HUMAN DETECTION ROBOT USING ANDROID APPLICATION

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ABSTRACT

In this modern era, technological development lead the creation of sky scraper buildings and dwellings which increased the risks of losing life due to natural and man made disasters. Many people died by getting trapped under debris as their presence cannot detect by the rescue team. Sometimes, it is impossible to reach in certain points of the disasters in such calamity hit zones. In this project, Microwave Radar sensor based rescue robot is developed which can detect human being from an unreachable point of the disaster area. Android technology is used to control the robot and communicate with control point. Microwave Radar sensor is used for the detection of human being trapped under debris. Ultrasonic sensor is used for obstacle detection and navigate path of robot and Gas sensor is used to detect gas leak inside the building. Camera is also integrated to observe and analyze conditions that will facilitate human detection in reliable manner with highest probability of success rate in this kind of situation.

Keywords— Microwave Radar , Ultrasonic, Humidity, Robot.

ARTICLE INFO

I. INTRODUCTION

The technology is advancing day by day, but the solution for natural calamities and the human life loss are limited. The natural calamity has an adverse effect on human life. Risk of losing human life is high in case of natural or man-made disaster. The proposed system is a Human Detection Robot which is controlled using an android application[1]. The Robot is capable of going in places where rescue team can't reach easily. The system components are microwave radar sensor for detecting motion and penetrating through non - metal object. Ultrasonic sensor detects obstacles nearby robot. Humidity sensor is used for detecting humidity temperature. Gas sensor is used for detecting gas to avoid gas leakage. Camera is used for live streaming for obtaining precise result. An android application is developed for controlling the robot and determining human probability.

II. HARDWARE COMPONENTS

The hardware components used for the proposed system are listed below:
1. Raspberry Pi.
2. Microwave Radar Sensor.
3. Ultrasonic Sensor.
4. Gas Sensor (MQ6).
5. Humidity Sensor.
6. Camera.
7. DC Motor

III. HARDWARE CONTROLLER

Raspberry Pi is used for controlling the robot. Raspberry Pi is low-cost, compact computer. It requires low power supply for operation. All the sensors are connected to Raspberry Pi. A virtual network is formed through Raspberry Pi which is connected to the android application for controlling and live streaming . The power supply of 5V is required to function for Raspberry Pi. Python is used for programming the sensor and control activities on Raspberry Pi. Raspberry Pi comes with a 1.2GHz quad-core ARM Cortex-A53 and 1GB LPDDR2 RAM.

IV. MOTOR

The robot should be light in weight approx.3 Kg and should be able to move on rough surfaces . As the power requirement is quite less for the robot a 12V DC motor will be used.

V. BLOCK DIAGRAM

The block diagram of the human detection robot consists of the hardware and the software components and the connections between them.
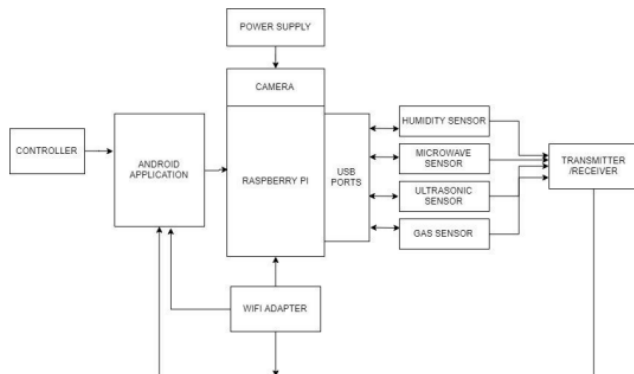

Fig 1.block diagram

VI. WORKING SYSTEM

The proposed system has sensors which detect motion, obstacles, gas and a camera for live streaming which helps the controller to obtain precise result.
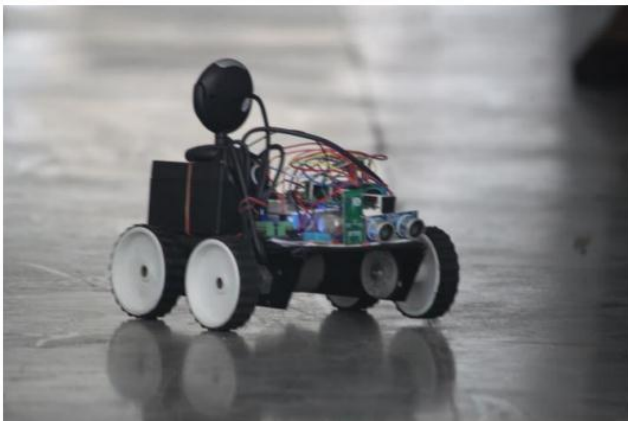

Fig 2. Human Detection Robot

VII.ANDROID APPLICATION

The Android Application is developed to control the robot . With the help of the android application the controller can give directions to the robot. The sensor values is shown in the android application. Login for the application is static. REFRENCES.

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