

Alive Human Being Detection System

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Abstract: - Technological development leads the creation of sky scraper buildings and dwellings which increase risks of losing life due to natural and manmade disasters. Many people died by trapping under debris as their presence cannot be detected by the rescue team. Sometimes, it is impossible to reach in certain points of the disasters mainly at war affected areas. The alive human being detection robot helps in those crucial times, it enters to the places in which the human or bulk machines cannot enter and identifies whether the person is dead or alive.

Key Words: - *PIR sensor, DC motor, GPS, IoT, Tinker Cad, Fritzing, Arduino UNO.*

I. INTRODUCTION

Technology is evolving day by day to make life easy and comfortable. Because of technological development, information about different natural disasters can be predicted earlier. But man cannot prevent natural disasters from happening. Sometimes they themselves bring disaster to others in the shape of war or bombing or transportation accident or major fire etc. Now a day, natural disasters like flood, earthquake and cyclone keep happening frequently because people are disrupting the natural balance by cutting trees, destroying hills and unplanned urbanization. However, in this project, we develop a robot which can detect live human beings by using Passive Infrared (PIR) sensor and OV7670 camera which can detect injured humans and capture a picture. By using GPS, it locates the exact position. A LoRa, which is used for ultra-long-range transmission. This robot can be controlled manually up to 20kms.

Manuscript revised May 15, 2023; accepted May 16, 2023. Date of publication May 18, 2023.

This paper available online at www.ijprse.com

ISSN (Online): 2582-7898; SJIF: 5.59

II. LITERATURE REVIEW

In this paper titled, "Human Detection Using Wireless Robot", there are various types of situations where a person cannot go to check or help or to take a specific action on those points of, we can use the robots then we can solve any problems or save lives. They designed a system which they can receive signals and give it to the microcontroller by decoding it so that the controller can drive the robot and there must be a transmitter which can send the commands to the robot vehicle. So, we are designing a system in which we can send commands wirelessly and that will be received by the robot system and as per the commands the robot will be driven.

In this paper titled, "Microcontroller Based Tracking System for the Detection of Human Presence in Critical Areas", in this model they had built the robot using 8-bit Microcontroller AT89C51. The user can control the robot by using the RF remote control. The RF receiver section is connected to the robot. If we should send any command to the robot. In remote there will be HT12E which encodes the parallel data into serial data. In receiver section there will be HT12D it will convert into parallel data. In robot they have connected infrared sensor. By alive human temperature will be 96 degrees from the body temperature it will give alerts signal by buzzer sound.

In this paper titled, "Live human detection robot", aims to give a practical design to build the simplified version of a human

detection robot which has to be active within disaster areas Like where rescue teams cannot detect the humans due to a lot of technical Difficulties. In such conditions, when there is a risk of hazardous environment it will better to uses some high technology equipment's to reach that mission fastly and effectively by finding, searching and giving information about unauthorized human movement in given boundaries. And also, by detecting the human.

In this paper, a new project for detecting alive humans in destructed environments using a mobile robot. In olden days, human detection in an unmanned area can be done only by an automated system. Alive human body detection system proposed a monitoring system using PIR sensor and camera to record, transmit and analyse conditions of human body. In order to detect a human body, a robot must be equipped with a specific set of sensors called PIR sensors to detect the alive human beings and they use a camera to acquire a video of the affected area. In Additional, the author used other sensors include temperature and gas detector to analyse the surrounding condition. This approach requires a relatively small number of data to be acquired and processed during the rescue operation. The above system has the potential to achieve high performance in detecting alive humans in devastated environments relatively quickly and cost effectively.

In this paper, "Design and Implementation of Alive Human Detection Robot", we are using a vehicle which detect the alive human buried under the debris during natural calamities and control the robot automatically and manually for its movements. We implemented a low-cost autonomous PC-controlled rescue robot. With the help of this robot, search and rescue operations can be made much effective and easier. Many lives can be saved by using this autonomous vehicle during an earthquake disaster in a short duration which becomes time consuming and unaffected if done manually.

In this papers, "Alive human Detection Robot", in natural calamities and man-made disasters using a specific set of sensors like ATMEGA16 Microcontroller, existing GSM technology and PLC systems. Many areas of world are getting affected due to sudden natural calamities like earthquakes, floods, wild-fires, storms and human induced disasters. They observe that people die by getting trapped in these drastic disasters on a large scale just because they don't get help at that instant of time, when they require to be rescued. The author proposed alive human being detection system uses a specific set of sensors that includes PIR, temperature, vibration, IR, ultra-sonic detector, etc. which gives the information about the presence of an alive human body. GSM technology is used which give an alerting message to control room of the affected

site to give proper rescue to the affected victims through PLC logical programming. Also, they are using HMI system. They use, a microcontroller ATMEGA16 holds all of these sensors dealing with movable robot systems.

In this paper, "Measuring of LoRa Network", has focused on the testing of LPWAN LoRa technology to learn how a LoRa network gets affected by different environmental attributes such as distance, height and surrounding area by measuring the signal strength, signal to noise ratio and any resulting packet loss. The series of experiments for various use cases are conducted using a fully deployed LoRa network made up of a gateway and sensor available through the public network. The results will show the LoRa network limitation for such use cases as forest, city, open space. These results allow to give the recommendation for companies during early analysis and design stages of network life circle, and help to choose properly technology for deployment an IoT application.

According to the paper," Application of LoRa Communication ", LoRa is a communication scheme that is part of the low power wide area network (LPWAN) technology using ISM bands. It has seen extensive documentation and use in research and industry due to its long coverage ranges of up-to 20 km or more with less than 14 dB transmit power. The objective is to systematically review the empirical evidence of the use-cases of LoRa in rural landscapes, metrics and the relevant validation schemes.

In this project, "Human Detection Robot for Disaster Management", which provides a prototype of practical design to build a simplified version of a Human detection robot which has to be implemented during calamities to find the casualties. Humans can be used for rescuing people in these areas, but due to high risk of earthquakes and building collapses it is not possible to send human rescue teams in these areas. Thus, an affordable high technology equipment which makes this risky job quicker and safer is needed for the hour, which has been described in this paper. It is a simple, yet efficient equipment to indicate casualties and help them with immediate access to first aid.

III. OBJECTIVE OF THE MODEL

The primary objective of this project is to develop a robot which can be controlled manually up to 20 km. This robot is used for rescue operation in both military during war and hazardous situation. This robot replaces the rescuer in rescue operation so that he cannot be a victim. It uses PIR sensor, which can detect the victim, OV7670 Camera for future reference, LoRa Trans-

receiver which transmit the signal from sensor to the PC or LCD screen on receiver side.

3.1 Block Diagram

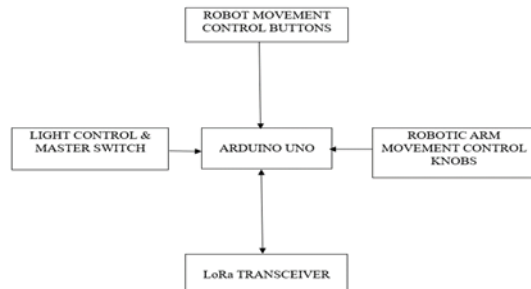


Figure:1.1 Transmitter side block diagram(ROBO)

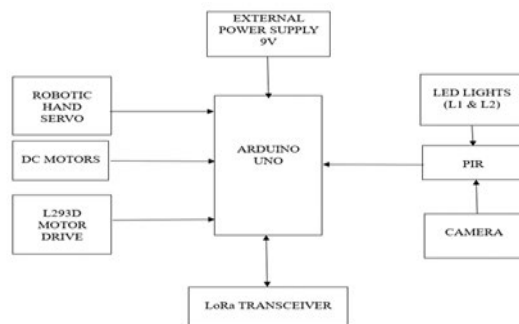


Figure: 1.2. Receiver side block diagram

Here above represents the block diagram of alive human detection system using mobile rescue robot.

It has two-parts, first one is transmitter part and next one is receiver part.

- As live human body emits thermal radiation it is received and manipulated by the PIR sensor to detect humans. Signals from PIR sensors are given to the Arduino UNO and this will digitize the signal and send it to the LoRa transceiver.
- LoRa transceiver is used to send and receive data between robot and the control unit. Robot, used can perform search and rescue operations much effectively and easily.
- A camera is used to capture the scene and stored for observation. The information from transceiver is viewed on the LCD display or PC in the base station.

3.2 Hardware And Software Requirements

3.2.1 Hardware Components

- Power Supply
- Arduino UNO
- LoRa Transceiver
- PIR Sensor
- Ultrasonic Sensor
- Heart rate sensor
- Temperature sensor
- DC Motor
- Servo Motor
- L293D Drive
- OV7670 Camera
- Robotic Arm
- GPS Module
- Buzzer
- LCD Display
- Battery
- Push Button
- Switches
- Cell phone

3.2.2 Software Components

- Embedded C
- Fritzing
- Tinker cad

3.3 Applications

This robot can be used in disaster effected area like landslide, earthquake, etc.,

- War fields
- Floods areas
- Medical Field
- Industrial Field
- Smart city
- Used in Cave areas.

IV. CONCLUSION

The development of live human detection robot for the environment is a great challenging task. Alive human detection robot is to detect alive human beings. It is user friendly robot for detection. This proposed model aims to control the rescue robot which is very much useful for rescue team, at military base and disaster affected areas in the disaster environment. Hence this model may become easier for rescue operation and consumes less time.

REFERENCES

- [1]. Rahu Krishna K, Merrra A, Nikhil Mathew, "Wireless Human Detection Robot" International Journal for Research in Applied Science & Engineering Technology, 2017. Indoor Environment" IEEE Transactions on Consumer Electronics, Vol. 63, No. 3, August 2017. IEEE -2017.
- [2]. Murulidhara T C, Kanagasabapathi,Siva S Yellampalli, "Unmanned vehicle to detect alive human during calamity" International Conference on Electrical, Electronics, Communication, Computer and Optimization Techniques, 2017.
- [3]. Hemantha v, Karthik BP, Krishnaprasad, Sindhu G, Sudarshan, "Live human detection robot", © May 2022.
- [4]. Jinu Sebastian, Lidiya KA , Martha George Asst.Prof.Sija Gopinathan "Alive Human Detection System for Rescue Operations in Hazardous Areas", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (An ISO 3297: 2007 Certified Organization) Vol. 6, Issue 4, April 2017.
- [5]. Pooja P. P,Rekha K. S, M.Tech Student Assistant Professor Department of Computer Science & Engineering, "Design and Implementation of Alive Human Detection Robot ",The National Institute of Engineering College, Mysore, India-2018.
- [6]. Mohit Bais, Kanupriya Madan, Ankit Bharti, Prof. Prity Yadav "Alive Human Detection Robot ", © 2017.
- [7]. Anders Carlsson, Ievgeniia Kuzminykh(B), Robin Franksson, and Alexander Liljegren,"Measuring of Lora Network ", Blekinge Institute of Technology, Campus Grasvik, 371 41 Karlskrona, Sweden-2018.
- [8]. Lone Kolobe, Department of Electrical, Computer and Telecommunications Engineering, "Application of LoRa Communication ", Botswana International University of Science and Technology, Private Bag 16, Khurumela, Palapye, Botswana-2019.
- [9]. Gopika D, Hrithik Sivadasan, Pooja Jiresh, Sucheta G S, BMS College of Engineering (Affiliation to VTU) Bangalore, India. S Y Pattar, Associate Professor, BMS College of Engineering, Bangalore, India-"Human Detection Robot for Disaster Management ", International Journal of Engineering Applied Sciences and Technology, 2021 Vol. 5, Issue 10.