iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VI **Month of publication:** June 2019

DOI: http://doi.org/10.22214/ijraset.2019.6253

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VI, June 2019- Available at www.ijraset.com

Wireless Security Camera System

Mr. Bharat P Kulkarni[1], Miss. Aishwarya S Lande[2]
[1]*Department of Electronics and Telecommunication Engg. P.V.P. Institute of Technology Budhgaon, Sangli,*
[2]*Department of Electrical Engg. Sanjay Bhokare group of Institutes, Miraj*

***Abstract:** As the technology is advancing day by day, there are various alternatives occurring for the already present or previous technologies. This article suggests the working of an wireless CCTV camera. The article gives a brief idea of various technologies or software being used for to security purpose. The main goal of our design was to develop a network that allowed for the transmitting and receiving of images from camera nodes to a base station. The main objective is self powered wireless security camera.*
***Keywords:** GPS, ADXL 335, ESP 8266*

I. INTRODUCTION

According to a recent national study, it is reported that 37,900 thefts from motor vehicles and an additional 12,600 vehicles stolen within one year. Car owners run the risk of having their automobiles stolen, tires slashed, windows broken, antennas bent, and more. In fact, according to the same survey, only thirty nine per cent of the actual thefts from cars were reported. There have been many cases in which security cameras have aided in convicting criminals. However, installing a wired camera system in a car park can be expensive. Not only due to camera system need to be purchased, but the car park must be dug up for laying wire and putting in foundations for the poles where the cameras are mounted. One alternative to installing a wired security camera system is to install a wireless security camera system. This would avoid the cost for construction with digging trenches for laying wire. The completion of this design lays the foundation for a low cost, low power security camera system which will aid in reducing car park crime. The system was designed to avoid the high installation cost of a wired security camera system while at the same time not inheriting the limitations of some wireless security camera systems on the market today. These limitations included insufficient battery life, surveillance area restrictions, and insufficient alerts.

II. SCOPE AND RELEVANCE

A wireless security camera system is a desirable technology because of its low installation cost, when compared to a wired system. By becoming more familiar with the currently available wireless security camera systems, we were able to determine where we should make improvements. There are many products on the market today with features that help to enhance the performance of wireless security systems, but there are still numerous drawbacks to these systems. Each of the systems discussed in the following sections have their own strengths and weaknesses and by evaluating these strengths and weaknesses, we were better able to determine characteristics that would distinguish our product from the current products on the market.

There are various method for the security purpose. But still wireless security camera system is with high accuracy. So, keeping in view, proposed system is usefull as security. Here main objective is safety. The aim of the project was to design a wireless Security Camera system to be used in an institutionto serve as a security measure, and assessment of the effectiveness of such a system as ameans monitoring an area to ascertain its security.

III.LITERATURE REVIEW

As per study of number of security system which are based on visible security system or surveillance security system there are different methods of video surveillance systems. As per this survey most of vehicles thefts from parking so it is required a strong surveillance system. Existing surveillance system are not enough to secure this. Video surveillance system is placed in the parking. Its better that this video surveillance system is in wireless mode. It is more effective to control theft of vehicles. Marcus Baram says if we use surveillance cameras which are remotely operated and gives video signals then we can reduce the crime. As per Marcus Baram's "Eye on the City" New York Police Department placed more than 3000 cameras in the city to keep an eye on the crime. Gazzola Robert conclude that video surveillance security system is help to control theft in large indoor shopping mall. This type of security system help to customers as well as owner of malls. If these malls uses effective surveillance system then they can provide or give best shopping experience to their customers. One of the prevalent crimes in Ireland is theft of motor vehicle. To overcome this CCTV security system was designed by Mathew Conway, Phong Damn and Team. By placing this CCTV in parking areas or vehicle parking stations we can keep eye on the vehicle as well as on the theft of vehicles. They designed a system which is in two portions as camera mode and base station. In this they performs capturing images, motion detection and remote notifications activities and these activities are viewed online at base station.

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Big Bruin is a company who worked in wireless camera system. They developed a system with number of cameras attached to base station. At a time 4,8 or many cameras interfaced wirelessly to the base station. They developed their own product in wireless camera system. As a wireless system, they use WiFi or Bluetooth as per distance of communication.

IV. OBJECTIVES OF PROPOSED WORK

The main objectives of proposed system are as follows:

A. To detect intruders around the perimeter of the main building and alert the securityguards.
B. To provide a permanent record of activity from all cameras.
C. To provide a deterrent to crime and vandalism.
D. To enable 24 hour monitoring of designated areas.
E. To enable clear identification of miscreants within the range of the cameras.
F. To provide independent viewing of any camera at the control centre.
G. To enable live, real time recording of selected cameras.

V. METHODOLOGY

The camera team was responsible for the solar panel, charge controller, battery,Raspberrypi, harddisk and the camera module having sensor. We are responsible for setting up the network and the transceiver module. When the sensor detects motion, it triggers the camera to take pictures.

1) *Solar Panel:* PV panel is used to provide power source as well as to charge battery for system
2) *Charge Controller:* Charge controller is a used in between battery and solar panel to provide efficient charging the battery and to protect battery from over / under voltage.
3) *Raspberry pi 3 & Camera:* The heart of our circuit is a raspberry pi 3 & camera. Raspberry has operates on linux raspberian operating system and it supports wifi, Ethernet, USB … etc modules. Hence our objective is to streaming of live video and monitor this video via wireless technology. Hence raspberry pi has a inbuilt wifi module we have used for transferring data through network (it is local or internet). Raspberry pi work on python language programme.
4) *PIR:* PIR sensor is used to capture the any event occur in front of camera. PIR will sense the motion activity and our programme will detect this and take action against camera triggering. MPPT is a charge controller. It is a static controller which continuously track the maximum availiable power form PV Panel i.e Photovoltaic Panel. Regulated Power Supply is required to provide supply for Raspberry Pi. Raspberry Pi3 reads its feature from internet datasheet. Raspberry Pi has InbuiltWiFi Ethernet Bluetooth. Camera with PIR sensor gives video signal according to system design along with PIR sensor output. PIR sensor is not a separate part its a part of camera or camera having a PIR sensor. At the output side we are going to work on processed data or storing the data at storage devices like harddisk.
5) *Power Supply:* The power supply is an electrical device that supplies electric power to an electrical load. In this section we design a solar power supply.

Block Diagram of Wireless Security Camera System

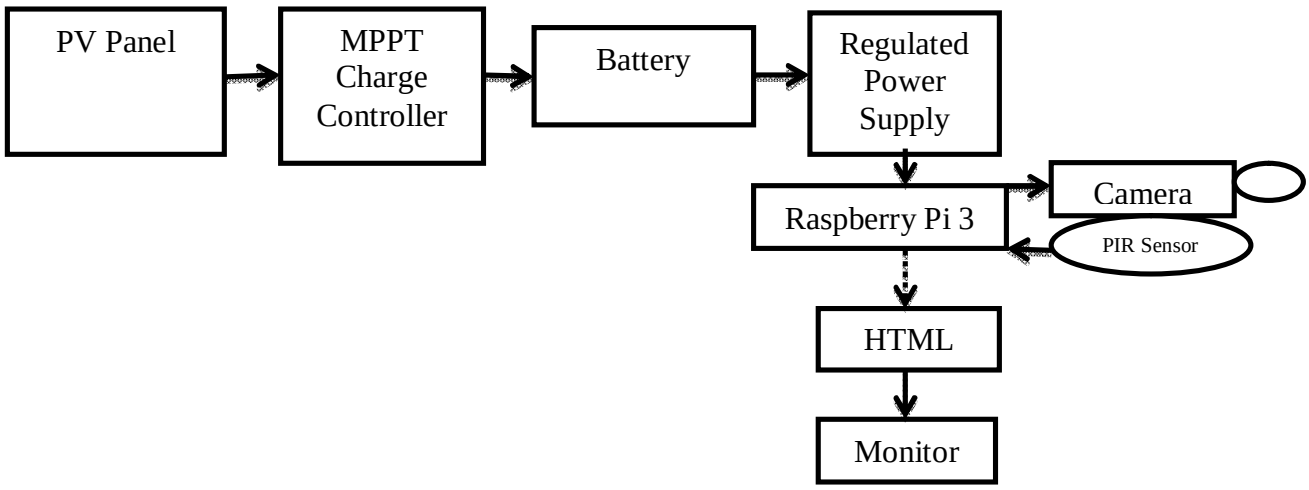
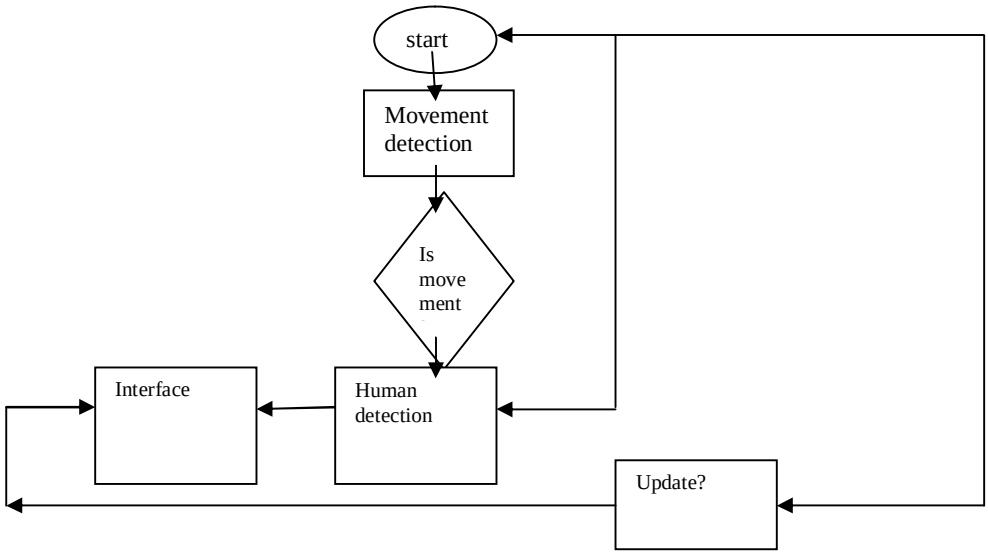


Fig.1 Block Diagram of Wireless Security Camera System

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Flow chart



A. Design Steps

1) Step 1: Designing of block diagram of the system & selection of components.
2) Step 2: charging the battery and to protect battery from over / under voltage.
3) Step 3: suppling electric power to an electrical load by power supply.
4) Step 4: Interfacing of Raspberry Pi3 and camera.
5) Step 5: Getting of wireless output through internet on HTML.
6) Step 6: System Implementation
a) Completion of the hardware part.
b) Coding.
c) Testing of an overall system.

VI. FACILITIES AVAILABLE AND REQUIREMENT

A. Facilities Available

1) Name of software: Python, linux, Internet.

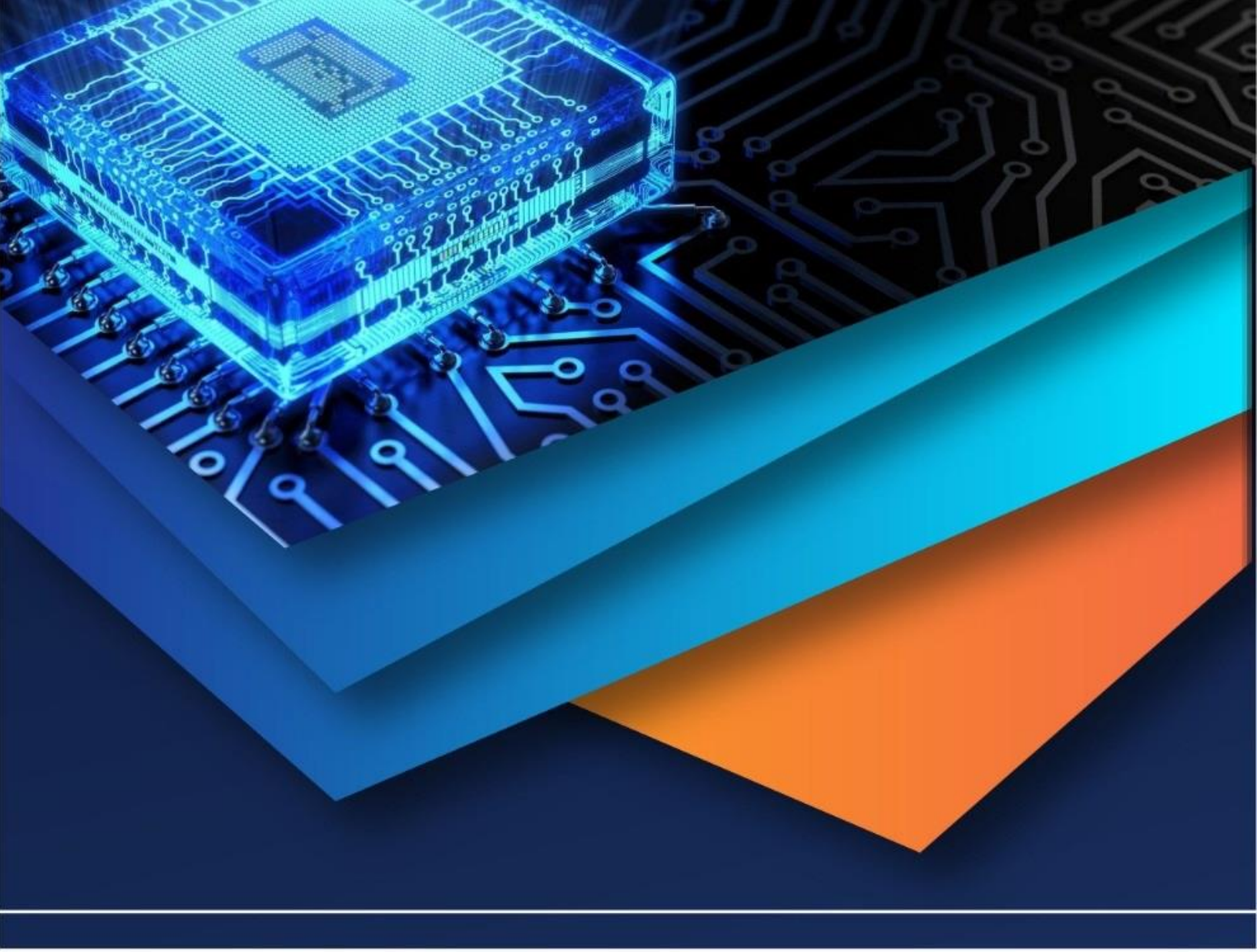
B. Facilities Required

1) Name of hardware: PV Panel, MPPT charge controller, Power Supply , Raspberry Pi3, Camera

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