Security System for Detection of Intrusion & Mines with Wireless Secured Communication & Movement Tracking in Terrains

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Abstract*—Robots are uniquely plan for human to make our life simpler. The majority of the military association now takes the assistance of robots to do numerous hazardous employments that is impossible by the trooper. These robots used in military are usually employed with the integrated system, including video screens, sensors, gripper and cameras. The robotic arm fitted on the robot is employed for pick and place operations while the laser gun attached to the robot is utilized to hit the target object.*

Keywords—Motor Controller IC, Wi-Fi, Wireless Camera, Intelligent Unmanned Robot (IUR), PIR, GSM, GPS

I. INTRODUCTION

The robot is essentially electro-mechanical machine or gadget that is controlled either by PC program or with electronic circuit to perform assortment of physical undertakings. Surveillance is the observing of conduct exercises or other changing data for the most part of individuals to influence, overseeing, coordinating or ensuring them. This can incorporate perception from a separation by methods for gadgets gear.

Nowadays the reconnaissance in military territories is required yet the nature of that observation isn't up to the level of desire. This is bringing about the expanding proportion of lives of the fighter in peril. In order to enhance the nature of reconnaissance there ought to be framework which can portable anyplace with compelling observation. The reconnaissance can be made viable with the assistance of amazing video transmission. The previous couple of years has seen a considerable measure of specialized progressions in observation, by the presentation of kinds of Closed Circuit Cameras. These have assisted in solving crime scenes and yet, the crime rate has not reduced because of the immobility of thesurveillance equipment. So the need for the development of mobilesurveillance equipments is at stake.

The proposed system consist of two units mainly a robotic unit and a remotely control unit. In this we are design a multifunctional robot which performs multiple operations like motion in different direction.

Gun mechanism used in robotics system is depending upon the combination of performance and workload of gunner and robotics operator. This gun mechanism is used to protect soldiers and itself robot.

II. LITERATUREREVIEW

This work by Jong C. Wang, Yan Ting Lin consolidates an independent biped robot and a camera to create an elective range-discovering technique trying to supplant the infrared and ultrasonic range-discovering strategies, which are powerless to the impacts of materials and edges. After the organize, area, and zone of a question be followed are gotten, the robot can decide it relative association with the protest and do the following errand [1][7].

Utilizing this proposed innovation by Dr.Shantanu. K.Dixit, Mr.S.B. Dhayagonde, it gives some assistance to our security powers in discovery of gatecrashers. This mechanical framework can likewise be utilized as a part of high elevation zones where it is troublesome for people to make due as some of our fringe territories fall into high height Areas [2]. A remote approach for following and controlling the versatile robot utilizing video catching element isintroduced in work by P.Velrajkumar and S.SolaiManohar. Using RF correspondence the robot developments are controlled and furthermore followed of position utilizing the video catching element [3].

Shih-Yao Juang and Jih-GauJuang connected the Binary strategy to sift through the impedance clamor. Separation between the protest and the WMR is acquired by the separation calculation system. Continuous watch and observation are performed successfully [4].

III. PROPOSED WORK

A. *Correlation with Existing Robotic Vehicles*

- Currently existing robots have restricted scope of scope as they depend on RF Technology, Zigbee and Wi-Fi [7].
- Earlier observation robots sense just a single or two physical amounts.
- Existing robots utilize costly camcorder for live video spilling for manual control

B. *NeedforDevelopment*

- Use of 3G Technology will provide wide range of operation and manual control.
- Cost effective by using cell phone as video camera
- Energy efficient by using renewable resource for power supply.
- Used to explore hazardous areas and used for espionage purposes.

IV. PROPOSED CIRCUIT DESIGN OF ROBOTIC VEHICLE

This multifunctional robot has disseminated into modules which have their own functionality. Due to advancement in technology, these surveillance robots are advent to use in remote and defense area[5].

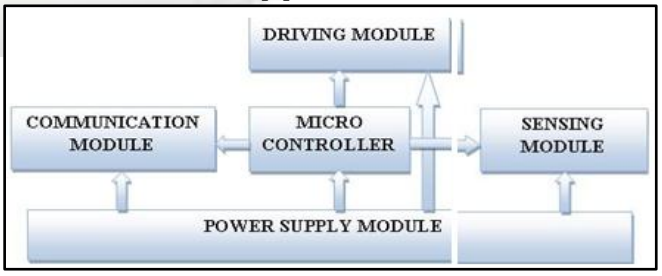

Fig. 1: Block Diagram of RoboticVehicle

A. Sensor Module

The sensor module contains different sensors used to distinguish intruder, harmful gases and bomb at secure and remote regions.

- PIR Sensor is utilized to distinguish development of human in ZOR (zone of region) by detecting heat radiation produced by human.
- Metal Detector based on principal of electromagnetic enlistment to distinguish metallic protests in its environment.
- Gas Sensor identifies different hurtful gases like LPG, propane and iso-butane when the gases surpass their voltage level.

B. Obstacle Detection Module

The self-sufficient robot can discover the way by utilizing Obstacle Detection Module[6]. The ultrasonic Sensor incorporated with infrared sensor used to distinguish obstacles, as the capacity of ultrasonic sensor to recognize close by objects is rare as contrast with infrared sensor. Ultrasonic sensor identifies questions by detecting the Echo flag which are gotten back in the wake of hitting with protest and furthermore decide separation of hindrance by assessing the time amongst transmission and gathering of protest.

C. Communication Module

This module empowers information and video transmission through android application.GSM module is utilized to send ready messages to client when sense any risky condition or any sensor ends up dynamic.

D. Driving Module

The speed of the automated vehicle relies on Size and RPM (Rotations every Minute) of DC engine. Keeping in mind the end goal to drive the engines a driving module L293D is utilized to give supply to motors. A single L293D contains to Two H Bridge to turn the engine in both clockwise and against clockwise course.

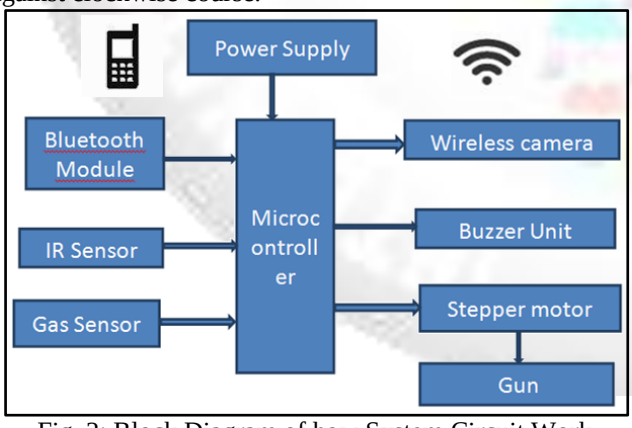

Fig. 2: Block Diagram of how System Circuit Work

E. Robot Body Structure

The robot is made in as vehicle show with four haggles focal wheel which encourages it move in a roundabout course. This gadget is fit for moving in four ways, in particular forward, in reverse and sideways. Alongside this development, the robot can likewise complete a 180 degree turn. The external body structure is developed with fiber and metal.

F. Buzzer Unit

Buzzer unit is utilized for the sign reason, that is, it gives a sound ready when there is any varieties of gases, temperature and if there is any deterrents are there before the robot. Through the ready we can without much of a stretch comprehend the circumstance of the field.

G. Bluetooth Module

Bluetooth is utilized for sending recordings, and pictures. In spite of the fact that Wi-Fi is a decent transmission media they are not utilized as a part of this robot in light of the fact that the beams are exceptionally unstable in nature. So we are utilizing Bluetooth module.

H. Remote Camera

The live gushing of the earth can be conceivable by utilizing a remote camera additionally the pictures can be spot out. By the name announces the camera was associated with the screen remotely.

V. RESULTANTS

The framework model has imposingly exhibited its utilization and ability in serious arrangement of tests. The drive unit, the route framework and in this way the correlative sensor frameworks performed eminently all through the tests. The robot encourages autonomous human, mine, gas detection localization in sites that are otherwise troublesome to access.

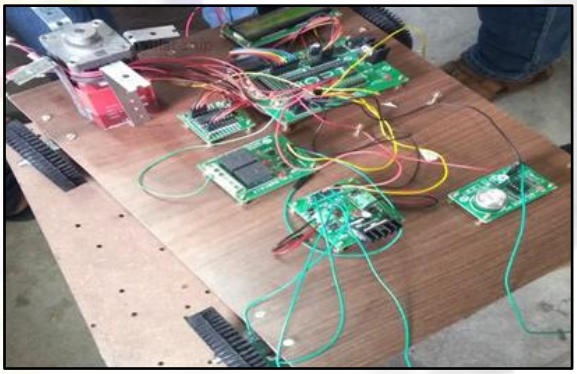

Fig. 3: Snapshot of the Module

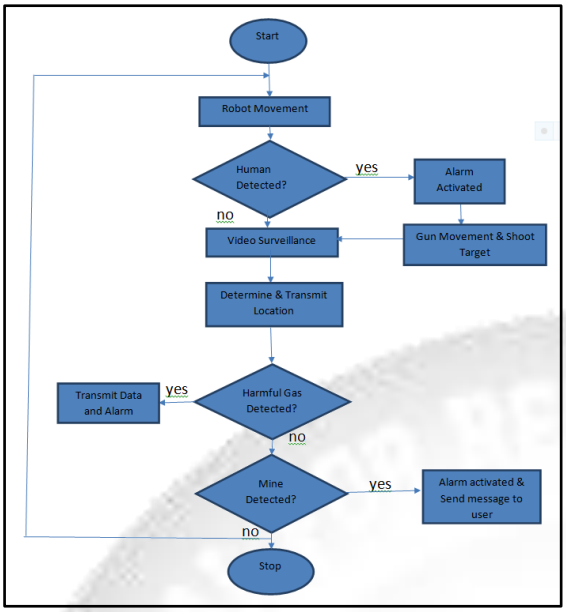

Fig. 4: Steps Involved in the System

VI. CONCLUSIONS

The framework can be utilized at any conditions and territories where it is troublesome for the security powers to achieve it and can screen the regions. We control the robot utilizing the Wi-Fi as a medium. When we think about military robots today, there has been an immense advancement as present military robots comes as the idea of battle changes in each locale while the universally incorporated undertaking replaces nationalistic strength. One might say that military robot mechanization of the barrier procedure is the following influx of military development. This proposed framework gives a presentation to outline a straightforward robot that can be utilized to do multifunction in protection.

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