AI BASED SHOOT AT SIGHT MISSILE

[1]Shivam Dhar, [2]B.Venkatesulu, [3]CH.Manoj Kumar, [4]Vijay Chowdary [5]Subramanya S.G,

[2,3,4]Student, [5]Assistant Professor, [1]Project Leader,

[1,2,3,4,5] Department of Computer Science & Engineering

[1,2,3,4,5]Nagarjuna College of Engineering   and Technology, Bengaluru – 562110,

Karnataka, India.

Abstract: Until now the border security was totally depending on soldier. In highly secured area the soldier detected the enemy and targets him. But if the soldier was not able to detect the enemy , the enemy could easily enter the secure area. So for increasing the security level microcontroller based automatic missile targeting system is introduced. The basic purpose of this automatic missile targeting system is to secure the border using automation and this will reduce the human effort . Current system is capable to detect any PIR radiation in the range of border and automatically target its position. The introduced system is based on PIR sensor. The PIR sensor senses the temperature differences and then these signals are coded by microcontroller and transmitted toward the receiver on watch tower . As it is an Artificial Intelligence based system, it can be controlled from anywhere, and beside this it allows us to take quick and immediate actions, without actually reaching and controlling the bot.

Index Terms – AI Based Shoot At Sight Missile (Artificial Intelligence, Ultrasonic Sensor, Missile, Wi-Fi Module, Android Application, Dc Motors.).

I. INTRODUCTION

 The prior concept of Automatic Missiletargeting System is to detect and target the living object or any movement in highly secured area such as Border by using automation.The automatic Missiletargeting is primary basedon PIR sensors, microcontroller and RF transmitting and receiving unit with targeting gun. Until then, border is done by Iron Spike wires, and a watch tower from which a person continuously flashing the light over the border area day and night. Those persons are fully responsible for border security. Automatic Missiletargeting System will not fully remove the responsibility from their soldiers, but shares the maximum responsibility and will reduce human mistake on the border.
  The sensors will sense any living object within the provide range. The signal of sensor is provide to microcontroller, in response, microcontroller generates the code and it will transmit that code using RF transmitter to the watch tower where the RF receiver receives the code. The microcontroller at receiver side control targeting gun, buzzer and motor drivers circuit as per received code and targeting gun at receiver will target the living object.
  The buzzer will indicate that target is sensed by sensor. So the person on watch tower can easily interpret the location of the object. The automatic Missiletargeting system will enhance the border security using automation which may reduce the human efforts to large extents.

II. EXISTING SYSTEM

- At present the surveillance of International border areas is a difficult task. The border guarding forces are patrolling the border seriously, but it is not possible to watch the border at each and every moment.

- This project describes the TALOS project, which is a new way to use autonomous robotic vehicles to strengthen the security of land borders of the European Union.

- The increasing number of robots in home environments leads to an emerging coexistence between humans and robots. Robots undertake common tasks and support the residents in their everyday life. People appreciate the presence of robots in their environment as long as they keep the control over them.

Basically Army Robot is capable of performing tasks such as locomotion, sensing the harmful gas, sensing the humans beneath the surface, metal detection. Army robot is an autonomous robot comprising of wireless camera which can be used as a spy and Bluetooth used to control it wireless. The existing systems suffered many problems like high cost to set up communication between robot and rescue control unit, noisy wireless communication link between robot and control unit which ultimately stopped robot to function etc.In these systems, distance is a limiting factor because the Bluetooth has a specified range that cannot be increased.

Disadvantages :-

- High Cost to setup Connection between the Robot and rescue control unit.

- Noisy wireless communication between Robot and control unit.

- Limit Distance.

III. PROPOSED SYSTEM

Nowadays, with the growth of technology, several robots with very special integrated systems are particularly employed for such risky jobs to do the work diligently and precisely.This is intended to give related information about such military robots and their working abilities and efficiencies. The main aim of the project is to design robot which can detect and target the living object or any movement in highly secured area such as border by using automation.The robot also captures live footage of the surrounding area so that we can monitorize and analyze the war field's territory. If any obstacle is detected, that will be notified and robot will stop moving. So, in all the proposed system provides a helping hand to our security forces in detection of intruders.

The aim is to make a smart surveillance system which can be monitored by owner remotely through android application. As it is connected with the system with IOT, system will send the push notification to android device when an intrusion is detected inside the room. It is required to develop and implement and affordable low cost web-camera based surveillance system for remote security monitoring. Authorized user can access to their monitoring system remotely via internet with the use a mobile phone and monitor the situation on application. This entire work is done on raspberry pi with Raspbian operating system ported on it. Surveillance System consists of mainly two parts:

Hard-wired surveillance systems: These systems use wires to connect the cameras, motion detectors, power supply and LAN cable with the pi.

Remote Access Systems: These systems have the capability to monitor and control a security system from a location away from the surveillance area through android device.

This system will make an online record of all the locations of potholes which were came in the way of the vehicle having this system. This record of potholes will help the road maintenance department to locate these bad roads. This can help to make maintenance work faster. In this System the driver of the vehicle will be able to avoid the pothole as he/she can get alert 10 sec before, when the vehicle speed will be medium i.e. 30 kmph. If speed of vehicle will be less, then alert time will be earlier and vice versa. The architecture of proposed system consists of 3 i.e. parts: sensing unit, server unit and user unit.
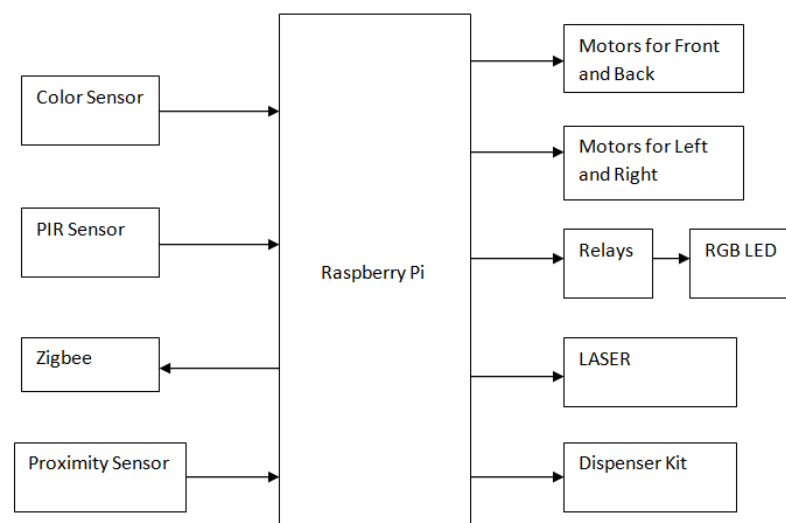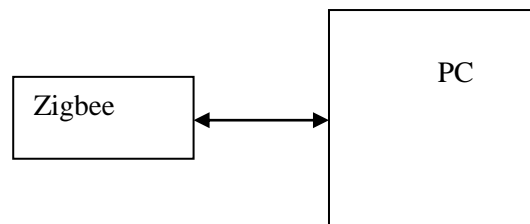
Block Diagram:

Robot 1

Fig :- Block Diagram of Missile Targeting System

Base Station:

Advantages :-

- Acts as security System and Life Saviour.

- Keep the Eye On war field areas and captures the surroundings.

- Can be used in High Altitude Areas where Human Cannot survive.

IV WORKING:

Rover Movement:-

Raspberry pi is used for two mode of action .The Remote Control mode, where the rover is controlled manually from remote International Journal of Pure and Applied Mathematics Special Issue 69 device through the web server connecting it with an internet connection. This is done when the signal is passed from the Raspberry Pi and being the master controls the movement of the rover. The movement of the robot is controlled with keys for all four directions besides with start and stop function in the web server. During autonomous mode the rover is programmed through the Raspberry Pi while the ultrasonic sensor detects in case of any obstacle and changes its direction accordingly.

An H bridge is an electronic circuit that can drive the motor in both directions. H-bridges are used in many different applications, one of the most common being to control motors in robots. It is called an H-bridge because it uses four transistors connected in such a way that the schematic diagram looks like an "H."

You can use discrete transistors to make this circuit, but for this tutorial, we will be using the L298 H-Bridge IC. The L298 can control the speed and direction of DC motors and stepper motors and can control two motors simultaneously. Its current rating is 2A for each motor. At these currents, however, you will need to use heat sinks.

Capturing Image :-

A webcam is a video camera which feeds its images in real time to a computer or computer network, often via USB, Ethernet or Wi-Fi. Their most popular use is the establishment of video links, permitting computers to act as videophones or video conference stations. This common use as a video camera for the World Wide Web gave the webcam its name. Other popular uses include security surveillance and computer vision. The Webcams are known for their low manufacturing cost and flexibility, making them the lowest cost form of video telephony. They have also become a source of security and privacy issues, as some built-in webcams can be remotely activated via spyware.

The working of the system consists of several steps which includes the processing of video signal from camera. The video is first converted into the raw digital format and then its luminance part is extracted by applying image processing algorithms. Then each frame is compared with the previous frame in order to detect the motion in the current frame. It is done by using background subtraction method.

In this work, we applied scaling and smoothing techniques to remove noise and to improve the sharpness of the image. Then we calculated the difference image by subtracting the background information. Then the resultant raw binary image is further processed by using morphological operations which results in the detection of multiple objects. Once the target is selected, the microcontroller controls the movement of the gun by using the stepper motor. After the object is tracked, the decision to shoot the target is achieved manually or automatically by using microcontroller based.

Historically, metal detectors have been essential tools for demining. However they have been unable to keep pace with developments that made landmines more difficult to find. Here, techniques for the detection of buried objects using a metal detector are presented, evaluated and compared. The findings highlight a number of deficiencies, as well as a number of strengths, in the proposed detectors. Of particular interest are the parameters found using Prony's method, as well as the difference operator, reverse arrangements test and the median filter. Suggestions are made for the improvement of a number of detectors.

V. CONCLUSION

The proposed system is a substitution to human life. As Human life is always more prioritize this proposed robot helps to act as a security system and also a life savior. It enacts and plays an important role of keeping eye on the war field areas and captures the surroundings. So, in all the proposed system provides a helping hand to our security forces in detection of intruders. The robot can also be used in high altitude areas where human cannot survive.

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