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PC Controlled Human Detection Robot

B.Anupama[1], Madasu Sanjay[2], Mallugari Avinash[3], Mohammed Arbaaz[4], Jangam Sravana Sandhya[5] Yerra Venkat Sai Vamsi Vivek[6]
[1,2,3,4,5,6] *Department of ECE,BVRIT, Hyderabad, India.*

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Abstract: *The emergence of new high-speed technology has been proven both a boon and bane for humankind. However, technology itself, if used efficiently, can be used to counteract the bane. Robotics is one such field which has undergone numerous developments to make human life easier. Natural calamity is one of the commonly known negative impacts of technology. High performance robots can be used to negate the adverse effects of disasters on human lives. In this paper, we propose to use a PC controller wireless robot for detecting human presence. The robot is embedded with PIR and ultrasonic sensors to detect the human presence and its exact location. Since, it is a wireless robot, it is mobile and can go through the devastated areas, which can be risky for humans to enter. This robotic vehicle can also be used to detect intruders/terrorists.*

Key words: *Robotics, Microcontroller, PIR sensor, XBee, Arduino*

I.INTRODUCTION

With the dramatic changes in the environment, almost entire planet is prone to natural calamities. These are unpredictable and unstoppable; devastating human lives to such an extent that it takes sometimes a lifetime to overcome from its tribulations. It is very common in these calamities that humans get captured under the wreckage and nobody is aware of their presence. Till the time, the rescue team gets notified of missing victims, they are either dead or in a very critical state. A timely rescue is the most crucial part of rescue operation and if delayed, can cost many human lives. We propose to use a PC controlled robotic vehicle that moves in these affected areas and helps in identifying the alive people and thereby, contributing in the rescue operations.

The project aims in designing a PC controlled wireless robot for detecting of human presence .While seeing the video user can control the robot in all directions like left, right, forward and backward from PC/LAPTOP.

This robot consists of PIR sensor to detect the human presents. Ultrasonic sensor is uses for obstacle detection and temperature sensor is uses to detect the temperature. This system active the buzzer in abnormal conditions like high temperature, obstacle detection and human detection.

In this robot consist of IOT technology to upload the sensor data into the thing speak cloud and send the live streaming into the web browser.

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1.1 OBJECTIVE

- Design a PC controlled wireless robot for human detection.
- Using esp32 camera for live streaming and to achieve this task.
- PIR based person detection.
- Audible alerts using BUZZER.
- Using DC motors to moves the robot.
- Using IOT technology.
- User can control the robot from anywhere in the world using web browser.

II. LITERATURE SURVEY.

Formerly, dogs were used because of their high sensitive nature. One major drawback was dogs couldn't work independently; they need human assistance. It means, the need is totally or partially independent to human factor. P.Velrajkumar and A.Darwin Jose Raju proposed a remote device controlling robot using RF technology; it gives a command from laptop to controller. It also has a camera unit which is used for tracking and image can be seen on laptop.Rupnar Pallavi Sharad and Prof.Throat P.R proposed a remote controlled robot using Zigbee transceiver and a wireless camera. It has a PIR sensor unit which is used for human detection. An alarm is used which will alert us when a human is detected[2]. Geetha Bharathi.V.S , Dr. S.Sudha proposed a manually controlled robot for detecting alive humans using sensor units. It also has a GPS receiver for tracking the location of humans and the output of it is sent to the computer[3]. Yogesh V.Bangalkar, S.M.Kharad proposed a

rescue robot which is controlled with the help of a wireless camera. GPS is used to track the location of the place where human is detected by the PIR sensor. This system uses a RF receiver and transmitter[4]. Shwetha.R, Dr.Chethan H.K, proposed an automatic controlled robot for human detection with the help of sensors. Alive human is detected using sensor. The information about the human detected is sent using GSM modem [5]. S.P.Vijayaragavan, Hardeep Pal Sharma, proposed an autonomous human detecting robot which uses PIC microcontroller. Human detection is made using PIR sensor. Visual basics is used to create an on screen application. The system uses Zigbee transmitter and receiver or RF transceivers[6] . Mohammad Shoeb Shah, P. B. Borole proposed a manually controlled robot which uses various sensors such as air quality sensor, temperature and humidity sensor, etc. The messages are transmitted and received using Internet. It also uses a robotic arm[7]

III.SCOPE

- In feature extend by adding OpenCV and pi camera.
- It will detect the mask whether the person is wearing a mask or not and measuring contact less body temperature and give the voice alerts.
- It will define the social distance between two persons and give the voice alerts when they come in to contact.

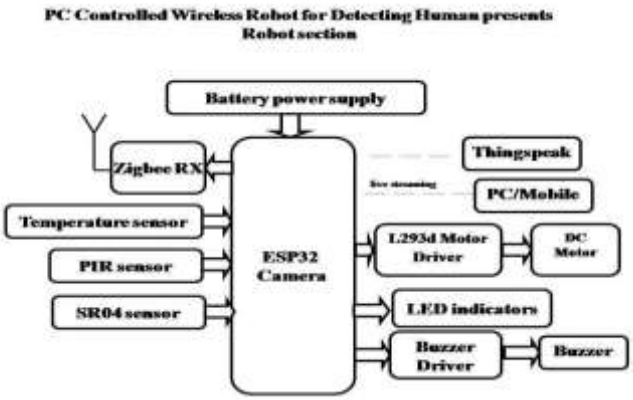
IV. PROPOSED WORK

We propose a machine which can carry out various farming activities like digging, sowing and irrigation etc. This is a manually operated machine which is equipped with a four-wheel drive. The seed sowing machine is developed at a very low cost. It is cheap and easily affordable by rural farmers. It is maintenance free and various adjustments can be made with ease for continuous operation.

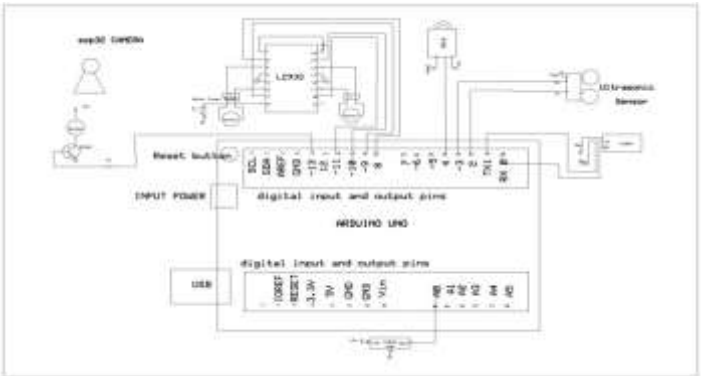
4.1 Hardware Requirements

1. Camera
2.Arduino Board
3.DC Motor
4.Motor Drivers
5.Zigbee
6.Ultra Sonic Sensor
7. Temperature Sensor
8.Battery
9.PIR Sensor

4.2 Block Diagram



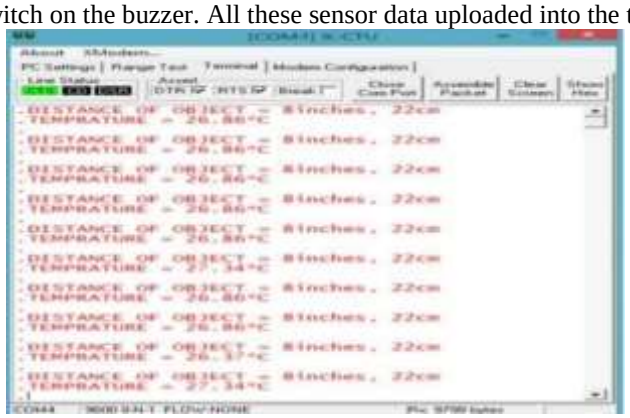
4.3 Circuit Diagram



V.RESULT

The project "**PC Controlled Wireless Robot for Detecting Human Presents**" was designed a wireless control of human detection robot. This is the internet of things (IOT) based project , where we are particularly uses the Esp32 camera, two DC motor along with l293d motor driver, Temperature sensor, PIR sensor, ultrasonic sensor, buzzer and Zigbee receiver along with Robot chassis to build this Robotic car setup. It has an ESP32 camera mounted over it, through which we will get live video feed and the interesting part here is that we can control and move this robot from a web browser over the internet by using PC/MOBILE. The ESP32 cam will capture live data with regards to its surroundings and then send it to a particular IP address through internet. User can access this device using mobile/PC and control the robot while seeing the video. Here we are using ZIGBEE wireless technology for wireless communication between PC and LAPTOP. Battery is uses to provide the power supply of the robot and esp32 camera. The main controlling device of the project is ESP32 camera module which is interfaced with input and output modules.

When the PIR sensor detects the human it will process to the esp32 camera. PIR sensor, temperature sensor and ultrasonic sensor will trigger the esp32camera to switch on the buzzer. All these sensor data uploaded into the thing speak cloud.



VI. CONCLUSION

Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the project has been successfully implemented. Thus the project
has been successfully designed and tested

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