



A.V.C COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER APPLICATIONS
(A Recognized as a Research centre
Approved by Anna University , Chennai)



"CAS Newsletter"

Volume: 08

Month: Jan-Feb'18

Issue:15

I Congratulate all the Participants & Prize winners who have participated various events in National Level Cultural Events in

Annai arts and Science College Kumbakonam.

I wish them all success.

Dr. S.SELVAMUTHUKUMARAN.

LEARNER → WRITER

Theft Prevention System using Raspberry Pi and PIR Sensor

M.Aravindan- II MCA

Introduction

The proposed system is based on concept of IoT “ Everything that is connected to the internet is alive”, is going to be the new rule for future. Future is Internet of Things (IoT), world is moving towards it with rapid pace. According to Amol Dhumane objectives of IoT are:

1. To build highly interconnected system where devices will be the users of the internet.
2. This system should work smartly for the betterment of human beings.
3. The system should improve the relationship between the humans and the environment in which they live.

Theft prevention would become a godsend in this increasingly technology conscious world. Many of the theft detection systems are available to catch the thief, which can be further improved. By using these technologies, in some scenarios, the thief cannot be caught. Even if the thief is caught, victim cannot get back his/her valuable belongings. "Prevention is better than cure". If the theft is being prevented from happening, the person will be at no loss. Modern security system should be able to identify a housebreaker

attempting to enter the home. After this, system should notify the victim about the invasion or any illegal activity. Also system should be able to prevent the housebreaker from entering the home as well as capturing/collecting proofs about invasion. Technology is changing day by day making the home security systems more powerful. It has changed from a simple lock and key security concept to implementing sophisticated security systems using cameras, microphones, contact sensors, proximity sensors, alarms, silent alarms, etc. The best feature about today smodern security systems is that, one can control their home devices just by using Internet.

OBJECTIVES

Safety:

When person is on vacation or belongs to corporate world theft can take place in his/her absence. This system is useful to provide security to his/her valuables. Suppose a person has kept his/her valuable antiques at home, theft of such valuable things can be prevented. Because valuable things once lost, cannot be recovered.

Reliability:

Power supply is provided by an adapter to this system; hence system is active throughout in the presence of electricity. In absence of electricity an additional

battery backup is also provided to keep the system active. Hence user can rely on this system from security point of view.

Evidence:

Evidence becomes very useful parameter in any theft case. The proposed system is capable of capturing image as soon as lights are turned ON. This image is uploaded on web page with that respective time of any intruders detection. Through this user has a strong proof in his/her hand for further investigation.



replacing linear regulators. Raspberry pi module acts as server; it receives radiations from PIR sensors as input. It then activates the relay module. When image is captured it is stored in Raspberry pi. It is also responsible for activating GSM module for notification purpose.

PIR Sensor

PIR sensors stands for Passive Infrared. It is also known as motion detector. Sensitivity range of PIR sensor is up to 20 ft.(6 meters) 110 degree*70 degree .PIR sensor are used to detect infrared radiations emitted from the warm blooded bodies and they do not detect or measure heat. It is also referred as Pyroelectric or PID i.e. Passive Infrared Detector. PIR sensors are commonly useful in application where there is need of detecting presence of human in specified area.

Relay

Relay is a simple electro-mechanical switch. It set of contacts made up of an electromagnet. Relays are commonly used in home appliances by which one can control turning on/off of appliances like a motor, light, etc.

GSM SIM

GSM stands for Global Standard for Mobile communication. Different systems can use the GSM SIM to communicate over any telecommunication network. GSM is used to send and receive text message.

ARCHITECTURAL FLOW

Following Figure shows the architectural flow of system.This system works as follows:



COMPONENTS OF SYSTEM

Raspberry Pi:

The system uses original Raspberry Pi 2 Model B having 40 pins. It has 26 GPIO pins, 4 USB 2.0 ports. It has a better hot-plug as well as over-current behavior. It also has easy-to-use micro SD version with push-push facility. It is power-efficient by

1. Consider a scenario where an intruder enters in a room for attempting theft.

2. If he comes in range of sensor; signals are sent to Raspberry Pi.

3. Raspberry Pi acts as server and controls relay and GSM Module.

4. Relays will lead to turn ON and OFF the lights.

5. After these buzzer will start ringing.

6. Image is captured and uploaded on web page.

7. GSM module sends notification to the victim so that he becomes aware of intrusion. This will lead to prevention of theft.

System Overview

