

Burglar Prevention IOT Model

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ABSTRACT

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In today's era, Security and safety has been an alarming concern. The dependence on C-Mount monitors to monitor and identify is quite popular. However, the traditional way to monitor the unlawful movement on C-Mount monitors requires a security personnel which in turns adds to total budget. Therefore, our idea of preventing theft, based on the underlying principles of IOT using RP-3 model can limit the power usage as well as decrease its dependence on manual labor.

The eminent use of raspberry pi in our system will enable us to process the live videos and photos to espy stealer by processing the motion patterns. The model binds a RP camera and RP-3 model both accompanied by a route with practical show invisible which can be instrumental in night and for data storage, thumb drive is used. The model uses radiology to spot the exact movement and focus on exact filed movement in the camera. The End user can monitor online the transmitted picture which is sent via the model using IOT. The entire footage can also be accessed through the Thumb Drive for additional reference. End users can monitor the entire movement and can get access to the picture of the actions through internet live. It adds a revolutionary flavor to Internet of Thing.

Keywords: Internet of Thing, C-Mount monitor

I. INTRODUCTION

Burglar prevention in this automation awake world would revolutionize the security sector. We have numerous robbing espy system accessible in today's market. Most of the scenarios has a wide range of limitations. Many of the victims can't retrieve his/her valuable belongings. Most systems have loopholes

which could be exploited to a great extent. However, the future can be built on the foundation of Internet of things. It can lead to the following

- Interconnected Systems on Internet in which Internet Consumers acts as appliances
- Model will act intelligently and efficiently to improve personage.

- The environmental connection in which the person reside is enhanced.

Adding to that, M2M connection provides control without human interference. There can be a drastic increase in terms of efficiency as it will slash a considerable amount in errors. The end user can view the stealer details by viewing the saved video on the thumb drive which is saved by the system. The model binds a RP camera and RP-3 model along with a route with Virtual show infrared which can be instrumental in night and for data storage, thumb drive is used. The theme currently transmits images of the event via IOT to the client. We use Internet Of Things lizard here to make the theme net. In addition it saves the photos which can be further monitored. The personage is currently ready to accidentally view the movements' images by-way-of internet over IOT lizard IOT matter to rewrite the knowledge sent online.

II. LITERATURE SURVEY

- Surya has supplied a structural model which constantly catches the adjoining and if there is any movement, it activate's the mild and captures the snapshot's that affects in transmitting of those to concerned member as an alarm.
- Chinmay presented an automated surveillance system use RP-3 and face detection, which gives energy to manage by turning ON the system which is primarily created at the incidence of each input signal.
- System will find out the movement and rely on the detected movement, machine will switch the camera ON and capture the image of unauthorized person and it will transmit the notification to the concerned person's phone if the person is not identified by the system.
- Sushma Jaiswal has presented a system where she has discussed about how hard it is to recognize face in dim light and at night time so she

proposed the feature which pays attention only to the important point on the face and not the whole image.

- Adrian McEwen is an innovative technologist and based in Liverpool. He mainly focuses on how the IOT merges with people's life and how heterogeneous networks of systems need to work together.
- Priya B. Patel has presented a model in which she focuses to work in such a way that so that it can meet the demands of the customer for a specific surveillance area. It has various applications and are used in filled in distributive situation and set-ups.

III. SYSTEM ANALYSIS

Existing System

Earlier we have been using C-Mount monitors in process to achieve, monitor and analyse, but the C-mount has way too many abilities to record and requires an extra person to take care of the unlawful movement. This cost high and system generally faces problem if staff is not available.

Disadvantages:

- High cost.
- Requires extra person to monitor.
- Less efficient and accuracy is low.

Proposed System

In this model, we have used RP-3 system model with some PIR sensors and RP-3 camera for vigilant observation function. Once someone enters its selection, the PIR detector is enabled to spot any action. RP-3 camera gets activated and displays the image one time and the PIR detector finds the actions. This picture is then kept saved in system's model and is located on the OpenCV and Python for

the individual's face. The found out external body image is then compared with the face of saved binary pattern algorithms kept inside the information. If the picture is same as the one in the info saved, no alarm is generated otherwise the concerned person will receive a text message notification through the Wi-Fi module in the robot's push-ettasoftware.

Advantages:

- Cost effective
- Less manual intervention
- More efficient and high accuracy
- Multiple use

IV. SYSTEM REQUIREMENT AND SPECIFICATIONS

Hardware requirements

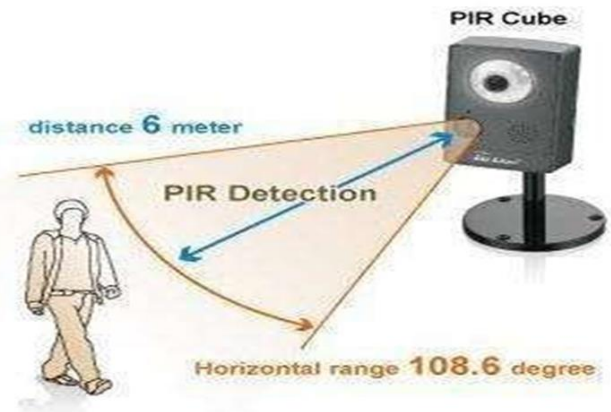
- **RP-3 model:** These RP3 model are shaped with a 700 MHz ARM CPU, and designs with 256 MB or 512 MB of Random Access Memory are ready to use. It has a support of up to five THUMBDRIVE2.0 connections. It can use a large storage Thumb drive (up to 4gb) and use HDMI for automatic sound and video. No network interface on-board, however WI-FI as well as Ethernet networking are hold up by Thumb Drive.



Fig4.1: Raspberry PI

- **PIR Sensor:** It abbreviates as Passive Infrared Sensor (PIR Sensor). Its an electdd digitalsensor,

that measures the light emitting from object in its area of perspective. They are most widely used in movement sensors based on Passive Infrared Sensor. PIR detectors are used frequently in safety alarms or digital lighting apps. The term passive relates to energy for detection purposes. It works completely by observation infrared radiation (radiant heat) radiated by or diverted from personage.



- **RP-3 camera:** With a fixed focus lens, it's a better-quality video recording device. It binds to RP-3 model with one of the small plugs on the plank .

Its features are:

- Fixed focus lens on-board
- RP-3 model board can be connected
- Raspbian OS can enable the camera support.

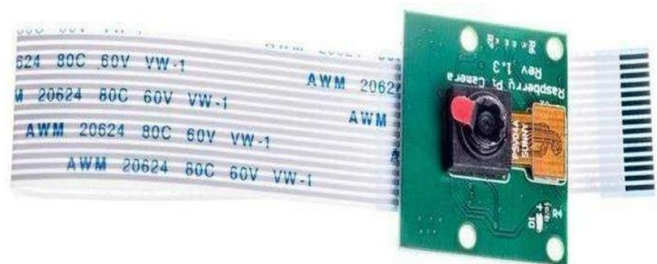


Fig 4.3: RP-3 Camera

- **Wi-Fi adapter:** A Wi-Fi accessory is a module that sums up the wireless connection to any RP-3 model. All the adapters modules are available as externally as Thumb Drive modules as well as available as PCI cards interface that plugs onto any empty slot present on the motherboard. Its

benefits are:

- System uses from cables
- It eliminates the needs to install internal software to update any device
- It can be used formor than one Devices



Fig4.4: Wi-Fi Adapter

- **Power Supply:** A power supply +5.1V THUMB DRIVE micro storage is obtainable to the RP-3 model. The exact price of present (mA) required for the RaspberryPi-3 model depends on how much you links withit.

Software Requirements:

- **OPEN CV:** It abbreviates as Open Computer Vision . OCV is a widely used optimized library that mainly focuses on building real time applications. It has many algorithmic patterns and a wide range of tools in its arsenal that can help us in numerous ways. Python provides a wide range of libraries and support with an ease in coding and provides a bigger difference in short lines ofcode
- **Local Binary Pattern:** Its an algorithmic program used for allocation. It acts as a controlling mark and takes out the index functions. Primarily, the LBP texture descriptor transform the photo to gray scale. As per every pixel element within the

gray scale photo, a neighborhood of size n close to the center pixel part is chosen. The higher than figure we have to take the center portion and doorstep it counters to its neighborhood of eight pixels. If the intensity of the center element is greater-than-or- equal to its neighbor, then we set the worth to one; otherwise, we set it tozero.

V. SYSTEM DESIGN

A. Architecture Diagram:

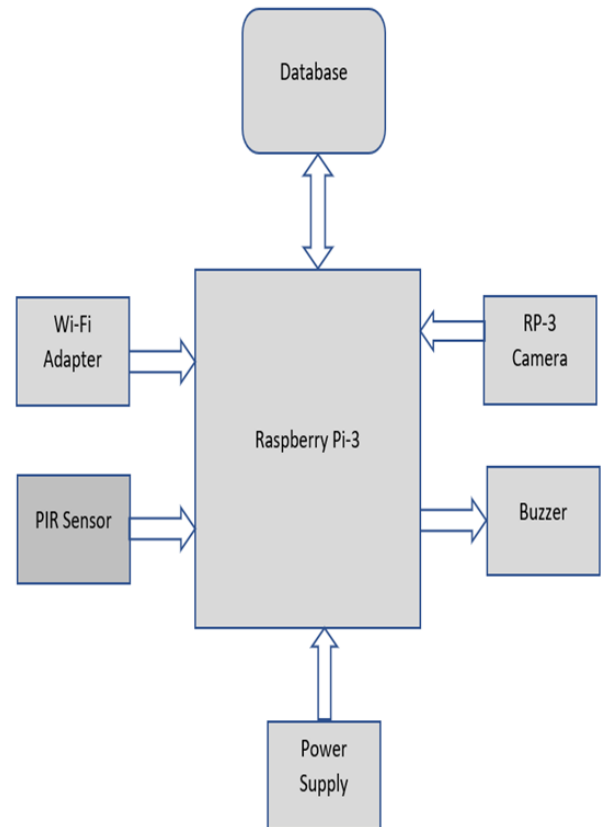


Fig5.1.1: Architecture Diagram

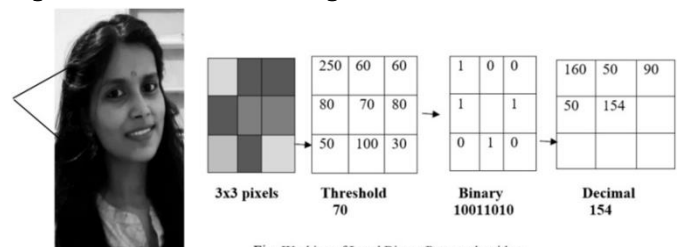


Fig: Working of Local Binary Pattern algorithm

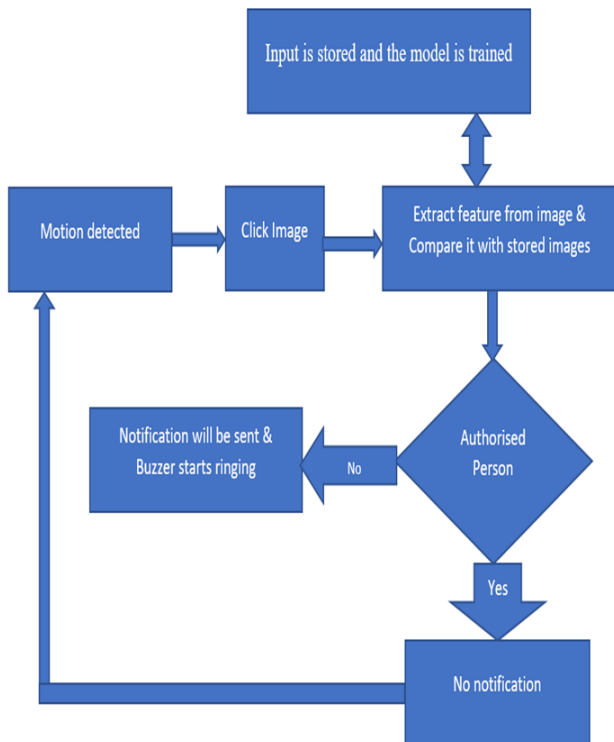


Fig5.1.2: Architecture Internal Flow Diagram

Here PIR sensors with RP-3 model and RP-3 camera is used for smart surveillance and intelligent inspection. When somebody comes in the range of this model, the PIR detector starts operating to capture or spot movement. Whenever the PIR detector encounter the movement in its range, this triggers the RP-3 camera to display the image of the person or thing. Then image will be saved for the checking purpose of the personality's face within the theme which is located in OpenCV of Python. The detected face of the person will be compared with the trained dataset of the authorized person which is in the form of binary pattern algorithms within the System. If the image matches with the authorized face info, then no notification will be created else the owner is going to receive a text message through WI-FI adapter of robot push-Etta application. This theme treats or mark unregistered person as mysterious or known person.

B. Flow Diagram:

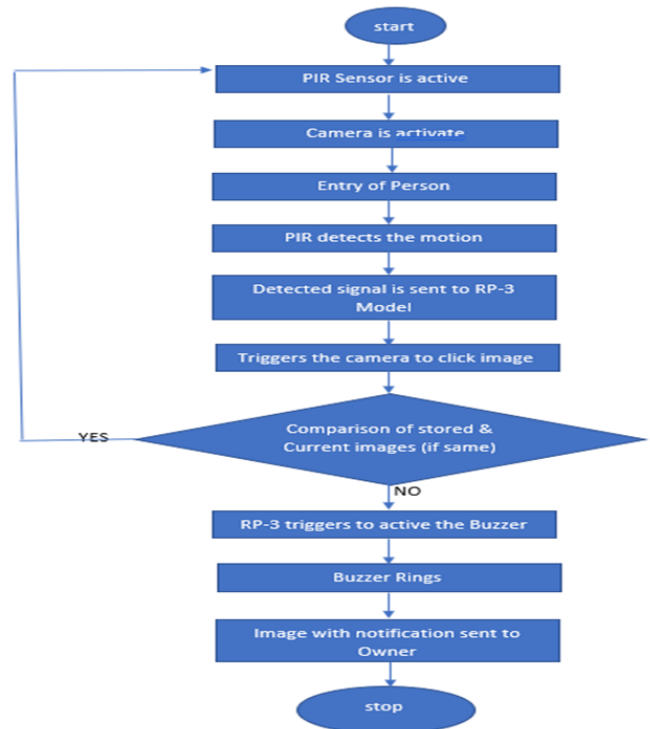


Fig 5.2.1 Flow Diagram

Above diagram 5.2.1 represents the flow of model that how the model starts, process and complete working which will stop the stealer to steal our belongings. This model works as follows:

- Suppose a person come for stealing purpose in a house.
- When they come within the range of sensor, the image is clicked & sent to RP-3model.
- RP-3 model acts as main controller and starts transmitting the message to trainedmodel.
- Then the alarm will start ringing to inform the owner about the incident.
- The captured image will be uploaded on electronic mail and will be sent to recipient.
- At last, this model sends the notification of intruder to the owner so that he can take action againstthe stealer.

VI. CONCLUSION

This project model “Burglar Prevention IOT Model” will help people to protect their belongings as well as their family. A cost-effective RP-3 model-based security system is developed and implemented in this project. This proposed model provides safety, security and surveillance to our family and society. In this model, the main component we have used are RP-3 camera, RP-3 model, PIR sensor, WIFI adapter and thumb drive. We use Thumb Drive to store the captured images and recorded videos when movement is spotted. This model will monitor and secure our belongings and surrounding in very effective & efficient manner. The sensor can sense the movement in low light also and can forward the signal to RP-3 model to activate the camera, capture and store the image of person, after comparing the image with authenticated person’s face, it will send a notification on recipient smartphone if he is any third person. This device mainly focuses to capture the image effectively in dim light and night time.

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