

IOT Based Intrusion Detection System

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Abstract: - The importance of home security could not be denied within the society. Now the safety of house has become more important because of increasing robbery in areas. The foremost important stipulations of home security systems for people's protection from felony, unseaworthy of crude gas and fireplace. CCTV camera is that the most typical system used for such purpose. They are high-priced and uses more room for keeping records and conjointly expects work force to supervise the unapproved action.

Key Words: — *Internet of Things, Indication indicator, intruder application, Pi camera, Raspberry Pi module.*

I. INTRODUCTION

Home security has forever been a difficulty. As we have a tendency to embrace the pace of advancement technology and also the growing economy, our activities stay in natural unsafe and unsecured state. From associate estimation, on a median three.7 million thefts occurred, {every year per associate num once a year| each year} from 2003 to 2007 from that thirty percent of those are a results of an open or opened window or entrance and sixty-six p.c of all robberies are home burglary. Robberies and thefts became one among the foremost issues in our lifestyle, so, the provision of a security system has become an important demand to confirm the protection of our house and workplace. To ensure the safety of our house and workplace the provision of a security system has become an important demand. Certainly, no matter our daily risk we should always be at risk. The foremost of the population goes with the thief warning device that rings once somebody enters in our house or workplace, to create things less tight. We will conjointly keep a CCTV to stay the records of the videos solely within the targeted space so it'll be helpful only if the owner is near-by. It'll alert the owner concerning any detection of intrusion within the space and to the safety guard too. Hence, we have a tendency to proposing a tool which will give notice you once any reasonably intrusion is detected within the home/office via an app.

II. REVIEW OF LITERATURE

A. GPU Application for CCTV systems [2014]: -

A CCTV camera keeps video records of the targeted area that too is monitored by an authorized body. The CCTV camera continuously records the video and store the data in it.

B. Design and Implementation of Home Automation System [2013]: -

This paper presents the design and development of smart home system that allows control of home appliances through Bluetooth.

C. Automated Security System using Surveillance [2015.]: -

The user gets immediate alert when someone enters the room. The system employs the IR sensors to detect the person entering the room and sends the output signal to the raspberry pi board for processing.

D. Design and Implementation of Security Systems for Smart Home based on GSM technology [2013]:

It collects the information from the sensors, makes a decision and sends SMS to a corresponding number by using GSM modem. If it finds any interruption in its sensors, then micro-controller will send a SMS to home owner.

E. Smart Surveillance Monitoring System Using Raspberry Pi and PIR Sensor [2017]: -

It increases the usage of mobile technology to provide essential security to our homes and for other control applications. Raspberry pi operates and controls motion detectors and video cameras for remote sensing & surveillance.

It can also find the number of persons located with the help of the Infrared sensor when motion is detected, the cameras automatically initiate recording and the Raspberry pi device alerts the owner of the possible intrusion having a smart phone.

F. Passive infrared sensor [2018]: -

A passive infrared sensor (PIR sensor) is an electronic sensor. PIR sensors are commonly used in security alarms and automatic lighting applications. PIR sensors detect general movement, but do not give information on who or what moved.

III. SYSTEM ARCHITECTURE

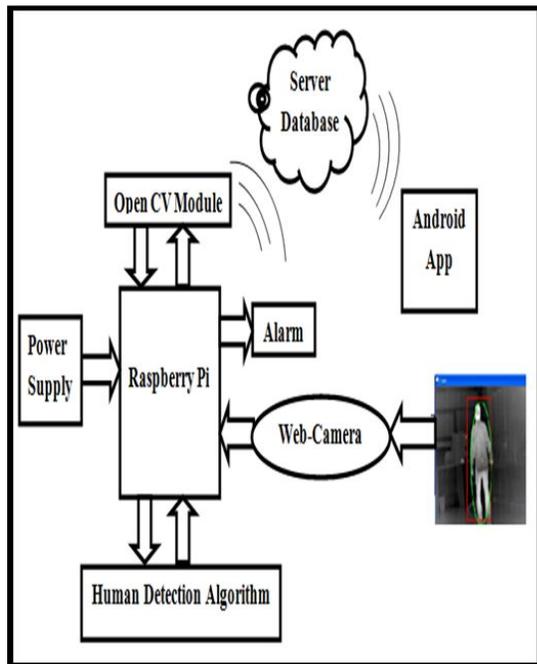


Fig.3.1. System Architecture

IV. METHODOLOGY

A. Modules

Detection of Motion: The system will detect any motion done by the intruder immediately and will notify the owner about the intruder in home or shop. The Pi Camera will detect the motion and will send notification to the owner.

Android Notification: - Android will generate notification when intruder is detected. This notification will be sent to the owner. The android notification will also send the images of the intruder through an android app.

Alarm: - As soon as any motion is detected the alarm will start ring and so the neighbors or security guard will get alerted about the intruder.

Implementation: In this module we implement the following modules as follows:

Testing Steps:

1. Start the camera.
 1. The camera starts capturing the photo. If any motion is detected in home or shop the camera will start capturing the photos of the robber.
 2. On detecting any motion, the owner will get notification of intrusion in the house and it will also get the images of the robber.
 3. And as motion is detected the alarm will also start ringing and the security guard will get alerted.

B. Significant Features

1. To design a system which gives notification to the house/office owner if there is any robbery detect.
2. To also send an image of the intruder to the owner.
3. To prevent intruders from entering home and provide access to only legitimate person.
4. If any intruder is detected, then detected intruder image is examined with previously stored database and send notification to the owner.

- Enables the owner to monitor his/her home with live feedback through an application and provide home automation through application.

V. FLOW-CHART DIAGRAM/DFD'S

A. Flowchart

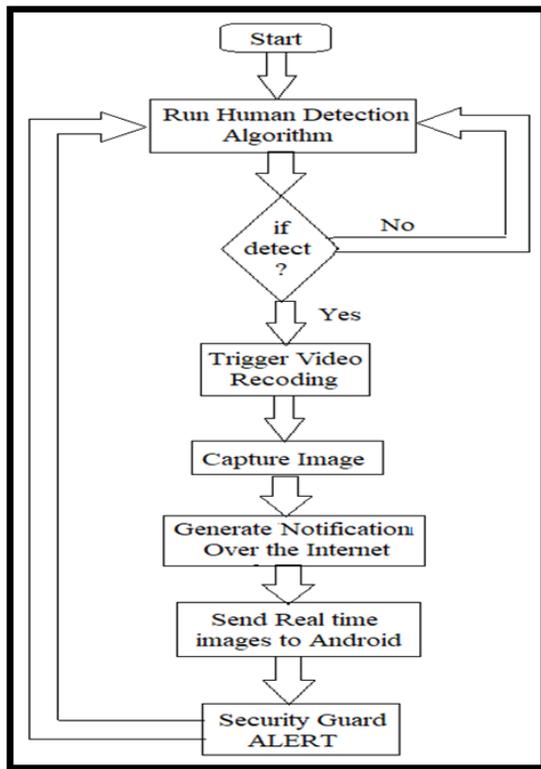


Fig.5.1 Flow Chart

B. System Requirements

Hardware Requirement:

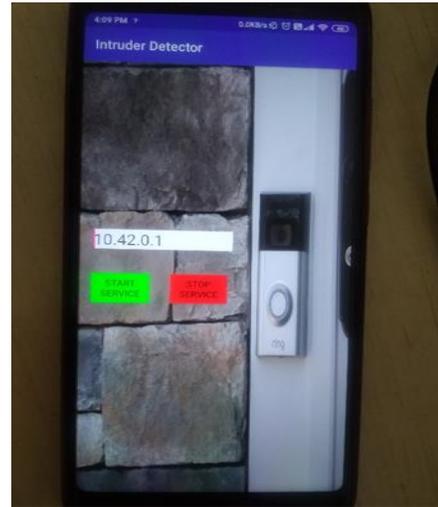
Raspberry Pi
 Pi Camera Module
 Alarm

Software Requirement:

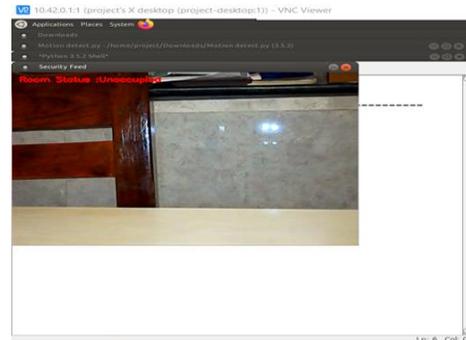
Operating System: Linux
 Programming Languages: PHP, Python IDLE
 Web server: XAMPP, Android Studio

VI. RESULT AND ANALYSIS

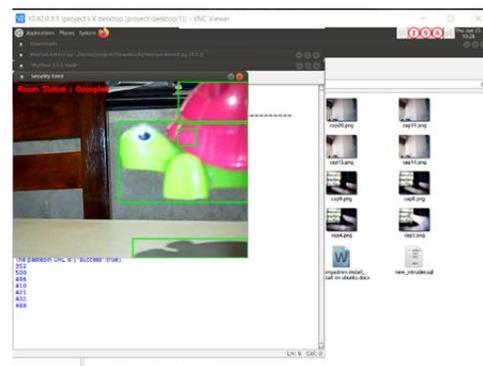
A. Snapshots:



6.1 Image of the application

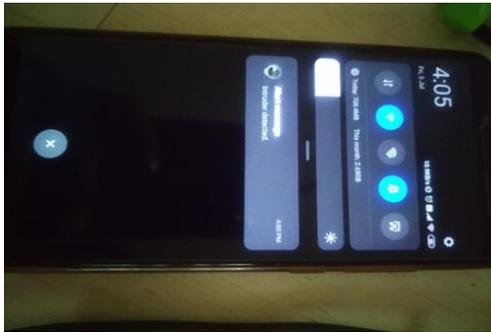


6.2 Video of the room



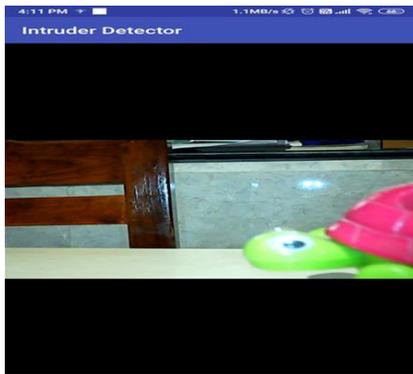
6.3 Image of intruder on pc

Image of the intruder appears on pc or laptop



6.4 Notification on mobile

A notification is send on owners mobile as soon as an intruder is detected. The owner gets the alert message notification on his mobile.



6.5.1 Image of intruder on mobile

Image of the intruder when he or she enters the house or shop on owner's mobile



6.5.2 Image of intruder on mobile

Image of the intruder when he or she enters the house or shop on owner's mobile.

VII. CONCLUSION

In recent years, the urge for good security systems to watch specific areas has been evolving day by day. For various reasons, the safety system application is uncountable. However, the standard security systems like the CCTV camera are quite high-priced and need constant oversight. Taking of these problems into thought, we've got return up with a security police investigation that's capable of police work intruders and taking acceptable actions against it. The system informs the licensed owner of associate intrusion through an app.

When any action or motion is detected the app immediately sends the notification to the owner and at the same time an alarm will be turned on and start ringing when any intrusion is detected to make the neighbor and security guard alert.

The app will also send images of the intruder to the owner as soon as any motion is detected.

VIII. FUTURE ENHANCEMENT

With this system the future scope can be the owner can also control switching on/off lights. The owner can also close the water tap if it is open. In short, the owner would be able to monitor its house from any corner of the world, the security when you are away and convenience of controlling devices through voice commands and schedules.

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