

Survey on Anti-Theft Detection System

Santosh Mahale¹, Shivam Gujrathi², Pratik Bramhecha², Kalyani Bedarkar², Rohini Shinde², Yashraj Patil²

Assistant Professor, Department of Information Technology, SNJB's KBJ College of Engineering, Chandwad, Maharashtra, India¹

B.E. Students, Department of Information Technology, SNJB's KBJ College of Engineering, Chandwad, Maharashtra, India²

ABSTRACT: This work presents a smart trespasser detection and alert system which aims to increase the amount of security as well as the likelihood of positively identifying or stopping trespassers and intruders as compared to other commonly deployed home security systems. Using multiple sensors, this system can gauge the extent of danger exhibited by a person or animal in or around the home premises, and can forward certain critical information regarding the same to home owners as well as other specified persons such as relevant security authorities. Index Terms | Home security, wireless device network, Zigbee, WiFi.

KEYWORDS: Zigbee, WiFi

I. INTRODUCTION

Various security systems can be found installed in homes and offices alike. For example, Closed-circuit Television (or CCTV) is a popular technology used extensively for the purpose of home security and surveillance. However, while such systems may offer some merits in the form of low cost and relative ease of installation, they also present some major drawbacks. Such systems usually have no mechanism to send critical information to users/home owners if they are not present in the home premises. Additionally, since it records video continuously and stores it locally, one has to scroll through long durations of time, often hours in order to get to the relevant section of the video. The system presented in this paper aims to improve upon such shortcomings of other security systems. Hence, this system can send relevant video data to the users and home owners directly, without the need of an additional centralized monitoring office to relay data from. Since all of this is done in real time, this data could also be specified to be sent to security authorities which would ideally expedite the process of identification or capturing of an intruder.



Figure 1.1 – Anti theft Detection System

Motivation behind project topic:

When we talk about security of any place, then Video Surveillance Cameras are the most popular equipment for this purpose. If you are willing to increase the security around your business premises, then hiring security guards for patrolling may not be the most effective idea. Security guards cannot be everywhere at one time and can become costly with their monthly salary. One easy solution is to spend an affordable amount of money in the installation of Video Surveillance Cameras around the desired area. This is a one-time investment that proves to be fruitful for a significant amount of time. That is the reason for the increase in surveillance cameras. It is common for them to be installed for security purposes at all hospitals, banks, malls, offices, etc.

II. RELATED WORK

1. CCTV Camera And Digital Video Record Based System:

A key input to the design and specification of the layout of an outdoor CCTV system is the site survey team's collection and analysis of aerial photographs. Images can be obtained from a wide variety of sources such as satellite photographs, local government files, privately contracted aerial photography services, and a host of free web-based mapping applications. Aerial photographs can provide information regarding on-site distances and blind areas where outdoor video coverage may be needed. Additionally, aerial photographs and detailed maps can be used during the design of the system to overlay alarm and video information useful for planning the dispatch routes of response personnel. Interior surveys are similar to exterior surveys. Aerial photographs can be replaced with scaled computer aided drawings or blueprints of the facility being surveyed. These can be used to mark potential camera site locations to identify the necessary coverage of access points, critical assets, and desired fields of view. A camcorder is often used to determine camera positions and evaluate video images from proposed camera locations. An important factor in the design and layout of a CCTV system is the location of its transmission hubs. Transmission routes channeled through a primary transmission hub could lead to a single point of failure in which an outage of one transmitter could disable the transmission of data from other camera sites.

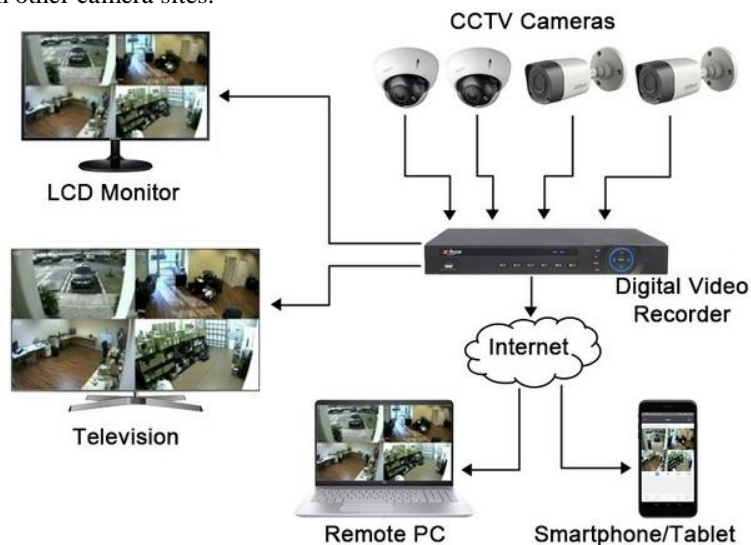


Figure 2.1- cctv Working

Key Points:-

1. CCTV helps to increase the security of home.
2. CCTV generate the video on night mode also.
3. Real time monitoring is one of the best advantages of a CCTV.
4. Theft detect easily
5. Every moment will be record.

2.:Theft Prevention System using Raspberry Pi and PIR Sensor:

Modern security system should be able to identify a housebreaker attempting to enter the home. After this notifying 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 homesecurity 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's modern security systems is that, one can control their home devices just by using Internet.



Figure 2.2 – System Overview of Theft Prevention System using Raspberry Pi and PIR Sensor

Key Points:-

1. The PIR Sensors can detect the Infrared Rays released by human body. .
2. Relays are triggered to switch on the lights..
3. Minimizes hassle and cost of commuting.
4. Power supply to this system is given by an adapter.
5. Battery backup is also provided.

3. Intruder Detection And Alert System Using Sensors And wireless LAN:

Wireless Sensor Networks (WSNs) are distributed, infrastructure less, fault-tolerant, scalable and dynamic in nature (Akyildiz et al., 2002). These networks are low cost and easy to install in an area. These are built upon small sized, low power and self-controlled nodes called sensor nodes. These nodes have small memory, less computation capacity and short lifetime (depends on battery life). Sensor nodes gather useful information from their surroundings and transmit it to the user controlled system called Base Station (BS) or sink for analysis. Such networks might be used for battlefield surveillance, judging volcanic behaviour, eyeing animal movement, predicting tsunamis, etc. Sensor nodes are densely deployed in the sensor field (area under consideration). They maintain a topology and start sensing the environment. Data gathered from the surroundings is processed and transmitted to the BS or sink using any routing protocol. Their topology is dynamic and changes frequently owing to the limitations of the sensor nodes. Sensor nodes may get damaged owing to heavy wind, rain, sunshine, animals, etc.

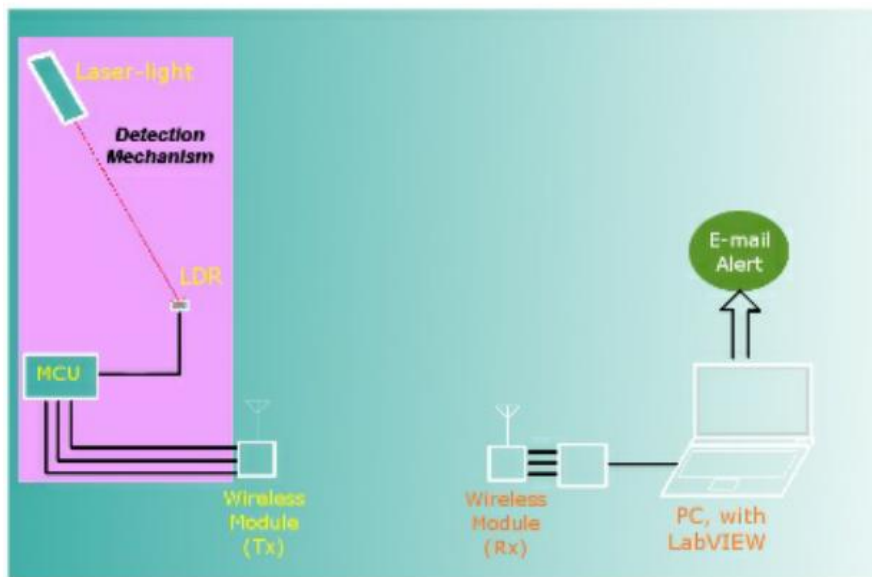


Figure 2.3 – System Architecture of Theft Prevention System using Raspberry Pi and PIR Sensor

1. LASER LIGHT :

A laser produces a very narrow beam of light that is useful in many technologies and instruments. The letters in the word laser stand for Light Amplification by Stimulated Emission of Radiation. The letters in the word laser stand for Light Amplification by Stimulated Emission of Radiation. A laser is an unusual light source. It is quite different from a light bulb or a flash light. Lasers produce a very narrow beam of light. This type of light is useful for lots of technologies and instruments even some that you might use at home!

2. LDR :

A Light Dependent Resistor (LDR) is also called a photo resistor or a cadmium sulphide (CdS) cell. It is also called a photoconductor. It is basically a photocell that works on the principle of photoconductivity. The passive component is basically a resistor whose resistance value decreases when the intensity of light increases. This optoelectronic device is mostly used in light varying sensor circuit, and light and dark activated switching circuits. Some of its applications include camera light meters, street lights, clock radios, light beam alarms, reflective smoke alarms, and outdoor clocks.

3. MCU :

A microcontroller is a compact integrated circuit designed to govern a specific operation in an embedded system. A typical microcontroller includes a processor, memory and input/output (I/O) peripherals on a single chip. Sometimes referred to as an embedded controller or microcontroller unit (MCU), microcontrollers are found in vehicles, robots, office machines, medical devices, mobile radio transceivers, vending machines and home appliances, among other devices. They are essentially simple miniature personal computers (PCs) designed to control small features of a larger component,

Key Points:-

1. Smarter trespasser detection system.
- 2 This system can gauge the extent of danger exhibited
- 3 Send alert to the home owner.



III.PROPOSED WORK

3.1 COMPARISON OF EXISTING WORK

Parameter	CCTV Camera And Digital Video Record Based System:	Theft Prevention System using Raspberry Pi and PIR Sensor:	Intruder Detection And Alert System Using Sensors And wireless LAN:
Video Record	It record everything and store it.	It cannot record everything and store it.	It cannot record everything and store it.
Setup	Easy	Moderate	Hard
PIR Sensors	No need	Nedded	Nedded

3.2 INNOVATIVE APPROACH

In the modern era, security and surveillance are important issues. Recent acts of theft/terrorism have highlighted the urgent need for efficient video surveillance and on-the-spot notification of ongoing thefts to house owners and other household members. A number of surveillance solutions are currently available on the market, such as CCTV cameras and digital videorecorders (DVRs) that can record the unauthorized activities of a trespasser, but cannot distinguish between human and non-human objects. In recent times, the ratio of theft has increased tremendously due to a lack of awareness and low availability of smart-gadgets. The task of face detection and the recognition of an intruder become very difficult when the intruder hides their face partially or fully using some type of material, such as plastic, leather, or fabric. Wireless Home security and Home automation are the dual aspects of this project. The currently built prototype of the system sends alerts to the owner over voice calls using the Internet if any sort of human movement is sensed near the entrance of his house and raises an alarm optionally upon the user’s discretion. The provision for sending alert messages to concerned security personnel in case of critical situation is also built into the system. On the other hand if the owner identifies that the person entering his house is not an intruder but an unexpected guest of his then instead of triggering the security alarm, the user/owner can make arrangements such as opening the door, switching on various appliances inside the house, which are also connected and controlled by the micro-controller in the system to welcome his guest. The same can be done when the user himself enters the room and by virtue of the system he can make arrangements from his doorstep such that as soon as he enters his house he can make himself at full comfort without manually having to switch on the electrical appliances. Thus using the same set of sensors the dual problems of home security and home automation can be solved on a complementary basis. The alerts and the status of the IoT system can be accessed by the user from anywhere even where Internet connectivity may not be readily available (since it is not necessary for the mobile phone to be connected to internet only board is required to have an access to Wi-Fi).

3.3 WORKING

What is to be developed?

There is a lot of home security system out there; why should you buy our system? Current system like novel security system provides convenience but only limited extensibility. We are providing you a better security system that can give u service according to your requirement. This low cost system with minimum requirements takes care of both home security as well as home automation. We think we can do better. Our goal is a zero-compromise combination of hackability and usability: Its working is so simple that even kids and aged people can use it efficiently. As this home security system does not use any smartphone application or any type of user interface instead uses digits from the keypad on the phone, the system is platform independent and hence can be accessed from a wide range of phones with different operating systems. To operate home security system the user need not have data connection enabled in his phone. The system runs fine with the launchpad connected to wifi at home/office. The optional smart phone application takes care of the fact that the user may also wish to control his home appliances without sensors being triggered. The launch pad sends a voice call to only a particular number which is present in the web API there is no need to worry about security leakage as the system cannot be accessed by any other unauthenticated user. This in turn increases the fidelity of the security system. The same set of motion sensors can be deployed for home automation as well as security system the system is simple and inexpensive. This system does not require the user to manually trigger an alarm but still it provides the user with the advantage of analyzing the situation and then triggering the security

alarm remotely from his phone. This idea overcomes the common fault in many existing home security systems which cause unnecessary embarrassment by triggering security alarm due to the systems inability to judge a special situation in which it should not have triggered the alarm. As we are using a Launchpad board having a wifi connectivity more security is provided to the Launchpad board from being hacked and ensuring the security.

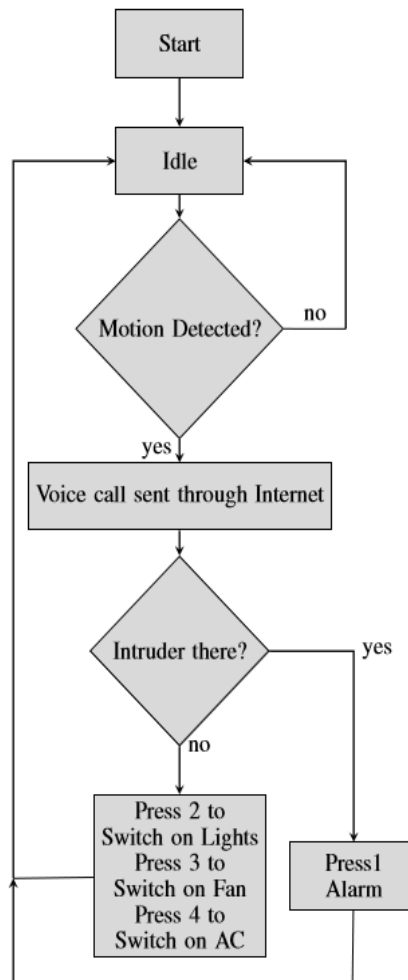


Figure 3.2 – Range and Capacity of detecting traffic area

Devices and objects with built in sensors are connected to an Internet of Things platform, which integrates data from the different devices and applies analytics to share the most valuable information with applications built to address specific needs. These powerful IOT platforms can pinpoint exactly what information is useful and what can safely be ignored. This information can be used to detect patterns, make recommendations, and detect possible problems before they occur. For example, if I own a car manufacturing business, I might want to know which optional components (leather seats or alloy wheels, for example) are the most popular. Using Internet of Things technology, I can:

- Use sensors to detect which areas in a showroom are the most popular, and where customers linger longest;
- Drill down into the available sales data to identify which components are selling fastest;
- Automatically align sales data with supply, so that popular items don't go out of stock.

IV. CONCLUSION

The expected aim of this project is to make an automated system for security purpose. Times-tamped image capturing let users capture details of events precisely at that instant. Advances in PC based surveillance software now allow anyone with a webcam to setup a robust, effective and inexpensive surveillance system. Given the recent increase in Home theft and the enjoyment of Home thieves by modern ways and experience it has become necessary to resort to



modern and effective means to reduce Home theft .The system was built to protect Homefrom theft by detecting the vibration resulting from the operation of the Home engine systembased on the IOT. The system was operated and get the results mentioned above system workswell such systems are effective to reduce Home theft

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