Night Surveillance Military Spy Robot using Raspberry Pi

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ABSTRACT

As Warfield areas and border areas like Kashmir identification of spies is not an easy task and, in the night, it becomes even more difficult. Although many people are living at the border areas finding spies is burdensome at night . So, to overcome this problem we have chosen this project idea. The main purpose of this project is to identify the spies in the night using robot as spy robot has high speed, it can work in hazardous or dangerous environment, to perform repetitive task, efficiency, accuracy, adaptability. The task of monitoring spies, sound, mines, with the help of the respective sensors becomes easy. The proposed robot helps us to monitor live video even in night by using iot technology. It contains Raspberry pi, camera, mine detector, human sensor, sound sensor. This project focus on providing security for military system. Which helps to identify spies with raspberry pi and iot technology by controlling it with mobile app.

Keywords- Raspberry pi3,night surveillance camera,mine detector,pir sensor,android spyrobot app.

I. INTRODUCTION

The probability of the idea of the project prospered with a vision to identify the spies with the help of the robot to see the spots of one's own volition. Robots are taking on condemning task in the war field areas. It is unsafe for the persons in the border areas to do all the huge work themselves. The huge ways are dangerous for the soldier. As a result of that robot plays an important role in the place of the warrior.The paper helps us to understand the concept of the robot and its functions with an advantage of building the robot. This robot is automatically controlled by a mobile application. This project give out with the layout of the robot which has an inbuilt raspberry PI .The proposed robotic methodology can be used for live video as well as recorded video will also be there for future purposes . It contains Raspberry pi, camera, mine detector, human sensor, sound sensor. Raspberry pi serves as server as well as microcontroller for the system. An implanted night surveillance web camera is used for live video streaming and recordings also available for the future purposes in the remote places.The proposed methodology using raspberry PI and web camera is to detect the obstacle and provides the live streaming of the video by controlling it with an mobile application using wifi technology which has a wide range. The mine detector detects the land mine, the human sensor detects the human activity. The acoustic sensor senses the sound activity. This research is focused on developing a military surveillance system that helps the solider to monitor the places and to avoid spies entering into our areas by using night surveillance web camera and IOT technology for distant control.

II. LITERATURE SURVEY

1. Rf Controlled war field spy robot using night vision wireless camera
The main aim of this paper is to detect the spies at the time of the terrorist attack. The proposed spy robot is used in land and underwater. This paper deals with the controlling robot with Raspberri pi and ultrasonic sensor is used to detect the presence of the humans. This robotic model is mainly useful in the remote areas for providing security and in underwater mines to detects the presence of bombs and sends the information.

2.Arduino controlled war field spy robot using Android application and night vision wireless camera
The main aim of this paper is to make a robot which helps us to monitor video survelliance for detection of spies in the war field areas.The proposed robot has camera unit that is useful for monitoring live video by preventing damage of the human life by providing security to the humans.the people living at the border areas have huge risks of their life this robot has a sensor in order to identify the spies and to know the condition of the area before infiltering it.

3. Intelligence Spy Robot with Wireless Night Vision Camera Using Android Application
The main aim of this project is to develop the robotic model to provide security for the soliders at the military border areas by reducing the attacks from the enemy side .this robot is developed with night surveillance webcamera which is useful to impart live videos of the broder field areas by averting the defilement and huge loss of life of humans. This robotic model is useful

to prevent felonious activities. It helps to people living in the military areas to know the the condition of the area before infiltering it. This projects replaces human activities with robotic model to provide safety .the usefulness of this project is we can control robot automatically with the help of the android mobile using an app called blue screen app which is available for free in the playstore .

4. Military Spying Robot

The main aim of this paper is to make a robot which helps us to monitor video survelliance for detection of spies. The proposed robot has camera unit that is useful for monitoring live video by preventing damage of the human life by providing security to the humansNow a days providing security at the military order areas like Kashmir becomes even more difficult task. even though border areas providing their support and safety to the people, but it is not as easy task to watch evey moment and providing security at the night becomes even more difficult. An indispensible obligation of this circumstances a robot which implusively spots intruder in the military border areas. Robot plays an important role in serving humans, even some robots put back humans by doing their work and by providing security to the persons.robot .This robots can be used for short range distances at the border areas.This robot has inbuilt micontroller aand webcamera to detect the obstacle path.

5.WAR Field Spying Robot

This robot mainly focuses on safety of soilders in the warfield. By using this robot we can maintain the distance. from an enemy. while attacking increase our elasticity occur by knowing their activities. Here we are using laser for to lock the position of the enemy and missal, and it also have a additional feature like mine detector it will helps us to know where the land mines which makes to lose many lives. By using this robot we can easily controlled wirelessly by using android mobile which is connected to Bluetooth. We have done this project mainly to safeguard the army from landmines and missals without letting the soilders life in risk.

III. PURPOSE

1.The main purpose of the project is we can easily spy the remote areas as it can be used for military purposes n women safety purposes
2.It is used to identify the spies in the night by using night surveillance camera in the robotic model with high-speed by using IoT as medium

IV. SPECIFIC OBJECTIVE

We are using Raspberry pi board for the robot. By using a mobile app impulsively we can control the robot and we are using an inbuilt Wireless night vision camera which is inbuilt in robot which is connected to WIFI module act as a receiver section. The module receiver is connected to monitor or laptop and this are used for the video surveillance and for the monitoring by a person, motion or human action etc. here we have an additional future such as recording for the future purposes also. This robot we can find the enemies easily and we can spy the remote areas and we can safe guard the many security areas.

V. PROJECT JUSTIFICATION

In our day to day life robots brought a drastic change by decreasing our works and providing safety to the people present especially at the industry, academic research places military areas and some of the remote places. Now a days providing security at the military order areas like Kashmir becomes even more difficult task. even though border areas providing their support and safety to the people, but it is not as easy task to watch evey moment and providing security at the night becomes even more difficult. An indispensible obligation of this circumstances a robot which impulsively spots intruder in the military border areas. Robot plays an important role in serving humans, even some robots put back humans by doing their work and by providing security to the persons. Here in this project we made a robot which helps for the video surveillance and for providing security for the people.

VI. PROJECT SCOPE

To design a night surveillance military spying robot using raspberry pi to detect motion of a human, sounds, mines in military areas and other secure areas.

## VI. HARDWARE COMPONENTS

A.RASPBERRY PI

The Raspberry Pi is a cheap and easily available, it is an credit-card sized computer which can easily inserted into Television, we can use a keyboard and mouse
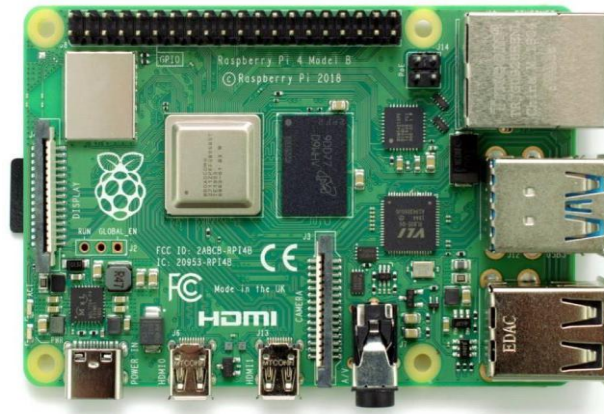
**Figure 1: RASPBERRY PI**

B.MINE DETECTOR

A metal detector is associate degree musical instrument that detects the presence of metal nearby areas. Metal detectors helps us to find the metal inclusions which are hidden among objects, or metal objects which are buried underground by an enemies etc., if the tone is upper within the electro-acoustic transducer at access points in airports, prisons to metal hid weapons on individual body.
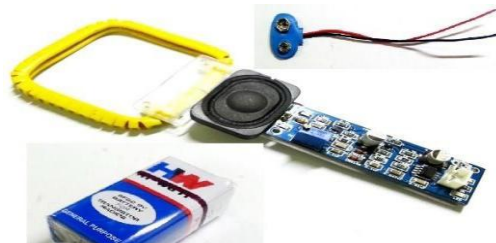
Figure 2:MINE DETECTOR

C. ACOUSTIC SENSOR

Acoustic sensors are named because of their detection mechanism is a mechanical or acoustic wave. As the acoustic wave propagates through the surface of the material any changes to the characteristics of the propagation path affect the velocity and amplitude of the wave. Changes in velocity can be monitored by measuring the frequency or phase characteristics of the sensor and can be correlated to the corresponding physical quantity being measured.
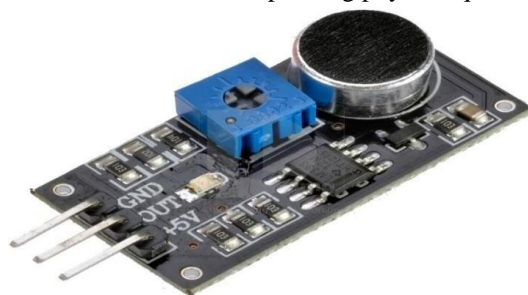
Figure 3:ACOUSTIC SENSOR

D. HUMAN MOTION DETECTOR

The motion detector or sensor is the device which is used for detect the movement in certain range in front or around the detector , it is used to detect the motion of humans and used for both safety and security purposes but motion sensors may not cover a full room.

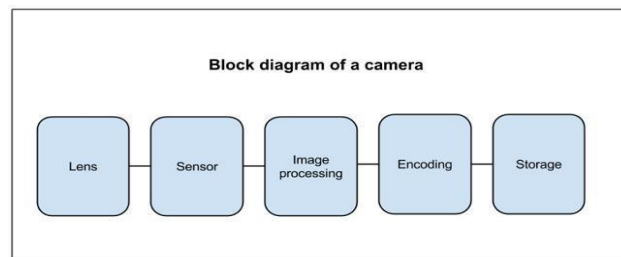**Figure 4:HUMAN MOTION DETECTOR**

E. CAMERA

Crystal Pure is a web camera with 3P lens with a resolution of 640x480.

Figure 5: CAMERA

Features:
- The web camera also comes with a built-in microphone.
- Auto white balance.
- Night vision feature.
- A clip-on design

Figure 6: BLOCK DIAGRAM OF CAMERA

F. MODEM
- The electronic devices that can possible with the transmit of data are from a computer via telephone are other communication lines.
- A device for the transmitting and receiving digital data over telephone wires.
- Modems send data by convert it into an audio signals and receive it by converting audio signals back into an digital form.
- The speed at which modems transmit data and measured in bps (bits per second).
- It can be used for the advanced applications like a call detail logger, voice mail system, a dialler or your personal IVR system.

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Figure 7:MODEM

VII. METHODOLOGY

DESIGN

Robot is made with the Raspberry pi,and sensors are in builted in robot. Robot movements are being controlled by an mobile app i.e.,android App.Robot can be controlled in all directions i.e., frontside , backside , leftside , rightside.If any human motions,mines ,sounds are detected. The information sent to the wifi module of raspberry pi. The stored information is sent to mointor with the help of modem. Here ,human motions, sounds , minesaremonitored.
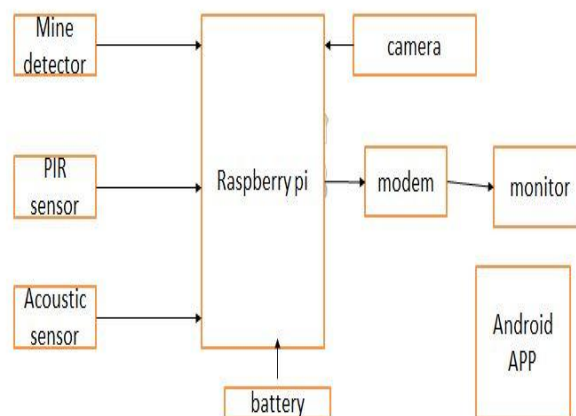
Figure 8:BLOCK DIAGRAM

Raspberry Pi 3 which is of 1GB RAM and 16GB storage and also has an internal wifi it can be operated with only the linux Operating system.we have three sensors included in our project they are mine detector,PIR sensor, Acoustic sensor.Here mine detector we are using as Induction sensor .If any unnecessary metals are present under the soil it makes the sound,then we have Pir sensor it detects the human motion by the infrared rays and also we used acoustic sensor by using Mic with comparator circuit.when the sound is higher than the fixed range the analog output is compared with comparator circuit the digital output is sent from the comparator circuit.Then we used motor and driving motor inorder to supply the power.we also used night surveillance camera to monitor both in day and nights.

The entire Rasberry pi 3 model is controlled by the app which is created by us.In the app we have an options as left,right,farward,reverse and stop.These are used to control the Rasberry pi 3 model with linux operating system and python software as a medium.These options are coded in the software as left is 1 right is 2 farward is 3 reverse is 4 and stop is 5.By using this commands Rasberry pi 3 model which is having inbuilt wifi module to the needed directions.Then all the sensors are also coded in the software as pir sensor is 7, acoustic is 8 and the mine detector is 9.If any one is detected it sends information to the app.Then all the information has been continuously monitored through the mobile phone or laptop using modem as a medium.
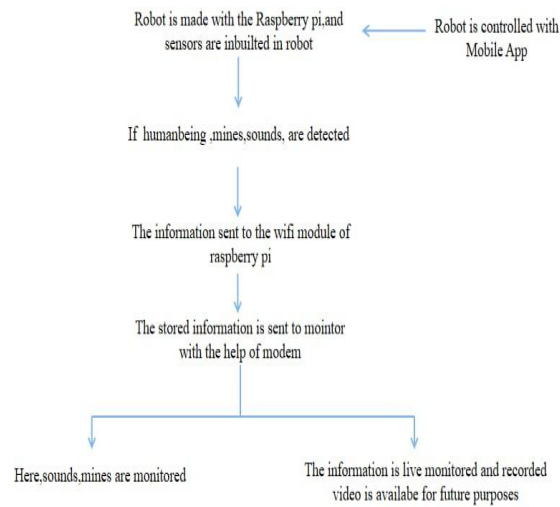
Figure 9:FLOW CHART

VIII. RESULT

Raspberry Pi is a credit card-sized computer. Modern laptop is faster than the Raspberry pi and desktops and Linux computer and it will provide an anticipate capacity i.e.at that level consumes less energy. The Robot system which is formulated with Raspberry pi. Robot gestures can be spontaneously commanded through the obstacle detecting sensor to avoiding the collision. The regarding information to detect of things by PIR sensors. These PIR sensors are sent the regarding information from the web server and Inside the webpage movements of the objects are captured by using pi camera and posted. we will control the robot on the webpage through buttons. The war field robot consist of a controller board as a Raspberry Pi board. It consists of Wi-Fi module along with motor driver. For the motion of the robot two DC motors are used. In this we have attached the night vision wireless camera for monitoring the situation in the robot and we have fixed the rotatable camera that it can rotate Three Sixty degrees via android application through mobile Software.
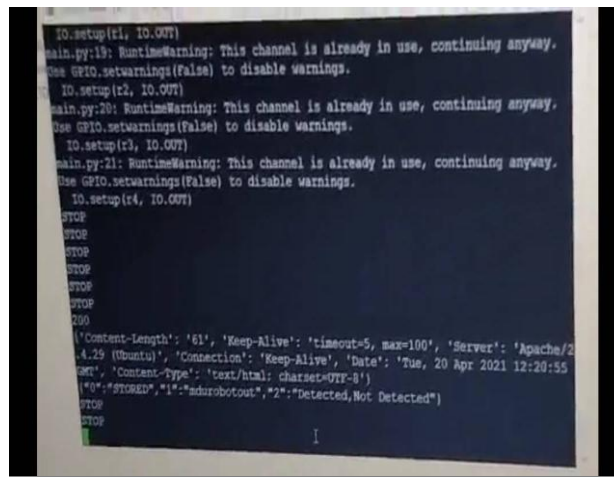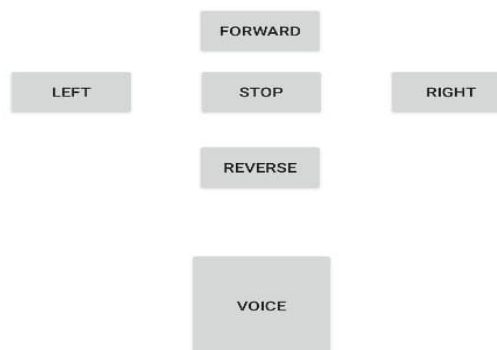
IX. CONCLUSION

The purposed robotic model is built with raspberry pi 3 module and with three different type of sensors. This robotic model can be controlled with blynk app. This project is made with raspberry pi which has inbuilt Wi-Fi module. Robot can be controlled with mobile app. The movement of robot is in all the four directions. The process of identifying spies becomes easy with this project especially in the military purposes. In this project we also added additional features like Mine detector which is used to detect metal weapons which are hidden on a person's body and also, we have included Acoustic sensor to detect the sound. The live video can be monitored with one or two computers with the help of the modem and we also have an additional feature of recording videos for future purposes.

X. FUTURE SCOPE

Future enhancement of this project can be made as including bomb disposal kit which is used to dispose bombs. We can also include face recognition technology in future. In this project we have included only 3 sensors .in future we can incorporate different type of sensors that are required. Additionally, we can enhance this project by capturing an image directly while live monitoring and can be send to mobile number. Inorder to know the exact location of the metal n humans we can include GPS module. Using latitude and longitude, we can know the exact location.

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