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# Smart Supervision Security System Using Raspberry Pi

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**Abstract :** A plan and build out a IoT based supervision system using Raspberry Pi is design in this paper. Distant user aware by the image and video are the main characteristic of the arrangement. IoT (Internet of Things) module operation, the sensor build event and ahead the sensor location to check section. Upon gathering the occurrence informing, the command allow the camera for capturing the incident, aware the owner via SMS, phone call, and email. Cameras are used for notice motion and they are attached to a recording device. In this paper, easy application is design that noticed movement and transmit information to the smart phone using raspberry pi and camera module. If there is something or someone movement in the camera system field, it will get inform to mobile phone or web browsers. The information comes with image, text and video, that can be seen straight on android or iOS. It use the software and facility such as pi camera ,push bullet and ffmpeg.

**IndexTerms - Raspberry pi, Pi camera, USB camera, WiFi module, PIR sensor.**

## I. INTRODUCTION

Supervision is an major point to satisfy the protection from robbery and housebreaking which had been commonly unwilling in vast or tiny industries. In easy term here supervision means meticulous observing of someone who may have done something illegal by means of electric instruments such as closed circuit television camera. Raspberry pi, it is a very small just like a credit card size computer which is having a low price. Raspberry Pi is broad in use since past few years. A solving problem to finish the load on the working of a person which save picture when it is essential. The closed circuit television camera will take the image or the place when somebody is comes in that specific region, in a such instance the camera taken the movement and take out the outcome in alarming to the holder freely transfer quick notification about the appearance of an task in that specific covered area. This notification is transfered through Short message service (SMS) or mail. The mail could be completed with attachments and text . IoT distribute with billions of things starting from small to large scale industries where they are connected to sense and gather data also transmission with the people with the help of mobile sensor, wireless technologies, electronic portal devices and many more.

## II. SURVEILLANCE SYSTEM ARCHITECTURE

### USER

person that has right to give orders to use an equipment, application, process, facility, process or system, or one who take or appoint a better or service to get a satisfaction or to solve a issue.

### WEB APPLICATION

A Web application (Web app) is an implementations program that is saved on a distance server and trasport over the Internet via a browser attachment.

### CAMERA

A camera is an visual tool to catch motionless picture or to information going picture, which is saved in a solid channel such as in numerical structure or on record.

### EMAIL SERVER

A mail server is also known as a MTA (mail transfer agent), a mail transport agent, a mail power tool or world wide web) is an implementataion that collects arriving email from limited consumer (people which having same domain) and disatance dispatch and ahead out e-mail for transportation.

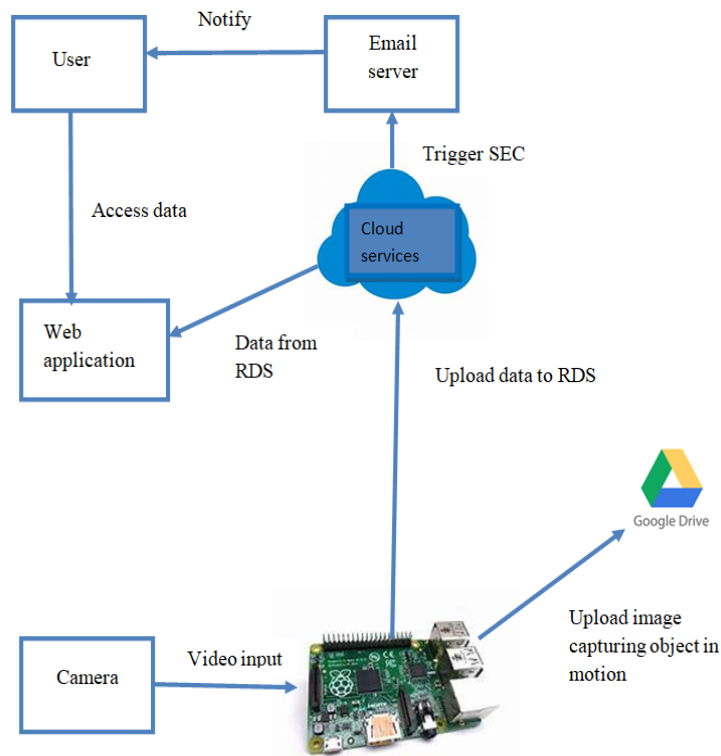


Fig 1 : surveillance system architecture

### III. SYSTEM ARCHITECTURE

#### POWER SUPPLY

The Raspberry Pi 3 B plus model having +5.1V supply and 2.5 A. How much current (mA) the Raspberry Pi taken is depends on what connected to the raspberry pi.

#### MEMORY CARD

- Sd card formatted through the sd card format application
- Noobs file download and copy into the folder. Then this folder is extracted into the sd card ...After that insert the sd card into the raspberry pi

#### RASPBERRY PI

- After inserting a sd card into raspberry pi board click on next button and select the country then language and time zone
- And set new password only if want to change after that all setup completed
- After completed setup reboot system because update is taken

#### CAMERA

USB Cameras are picture cameras that utilize USB 3.0 or USB 2.0 technology to transport picture details. USB cameras are planned to without difficulty join with committed computer organization by the same USB technology that is established on computers.

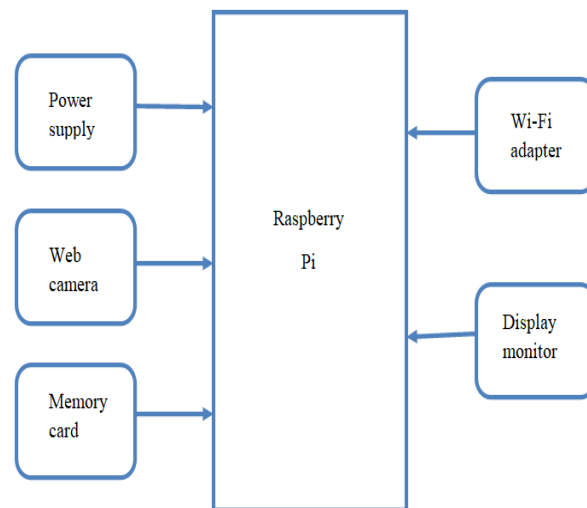


Figure 2 : system architecture

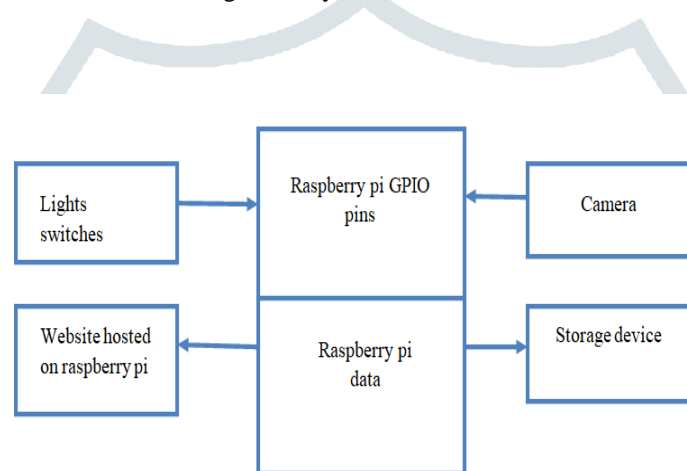


Figure 3 : system design for surveillance system

#### IV. INTERFACING RASPBERRY PI TO LAPTOP

- Download VNC viewer
- Open VNC viewer then paste IP address of network in to the VNC
- For connection of laptop to the raspberry pi ethernet cable is used. Ethernet cable permit the raspberry to entrance internet by the laptop's Wi-Fi.

## V. ALGORITHM

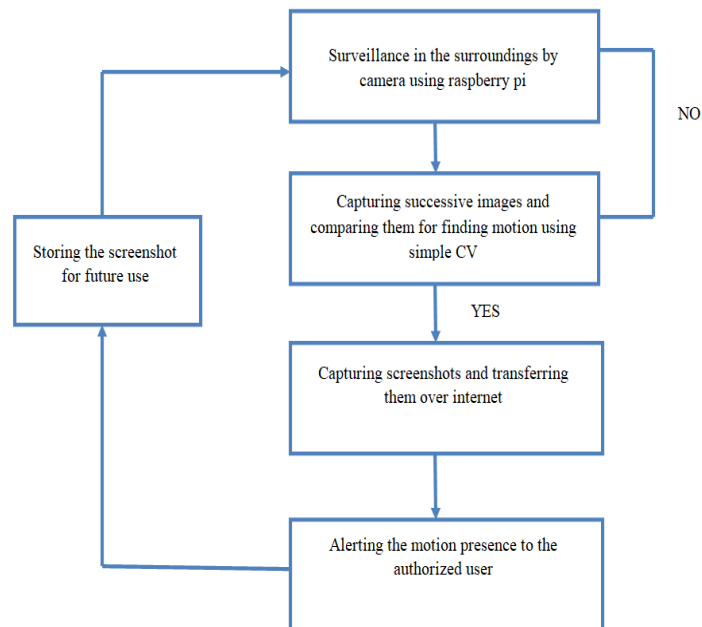


Figure 4 : coding algorithm for surveillance system

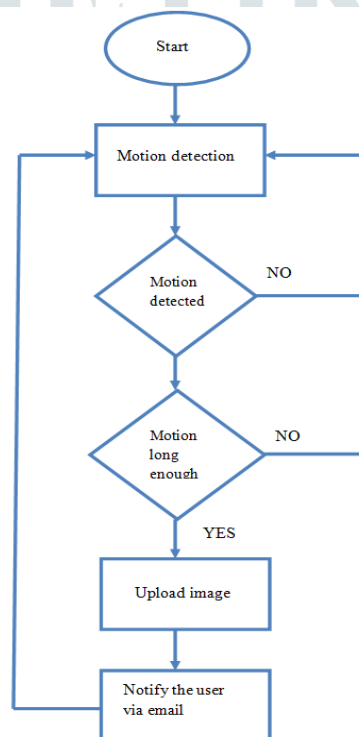


Figure 5 : system flowchart

**VI. HARDWARE SETUP ( PHOTO )\EXPERIMENTAL SETUP**

Figure 6 : Hardware Setup

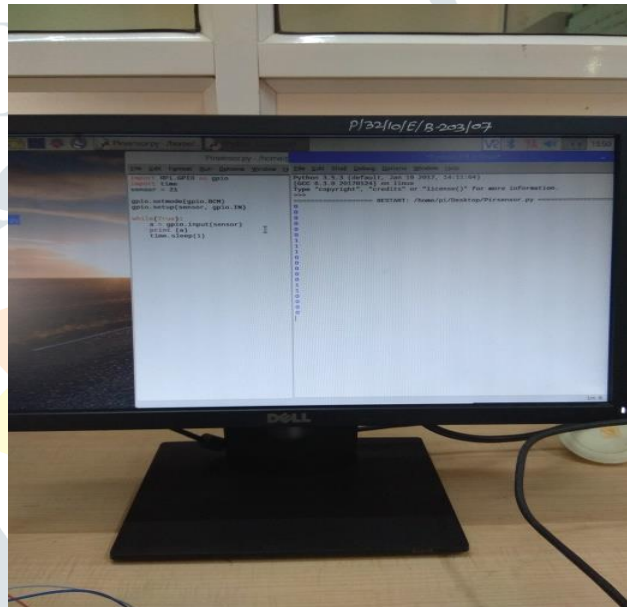
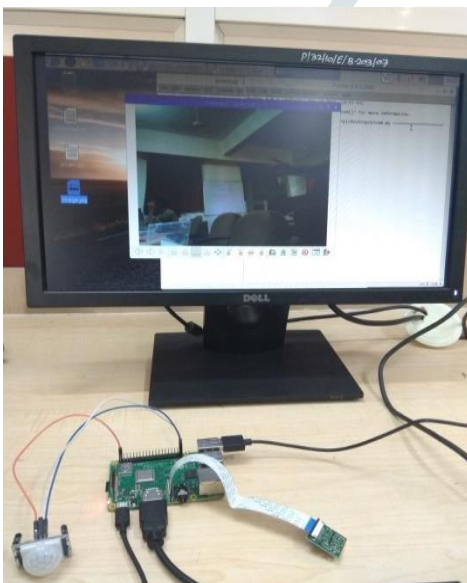
**VII. EXPERIMENTAL RESULTS**

Figure 7 : Displaying results

**VIII. CONCLUSION**

In this paper, a prototype smart supervision using IoT based raspberry pi is presented. This work will be carried forward by integrating motion detector sensor to raspberry pi board for motion detection from a distant location in a real scenario. The proposed model is a low-cost system which can provide the owner alert such as any motion is detected in that particular area. This is useful for improving the safety of the environment where the owner can rest without any worries.

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