SMART DISASTER RESCUE ROBOT USING RENEWABLE ENERGY SOURCES

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ABSTRACT

The overall view of this paper is to develop a robot which can be used in the disaster or emergency situation. There are many disaster or unnatural things had happened in our surroundings. There are many aspects where human cant see or identify. Disasters can be large or small scale when its happens people don't know what had happened they don't have any information .humans cannot scene the situation at the time of disaster whether it may be a gas leak or any sounds in that situations. In the military solider cant identify the land mines or bombs in the operations. They need some equipment to identify like robot with essential sensors and specified algorithms(data) to assists them in the situation and this robot is equipped with the multiple sensors which may come in handy to them when they areneeded. Its as many functions. This robot has metal detectors, temperature sensor, water sprinkler and a arm. Robot can be navigate and controlledover a distance from a safe zone.

Keyword: *ARM Cortex, disaster and Military, Solar, WirelessCamera, WI-FI.*

I. INTRODUCTION

There are many number of unpredicted and natural and human made disasters had happened over a past decades it has urged for the emergency rescue community all around the world to search for the latest and effective equipment which would increase their work. Search and rescue technology till today depends on the old technology like K9 unit(dong),probes which are used only to identify the situation. Advanced robot are equipped with sensors are attracting more from the researchers and the emergency responders community.

This paper shows the design and application of a wireless tracking ,rescue and search prototype robot. Where the controlling of robot can be done through a distance .The tracking and searching can be done by remote and can it can search and navigate . the main object is to develop and control the system by the IoT protocol.

II. RELATED WORK

Sensor systems are as of late quickly developing exploration territory in remote interchanges and conveyed arrange. Sensor organize is a thickly sent remote system of little, ease sensors, which can be utilized as a part of different applications like well being, natural checking, military, home, assembling and detecting data in aloof areas and so forth. Remote sensor systems screen and control physical conditions from remote areas. Sensor hubs endure different vitality and computational requirements for their ease highlight and impromptu arrangement strategy. Diverse application zones of sensor systems comprise distinctive specialized issues and scientists are at present shedding their lights to settling these issues. The unmistakable inadequacies are: vitality proficient steering, conventions, limitation calculations and framework outline. This study paper will conceal all these open research issues and their answers and will call attention to and portrays extremely critical fields of sensor systems[1].

Around the globe, human intruder system is one of the testing frameworks to outline because of the advancement of innovation in the cutting edge world. Conveying interloper framework in high security regions, for example, military outskirts is troublesome and costly. The proposed framework builds up a novel approach that naturally distinguishes interloper and produces a notice alert to the base station. Seismic sensors are utilized to distinguish the seismic waves (P, S waves) as indicated by the earth (ground) vibrations. In any case, it is hard to distinguish and order the different flags as it by human interloper. Different frameworks executed before utilize frameworks with camera, PIR sensors, and so on. A low pass channel can be utilized to isolate the low recurrence signals from people.[2-3]

III. PROPOSED WORK

In this paper presents the design and application of a wireless sensors prototype system for search and rescue robot with mobile tracking. The robot can be controlled by a distance by a mobile app using a application (or through any system application in the computers). This robot can used disaster emergency situations and also in the military. Robot is equipped with the temperature sensors which can monitor the temperature of the that surrounding and if in case fire is detected the water sprinklers an take action with essentials things to put off the fire , metal detectors are used to detect the metal at the place . the robot has arm which is used to lift a small objects and to cut the wire or the other things , the robot has a driven motor which is driven robot .the wireless camera has been placed for the live feed to monitor and to take necessary action. This robot can be controlled by a operator at the distance from the mobile application though a IoT based communicator (WI_FI) .Robot runs on the battery powered which is charged continuously by the solar panels mounted at the top the robot.
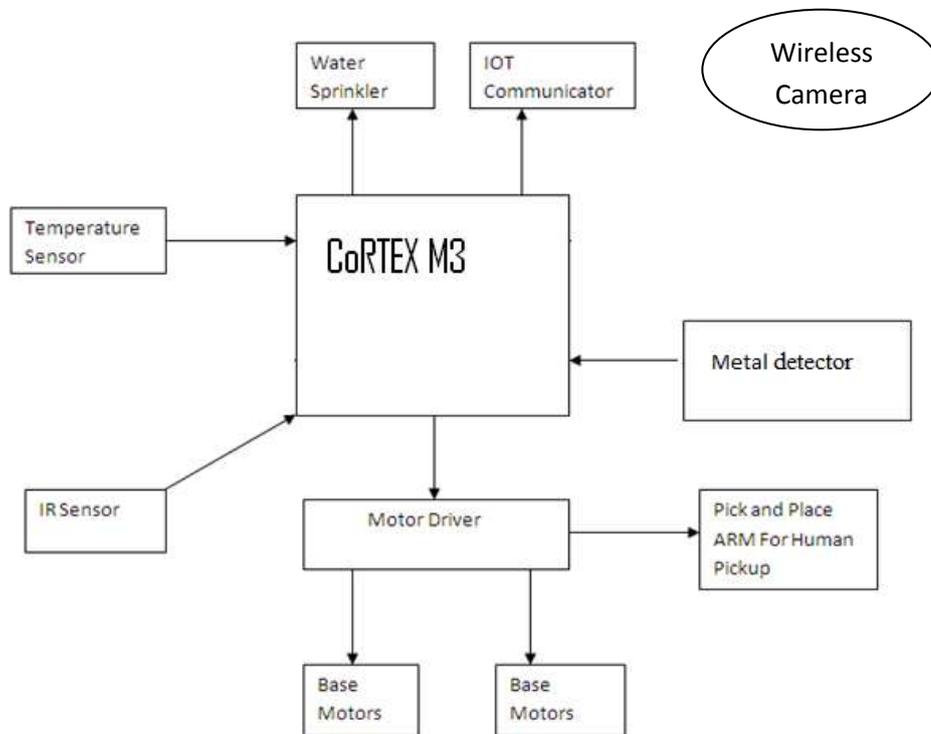
3.1BLOCK DIAGRAM

Fig1: Block diagram of the Robot.

The block diagram represents the connection of the robot in which the sensors are connected to the Arm Cortex(Fig.1)
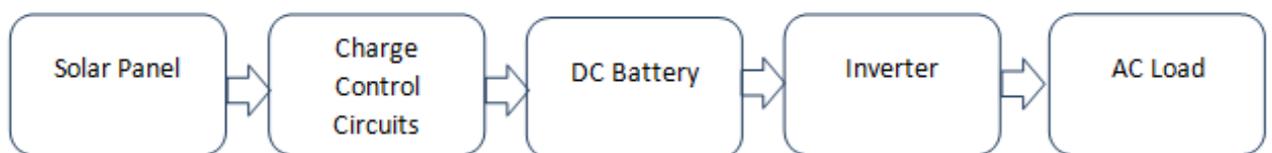

Fig.2: Battery and charging system.

Fig.2 shows the battery and the solar panel connectios. The robot continuously charges through above block.
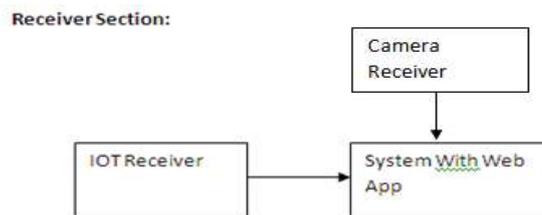
Fig.3: Receiver System.

Fig.3 shows about the receiver section where the live video can viewed through application.

IV.   CONCLUSION

The project "SMART DISASTER RESCUE ROBOT USING RENEWABLE ENERGY SOURCES". Robots are emerging with a new ideas by day to day and the robot is developed not only for the single purpose its as so many uses in many fields .Now a days it had become a part of rescue operations or in the emergency . Robot is used especially for disaster response, but this robot can be used both for military and rescue operational. Rescue robots present challenges in all major divisions like communications, sensors, control as well as in advance human interaction. Robot can be controlled by a distance in which it can identify the situation and act accordingly to it .where it can be controlled over any media like computers ,controllers ,or by the mobile. Robot communicates through a Wi-Fi module . it can continuously charge will in the operations itself. It is designed to save a life of humans without risking while in the rescue.

    This project can be implemented to the existing security system with modification to send the live images and other parameters to the control room. It can be used to detect and defuse the land mines , the bombs or for the surveillance purpose.

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