Technofist

DESIGN AND DEVELOPMENT OF PC CONTROLLED SMALL UNIT UNMANNED VEHICLE FOR TODAY'S ARMY

INTRODUCTION

Unmanned robot vehicles are increasingly being used in a variety of military missions. One such mission is that of Intelligence, Reconnaissance, and Surveillance.

In these missions, unmanned robot vehicles collect sensor data and communicate it to ground, air, and space assets to support decision-making. The model comprises of a PC which is interfaced to the transmitter through the RS232 cable. Transmitter is the desktop by which commands are sent wirelessly through serial port where RF transmitter is connected.

Receiver consists of microcontroller, IR sensor to sense any obstacle within its range of 10 cms. If any object comes in its range it raises an alarm using piezo electric buzzer, it also observes for any noise within its locality, if any sound like, firing towards the Tanker gets noticed, a servo turned towards it which has got a rifle on it will start firing back towards the enemy region. Another servo motor has been fitted with wireless camera on it to observe the surroundings where the Tanker is moving.

When IR sensors sense any obstacle within its range, it sends a bit one logic level high signal to microcontroller I/O pin where it is connected and this microcontroller checks for high signal and sends an alert beep sound by sending a high signal on buzzer, in the same way clap switch which senses any sounds around it will make its bit high and passes it to the microcontroller, the particular duration PWM signal will be sent to the servo motor which makes its shaft to rotate the firing point of the rifle towards the enemy and starts firing. Another servo motor will be controlled by the user so that he can adjust the direction of the camera and sense any foreign object.

OBJECTIVE OF THE PROJECT

To design and analyse a monitored unmanned vehicle. Implementation of pc based control unit for unmanned vehicle with automatic firing. Ground vehicle movements are controlled through PC. Efficient design of driver circuit. Sensing of obstacles. Capturing the images of the surroundings.

PROBLEM FORMULATION

Keeping in view, the area of responsibility given to Army and availability of man power, sometimes it is not at all possible to guard some vulnerable point round the clock, at that time it becomes imperative to develop and electronic system through which the weapon can be operated remotely or automatically. To overcome this problem we have designed a unique system that is an auto firing device, which senses any obstacle/object in its way and fires towards it. The device picks up any high intensity sound around its area and fires back in the same direction. This device can also be used as a spy ground vehicle as it comprises of a web camera which continuously gives the images of the surrounding areas onto the PC with which it is interfaced.

CONCLUSION

The main application in mind during the design of the project is to use it for Defense Organizations, The Army, The Navy, BSF and Air force. Loss of lives of tanker operators can be prevented which are used in war fields. It acts like a geographical explorer to survey the places where human presence is inhospitable, one can use it to excavate resources. It can also be used for remote sensing with some additional features to sense resources.

The system can be operated remotely within distance of 20 meters. It can move 22.5 degrees left and 22.5 degrees right (total 45 degrees) from centre position. It is fully

electromechanical system. It can be used to deceive the enemy during war time. The system is very useful for fixed line firing. It is unmanned and easy to operate. It will fire automatically, when there is an attack. It can be used as home security system without rifle. We can monitor the activities in PC through wireless spy camera which is mounted on vehicle. It can also be used as a spy ground vehicle.