SURVEY ON SMART SECURITY SURVEILLANCE SYSTEM

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ABSTRACT

As an integral part of the safety and security many organizations, video rental has established its value and benefits many times by providing immediate management of property, people, the environment and property. This project operates in the form of the Embedded Real-Time Surveillance System Based Raspberry Pi SBC for internal detection that enhances monitoring technology to provide critical safety in our lives as well as consistent performance and alert operation. The proposed security solution depends on our integration of cameras and motion detectors into a web application. Raspberry Pi operates and controls motion detectors and video cameras for remote hearing and monitoring, streams streaming video and recording for future playback. This research focuses on the development of a detection system that detects strangers and responds quickly by taking and transferring images to wireless modules based on owners. This Raspberry Pi program based on Smart Surveillance System provides a remote location monitoring concept. The proposed solution provides a fully functional, efficient and easy-to-use global solution. This project will also introduce the concept of motion detection and tracking using image processing. This type of technology is very important when it comes to surveillance and security. The live video stream will be used to show how things can be found and tracked. The detection and tracking process will be based on the pixel threshold.

Keyword*: Internet Of Things (IOT), Raspberry pi, Picamera, PIR Sensor, Dropbox.*

INTRODUCTION

Today safety and security is becoming increasingly popular day by day because of its many benefits, and rather the progress that is taking place, the safety of one's home should also not be left behind. These days the increasing efforts are therefore being made to create a security system that will handle this issue effectively and keep the user away from the fear of home security in all matters. The system is considered to be the best only if it provides protection and monitoring that monitors the number of threats, home protection against such things as burglary and domestic violence. Whenever a user is not at home for some reason, it is sometimes possible to be left offline by people visiting their site. These visitors can be known or anonymous to the user. In this case the proposed system has various sensors such as PIR, Vibration, air quality and magnetic door lock sensors.[1]

The PIR sensor detecting the presence of a human face that will notify the user using a message via GSM and a picture captured by the camera via email using the Internet .After checking the email with the image user decides whether or not to enter the visitor's home. If known, the guest should be allowed to enter the home using the GSM message on the open Raspberry pi door.[3]

There are only two entrances to our home which are the doors and windows. Entry from

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windows is illegal and in this protection program the window entry point uses a vibrating sensor mounted on the window glass. Air quality sensor to detect various types of pollutants in the home such as wood smoke, cigarette smoke, gas burners, and mosquito coils that are harmful to family members. Anyone can control pollution home remotely from this program using a user warning message.[2]

The project focuses on building a monitoring system that detects movement and responds quickly by taking a picture and transferring it to the controller device via the Internet. The system will need a Raspberry Pi module, motion sensor, camera and internet connection. It will trigger the implementation of a surveillance system that introduces the concept of remote monitoring in remote areas. The program can be monitored by user form anywhere in the world.[4]

OBJECTIVE

• The purpose of this project is to design and develop a security system that includes features such as motion detection, image processing
and sending an email or SMS to the owner of the facility.
• Study how the Raspberry Pi can be connected to a moving detector and a Pi camera.
• Learn how the Raspberry Pi can be configured so that you can send an email to the specified Mail hub.
• Develop and build a prototype for a Raspberry Pi SBC based monitoring system.

SYSTEM ARCHITECTURE
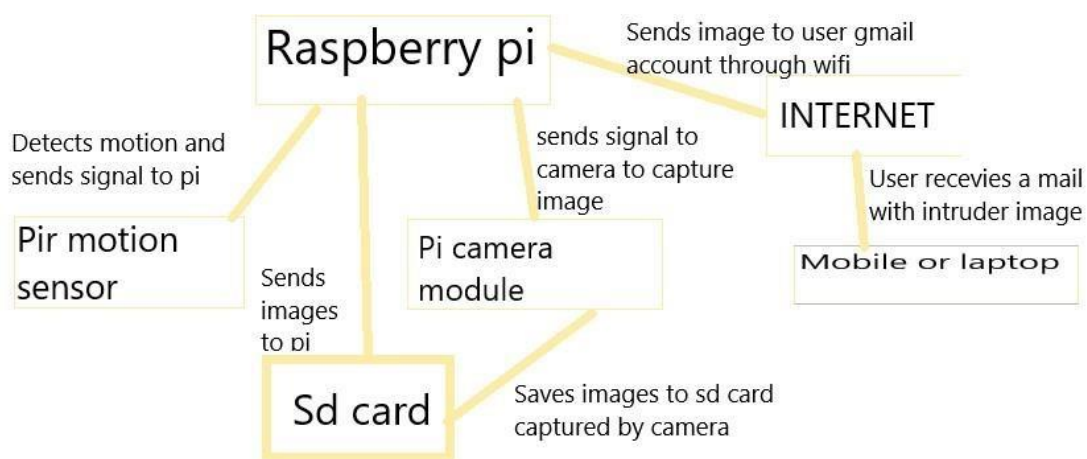
The proposed system is a smart system and eliminates the need for continuous monitoring of human resources. Thus, any additional human activity does not exist. In this project the raspberry pi 3B (model) was used as the heart of the system. This program continuously checks the local environment with the sensors Whether Anyone enters the store or not. It also sends a warning message to the owner with live camera photos via Gmail. In this program the human presence is detected using the PIR sensor .This project contains raspberrypi with camera, sensors and alarm. The whole system is set in place. When the system detects someone in the store it sets an alarm, takes

live pictures and sends it to g-mail. Then wait for the order. After receiving postive order it record a video or continue to take pictures and stores in the raspberrypi.

The proposed security solution is based on our innovative integration of cameras and motion detectors into the web system. The Raspberry Pi works and controls the motion detectors and video cameras so that they can hear and monitor remotely, stream live video and record it for future play. This research focuses on building a surveillance system that detects strangers and responds quickly by capturing and transferring images to a wireless-based module.

After setting up the system to send a warning to a predefined subscriber, it was necessary to generate and send an email. The Multipurpose Internet Mail Extension (MIME) package was then called and used for the production of attachments. MIME supports non-ASCII characters, non-text attachments (audio, video and program programs) etc. So extend the email format. The Simple Mail Transfer Protocol (SMTP) system was then used to deliver email from the Raspberry Pi to the default mailhub.

METHODOLOGY

♦ **RASPBERRY PI** :- Is a small, single-board computer that was originally developed for computer science education and has since been popularized by digital hobbyists and makers of Internet of Things (IOT) devices. Raspberry PI, whose basic model costs 2000RS is about thesize of a credit card, has a 64-bit quad-core ARMv8 processor and uses a Raspbian distribution of Linux for its default operating system (OS).

The Raspberry Pi computer is essentially a wireless Internet capable system-on-chip (SOC) with 1 GB RAM,connection ports, a Micro SD card slot, camera and display interfaces and an audio/video jack. The Raspberry Pi Foundation offers several versions of Raspberry pi including the Raspberry Pi Zero, a $5 model which was released in 2015.

♦ **Pi Camera Module: -**The Raspberry Pi camera module can be used to take high -definition video, as well as stills photographs. It is easy to use for beginners, but there is much you can offer advanced users if you are looking to expand your knowledge. There are many examples online of people who use it for end time laps, slow motion and other video cleverness. You can also use the libraries we combine with the camera to create effects.

Camera Board on Raspberry Pi is a small printed circuit board with a camera on it. The PCB is connected to a ribbon cable which connects to the Pi itself on its own port. The ribbon can be extendable. The camera on the board is very small (5MP camera). As for now it is the only Camera made specifically for the Pi therefore these specifications cannot be updated. Since it uses 250mA, externally powering the Pi should be sufficient enough for the camera. Specific configuration settings are required to initialize the camera and Python script to enable it take picture.

♦ **PIR Sensor: -** PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out. For that reason, they are commonly found in appliances and gadgets used in homes or businesses. They are often referred to as PIR, "Passive Infrared" or "IR motion" sensors.

When the sensor is idle, both spaces receive the same IR rate, the ambient value emitted from the room or walls or outside. When a warm body like a human or an animal passes by, it begins

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by cutting off one part of the PIR sensor, causing a fine separation between the two halves.

RESULT

Inform to owner in text message
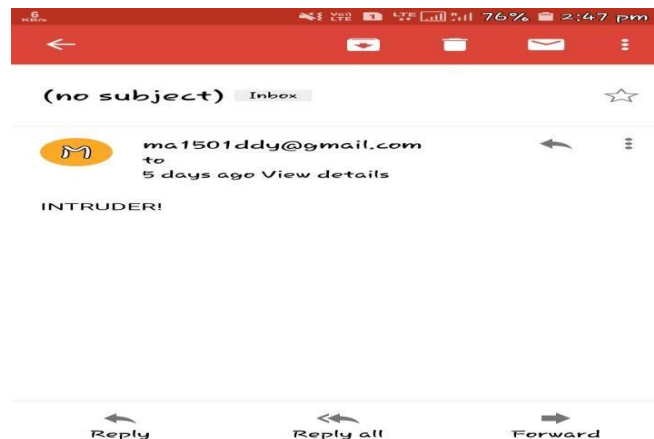
After setting up the system to send a warning to a predefined subscriber, it was necessary to generate and send an email. The Multipurpose Internet Mail Extension (MIME) package was then called and used for the production of attachments. MIME supports non-ASCII characters, non-text attachments (audio, video and program programs) etc. So extend the email format. The Simple Mail Transfer Protocol (SMTP) system was then used to deliver email from the Raspberry Pi to the default mailhub.

Inform to owner in text message with image
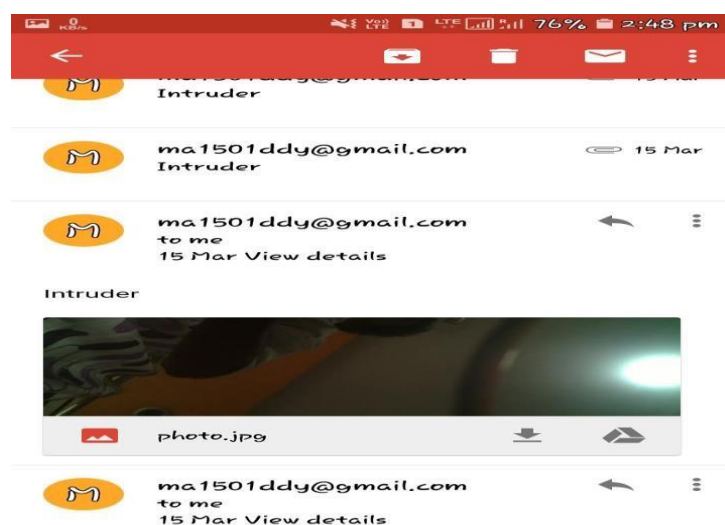
CONCLUSION

So we have designed a smart surveillance system that can record / capture video /

image and transfer it to smart phones. It is beneficial as it provides honesty and confidentiality on both sides. It is authenticated and encrypted on the receiver side hence it offers only the person concerned to view the details. Necessary action can be taken in short span of time in the case of emergency conditions such as elderly person falling sick, military areas, smart homes, offices, industries etc. The task of the future is to determine the number of people found in the area and their positions in order to obtain accurate information on the part of the recipients.

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