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SMART HOME SECURITY

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Abstract: Today's society has led to the increase in the number of small families there are many security system available in the market which are mostly expensive. The objective of the model is to present a simple and low-cost design to make our safer and smarter. The microprocessor using Raspberry pi based framework built in this project comprises of PIR sensor, IR sensor, Piezoelectric sensor and sound sensor which only alert an intruder action. This project deals with implementing the facial recognition using python OpenCV. Then information send using the social media like Telegram. In case of an unauthorized person tries to enter the home, then owner receives a message on his phone immediately followed by his photos of the person causing the situation.

Key words—Internet of things (IOT), Raspberry Pi, PIR sensor, IR sensor, Home security

I.INTRODUCTION

Home Security System is the most sort after mechanism to ensure the safety of valuable and safeguard personal security as well. The development of burglar alert gadgets can limit the event of theft, while it can also identify and record suspicious trespassing. In places with high density like railroad stations and schools we can install face acknowledgment innovation which can identify hoodlums and suspicious people. This is proactive technique that can control the event of the criminal occurrences and ensure the security of individuals and the property. To defeat the disadvantages of conventional burglar alarms, like infrared microwave indicators, glass break finder, microwave target movement locator we propose the model presented in this paper. The infrared microwave finder is a crisis caution gadget dependent on the working standard of infrared and microwave. Compared with other conventional burglar alert products, infrared microwave indicators possibly create alert sign when it detects a difference between the microwave signals sent which have been split into two different and equal halves. If the difference is not zero, it indicates that there exist a movement. The glass break identifier is for the most part used to identify the sound of glass breakage. The glass-used to identify has a restricted location run, it can just identify the recurrence sounds that originate from the wrecked glass and cannot be utilized for identifying normal glass vibration. The microwave target movement finder is a locator for recognizing the Doppler move of high recurrence radio waves and it is fundamentally utilized in open spaces, most commonly, square space. Compared to infrared wave indicator, microwave target movement identifier examines the comparative very high recurrence radio waves with extremely short frequencies, which implies that microwaves are reflected by other objects. The movement of reflected waves can be utilized to distinguish interruptions.

II. LITERATURE SURVEY

Inas AI mansooriproposed a paper on “Smart door system for Home Security” [1]. Using Raspberry pi module in their design, the keypad door lock, and the camera pi module has been provided.

Shakthi Murugan.K.H, proposed a paper on “Security System using Rasberrypi”[2]. The security automation system works by using the camera as the master and the raspberry PI as hardware tool. A custom made Raspberry PI will be fixed at the surveillance area which controls for the video camera.

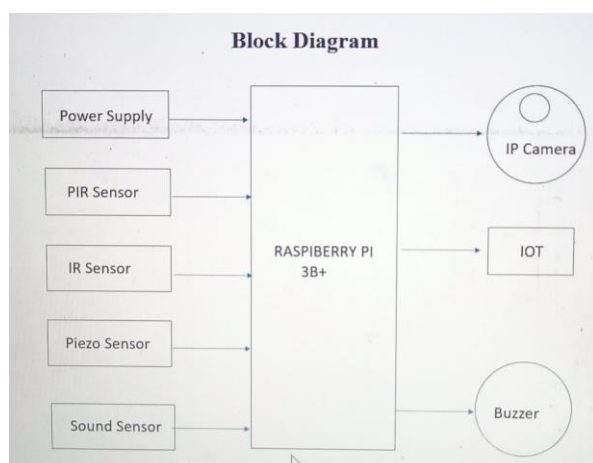
Hwang, I.K.Baek, J.W proposed a paper on “Wireless access monitoring aand control system based on digital door lock” [3] In this system put forward a smart door lock home security which makes use of zigbee technology.

Huang, H.Xiao, S.Meng, X., and Xiong, Y proposed a paper on “A remote home security system based on wireless sensor network and GSM technology.

III. METHODOLOGY

The widespread adoption of internet of things IOT technologies has resulted in a smartly connected world to live in [1,2]. It has gone into a brilliant time with a quickly developing innovation in the field of home security. The key of idea of internet of things is to integrate each framework, for example, Television, Home appliances, advanced mobile phones and sensors associated with the internet to be absorbed and controlled from anywhere [3]. The interconnected framework gadgets will be the clients of the web [4]. The internet of things is a novel system administration world which permits the correspondence among a wide range of physical framework with the plenty of uses in the field of agriculture, medicine, home security to name a few.

The objective and scope of the design built in this paper is to develop an efficient and low cost system that constantly screens the region where it is installed to recognize any suspicious activities or trespassers. IOT based system is superior to other methods that are used to home security purposes, for example, Micro controller-based wired and remote security frameworks, CCTV framework, and so forth. IOT based system is quite costly and have a few disadvantages in effectiveness and availability to the client. IOT based antitheft systems are implemented on vehicles successfully [5]. So we propose this system consisting of PIR, IR, Piezoelectric and sound sensor. A camera and raspberry PI circuit is employed with a USB drive to enable storage. When a movement is detected in the secured zone, the system with the assistance of a camera captures the picture and video to recognize the zone of movement. The raspberry controller presently transmits the pictures and video over IOT to be seen by the client of the web. Likewise it stores the information in USB for further reference. The client would now be able to interpret the information sent on the web through IOT to see the pictures of the incident remotely and the raspberry pi to start the signal alert.



IV COMPONENTS REQUIRED :

RASPBERRY PI (3 B+Model)

The Raspberry PI 3 model b+ is the latest product in the raspberry PI 3 range, featuring a 64-bit quad core processor running at 1.4GHz, dual-band 2.4GHz and 5GHz wireless LAN, Bluetooth 4.2/BLE, faster ethernet, and PoE capability via a separate PoE HAT. This product is made by RS component and comes in RS component packing



PIR SENSOR(Passive Infrared Sensor)

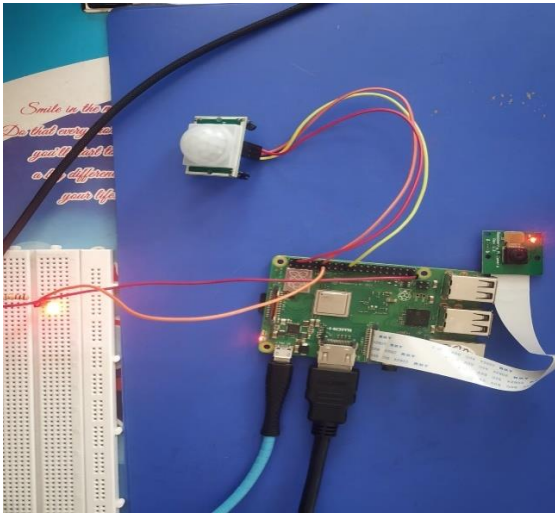
A Passive Infrared Sensor is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. They are most often used in security alarms and automatic light applications.



INTERNET PROTOCOL CAMERA:

An Internet Protocol camera is a type of digital video camera that receives control data and sends image data via an IP network. They are commonly used for surveillance but unlike analog closed circuit television cameras, they require no local recording device, only a local area network

V. IMPLEMENTATION



The steps for the proposed system are as mentioned below:

Step 1:

Initialize the microprocessor and other components by providing power supply.

Step 2:

Getting status from the PIR Sensor that object is detected .

Step 3:

Now the IP camera captures the image and sends to the mail.

Step 4:

If there is no face detected it again recaptures the image up to detecting the image.

Step 5:

If there is no any face detection it just send the alert to the mail by sending message

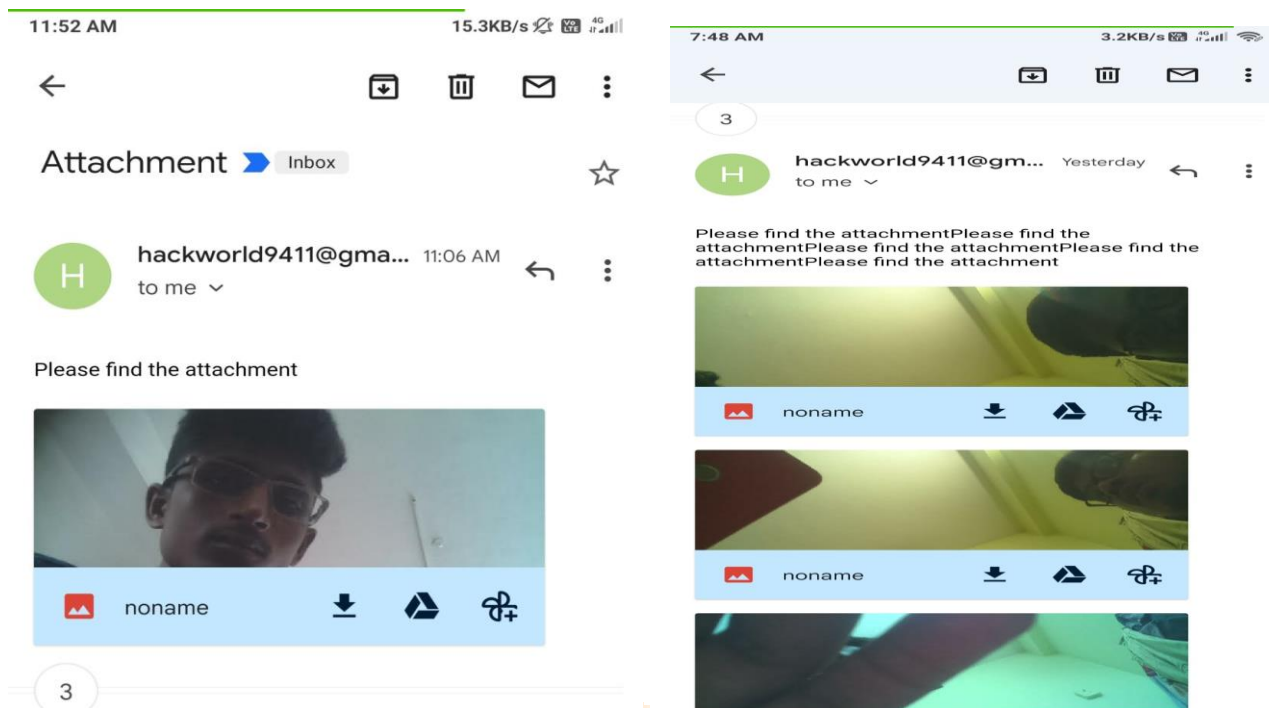
Step 6:

Finally the image or message may check by the owner and makes easy to find the burglar

Step 7:

Entire traffic density is uploaded to the cloud by WI-FI and traffic density analysis is represented in the form of graphs.

VI. RESULTS



VI. CONCLUSION

The project "Smart Home Security" has demonstrated how to get a fully functional embedded product developed from scratch. This incorporated the cross aggregation and organization of fundamental libraries, the arrangement of implanted Linux and distributed computing innovation. This system is highly recommended to home territory observation for example individual office lodge, bank storage space, stopping passage.

VII. FUTURE SCOPE :

In future scope we can add futures for existing system such as alarm to the system so that owner can switch off the system if anyone enters by mistake into the secured zone and we can add a photo recognition technology and tracking have some pictures of the authorized users if they unknowingly steps into the zone. This is proposed further to reduce the possibility of the unwanted or false burglary alarm which in turn reduces the sensitivity.

VIII. REFERRENCES

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