMENT AS PER REVIEWER COMMENTS

Authors in paper[5] have developed the security system with proximity sensor, Raspberry Pi, and Camera, proximity sensor detect the person after detecting the person camera will be initiated and capture the image and image will be uploaded to drop box and user gets the notification about the intruder in the form of SMS. They have discussed few advantages like cost effective, portable. Authors concluded that this security system is useful for security of homes [5].

Authors in paper [6] Conducted survey on various Surveillance System, they have discuss the importance of video surveillance and benefits of many security systems. They have discussed why the security system is important Authors also explained Architecture of proposed system, they have concluded that new design will be implemented to provide security and safety [6].

Authors in paper [7] presented smart security system with Raspberry Pi and IR sensor if IR sensor detects the person camera will capture image as well as video of the person, the data then encrypted first and then decoded. User will get notification on his mobile device. Authors discussed that user can also perform the live streaming and provide security. Authors have concluded that this system is important

for commercial places; they have discussed few advantages of the system [7].

Applications of IOTs

A survey done by the different papers which are mentioned in references .The applications of IOTs based projects are Transportation, Smart Home, Smart City, Lifestyle, Retail, Agriculture, Smart Factory, Supply chain, Emergency, Health care, User interaction, Culture and tourism, Environment and Energy.

A survey done by the IoT-I project This completes the entire process required for widespread of research work on open front. Generally all International Journals are governed by an Intellectual body and they select the most suitable paper for publishing after a thorough analysis of submitted paper. Selected paper get published (online and printed) in their periodicals and get indexed by number of sources.

IV. CONCLUSION

Based on the survey of all these papers different authors have presented different security systems. We have found that most of the security systems are developed using Raspberry Pi because it is cost effective and it is compatible with many programming languages. Raspberry Pi can work with various sensors like PIR to detect movement of person, smoke sensor to detect fire and temperature sensor to detect temperature. With the help of Raspberry Pi person can implement security system which will be accessed remotely and user will be notify about the illegal activity.We can conclude that every person needs cost effective security system. There are different tools and parameters are used to provide the security. These security systems are useful for securing many places from remote location using mobile devices. In future we can implement energy efficient security systems.

ACKNOWLEDGMENT

REFERENCES

[1] Md. Nasimuzzaman Chowdhury1, Md. Shiblee Nooman2, Srijon Sarker3-" Access Control of Door and Home Security by Raspberry Pi Through Internet"

[2] Sowmiya .U, ShafiqMansoor.J., "Raspberry Pi based home door security through 3g dongle", International

Journal of Engineering Research and General Science Volume 3, Issue 2, March-April, 2015,ISSN 2091-2730

[3] Priya B. Patel, Viraj M. Choksi, SwapnaJadhav, M.B. Potdar, PhD, "Smart Motion Detection System using Raspberry Pi", International Journal of Applied Information Systems (IJAIS), Volume 10 – No.5, February 2016 ISSN : 2249-0868

[4] YanboZhao; ZhaohuiYe -"A low cost GSM/GPRS BASED wireless home security system" IEEE Transactions on Consumer Electronics, (Vo-lume:54, Issue:2)

[5] K Saravana Kumar, Jestin Thomas, Jose Alex, Raag Malhotra, "Surveillance System Based On Raspberry Pi for Monitoring a Location Through A Mobile Device", International Journal of Advanced Multidisciplinary Research 2(3): (2015): 103–108 ISSN: 2393-8870

[6] ShivprasadTavagad, ShivaniBhosale, Ajit Prakash Singh, Deepak Kumar, " Survey Paper on Smart Surveillance System", International Research Journal of Engineering and Technology (IRJET), Volume: 03 Issue: 02 | Feb-2016 e-ISSN: 2395 -0056, p-ISSN: 2395-0072

[7] Yogita Vijay Narkhede, S. G. Khadke, " Application of Raspberry Pi and PIR Sensor for Monitoring of Smart Surveillance System", International Journal of Science and Research (IJSR), Volume 5 Issue 2, February 2016 ISSN (Online): 2319-7064