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Cognitive Socio Robot with Temperature Sensor for Environment Protection

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Abstract
This venture manages discovery and counteraction of fire. Fire can cause issue and harms. This venture permits a client to control a fireman robot furnished with water tank and firearm remotely for stifling flames. For this reason framework utilizes a rf remote for remote activity alongside rf got based microcontroller for working the robot vehicle and water siphon . The rf based remote exchanges client directions through rf signals which are gotten by the beneficiary. The collector presently disentangles the information commands.it then advances in to the microcontroller. Presently microcontroller forms these guidelines and afterward the guidelines the vehicle engines to run the vehicle in wanted ways. Right now utilize the temp sensor likewise right now. The temperature sensor detects the fire setting region and afterward consequently makes an impression on the beneficiary. It likewise works the water siphon engine and siphon heading engine to shower water dependent on client directions .This permits the client to work the robot and put it off the fire by safe separation .The robot works inside in a couple of meters of range. An all-around structured robot can perform firefighting and shield us from environmental conditions.

Keywords: *natural conditions , sensors ,android applications, fire quencher*

1. Introduction

The robot is an electronic mechanical structure .our primary point is to build up an android controlled fireman robot that can be utilized to quench fire through remote taking care of. The framework utilizes a 8051 microcontroller for this reason. The android gadget is utilized as a transmitter to send over controlling directions to the vehicle. The mechanical vehicle is fitted with a remote communication powered water tank and siphon. At the transmitting end using android os, commands are sent to the collector whether to move ahead or in inverse and left or right to monitor the progress of the device. At the getting the engines are interfaced to the microcontroller for the development of vehicle .A water tank with water siphon is connected to the robot body and it is controlled with the microcontroller. A fireman robot is the one that has a little fire douser add to it.by appending a little quencher to the robot the fire recognition controls consequently then the robot sense the fire and naturally splashes the water over it.

2. Literature Survey

Creator Ratnesh [1] Malik has built up a robot to stifled the fire. The robot that might smother fire is designed and built. It detects the idea that requires ecological identification and conscientiousness, engine control. The robot shapes data from the components of his sensors and equipment. Temperature and fire sensor are used to assess the state parts. The robot is built for fighting burrow fire, preparing and manufacturing industrial fire and military applications. Temperature sensors are used for detecting flames. The robot conveys the message to the compact if fire is identified. At that point the robot enacts and discharge sprinkles of water on the fire. Nitty gritty idea of robot is clarified which naturally identifies fire and smothers it in brief timeframe by the utilization of sensors, microcontroller and so on .

Kristi kosaish [2]The primary expectation of this undertaking is to plan a fir battling robot utilizing android application for remote activity. The putting out fires robot has a water tank to siphon water and shower it ablaze. It is controlled through remote correspondence. For the ideal activity 8051 microcontroller is utilized.

H P singh says[3]In the propose framework, an android application is utilized to send directions from the transmitter end to recipient end for controlling the development of robot. At the beneficiary side that are utilized for the development of the vehicle.

Swathi A. el [4] The paper portrays the development and plan of versatile putting out fires robot. The structure is composed of 2 optically secluded D.C. Motors. Robot performs easy to developed modification of the information provided by infrared sensors. The robots ' movement is guided by dual sensors, and three are for fire recognition. The douser contains a D.C water siphon and a tank for the gas. The paper's main focus is the identification and stifling of fire flares. This infrarot sensor is used as an data sensor that senses the fire-leaving infrarot beams. The microcontroller controls the frame that smotheres.

Lakshy arora el [5] It includes a cell phone that controls a robot by calling the cell phone that is connected to the robot. Where any catch is pushed on the phone during the call initiation time, the tone compared to the catch squeezed is detected at the opposite end of the call imposed on the robot. The robot uses Dual-Sound Multiple-Frequency (DTMF) sound, with the aid of the robot-fixed screen. The obtained code is performed by the microcontroller and thereafter the robot carries out operations as required. DTMF innovation is used in the proposed system to locate the engine pole at a critical point with different sensors, every performing its own errand.

Arpit sharma says [6] The firefighting robot is incorporated with inserted framework. Model framework is intended to recognize and quench fire. It plans to diminish air contamination caused because of fire. The robot is intended to distinguish fire in little floor plan. The errand of stifling fire is separated into littler undertakings. Each assignment is done in most conceivable manner. The robot explores in every room bit by bit, finds the fire in a room, approaches fire from fixed separation and afterward stifles fire.

Poonam sonsale [9] proposed a firefighting robot which incorporated a task that plans to elevate innovation development to accomplish a dependable and proficient result. The development of the robot is constrained by the sensors which are fixed on the portable platform.is to give security of home, research center, office, production line and building is imperative to human life. They have set up a shrewd multi-sensory protection system that includes a day-to-day fire-out mechanism. It incorporated the structure of the fire discovery framework utilizing sensors in the framework, and program the fire identification and battling technique utilizing sensor based strategy.

Creator Saravanan P[7] designed and developed an Integrated Semi-Autonomous Mobile Fire Fighting Robot. The machine operates 4 D.C. Atmega2560-fuelled engines and self-controlled by route frameworks. The route system includes synchronized ultrasonic sensors and infrared sensors. The robot is equipped with remote camera capturing the video and transmitting it to base station. The location of the fire involves the LDR and sensor to temperature. In the event of a explosion, it is detected by the sensor, and the robot is pushed to the source and stifled. The smothering mechanism consists of a water-holding motor. Under exceptional circumstances the SABOT may be worked physically. It provides a GUI interface, by which the base station robot may be operated.

Phyo wai Anug [8] The paper suggests a flexible Fire Discovery Combination Calculation. Uses a smoke sensor, fire sensor, fire location temperature sensor. It provides a smart security system which uses a day-to-day fire-out mechanism. The protection system will recognize and inform the problem of unusual and precarious circumstances. Structures are needed to provide society with more stable, advantageous and proficient living situations. The explanation for the Fire Extinguisher Device is to douse fire in a given time period. Through using sprinklers, the system identifies the fire area and smother fire. It eliminates the control of the region where fire has been obtained and starts the sprinklers of such a territory alone.

Anij joseph [10] Creator planned a minimal effort, hearty and secure fire assurance framework for structures. It sends an early alert when the fire happens and assists with diminishing the fire harm. This framework comprises of a smoke alarm and a temperature sensor whose yields are associated with the controller. The framework considers the thickness of smoke and in this way the likelihood of bogus alerts can be kept away from.

3. Proposed System Block Diagram

In this paper proposed a new robot with temperature sensor to protect our surroundings. This system will be used to sense the temperature of fire using the temperature sensor attached to the robot. If the temperature level is reached the threshold level the robot will be automatically going to active state and tries to stop the fire as the human only cannot tackle such When the temperature level is reached the normal then we can stop the robot functioning by using android application which was designed to control the robot. The below fig shows the block diagram of the system.

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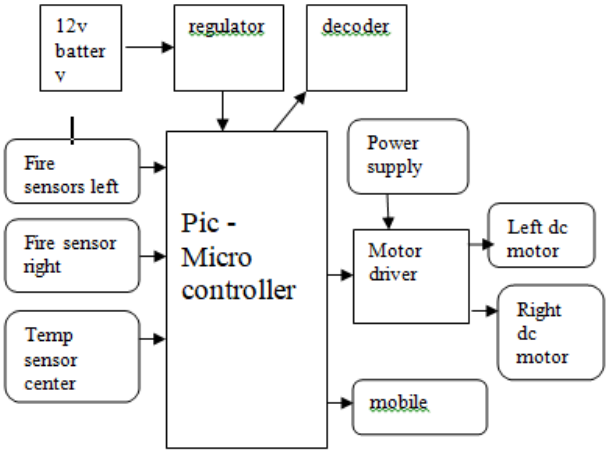

Figure 1: Block Diagram

MICROCONTROLLER: A microcontroller is a single chip containing the cpu, a non-volatile program memory, an input and output volatile memory required to perform different tasks and interfacing with other hardware devices. In the project, microcontrollers can be used.
POWER SUPPLY: A power supply is an electrical device that supplies electrical energy to the devices.
LIGHT SENSOR: Light sensor is a passive tool that transforms the energy of light into electric power.
DC MOTOR: It is an electric motor which transforms electrical energy into mechanical energy. The DC motor needs 12v DC power supply.
DC WATER PUMP: DC water pumps are mainly used as direct current from motor.

4. Working Principle

Right now remote activity is finished by android Os based cell phone or tablet. The android gadget transmitter go about as a remote control . While the beneficiary has a bluetooth gadget bolstered to the microcontroller to drive DC motors. further we can created by including a remote camera . So the individual can controlling it can see the controlling activity .Further this undertaking is created by fixing a remote camera to the robot.

At the transmitter end press catches are utilized to send directions to the beneficiary end to control the robot development. As a remote control the Rf transmitter goes off. While the decoder interprets the sign and sent it to microcontroller. A water tank with siphon is mounted on the robot body and its microcontroller operation transmits a sign to the end of the transmission.

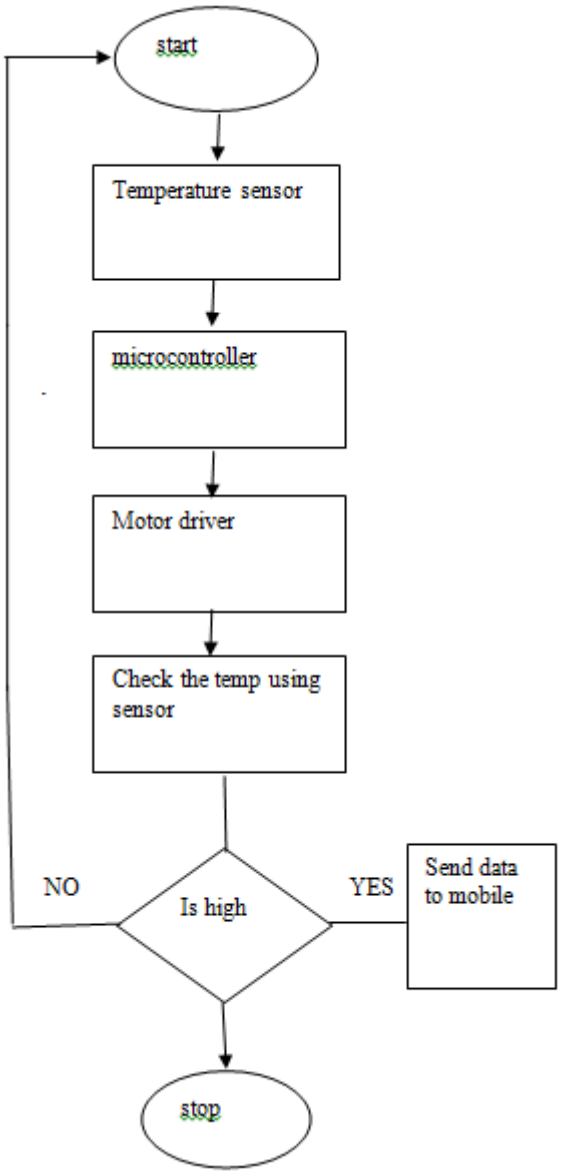

Figure 2: Flow Chart

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Figure 3: Hardware board

It need 3 key things to initiate a controller

1)Power supply

2) Clock 3) Reset

This is an IC of 40 pins through that pins 11 and 31 are the power supply pins. Both donated a 5V supply. Slot 10 is field level 30. Pin 12 and Pin 13 are oscillator crystals. We provide 2 condensers of 22pf in the crystal oscillator, and crystal value is 11.0592 MHZ. Pin 9 is a reset board where we have 1k resistor, 1micro farad condenser and 5V power supply. It is termed Turn Power ON. As early as the power supply is ON, the controller receives a pulse and the controller resets and program is initiated from the 00000H memory spot.

The controller has 4 Ports

1) PORT A
2) PORT B
3) PORT C
4) PORT D

PORT A has built-in ADC while PORT D first 2 pins are Transmitter and Receiver used for serial communication. This robot can interact via Bluetooth, with our android program. And the module used in Bluetooth isHC-05. It should have an integrated antenna, and the operating frequency is 2,4 GHz, and the normal baud rate for serial communication is 9600. It is a module of class 1 and will have a range of 10 meters in open area. We also have Class 2, Class 3 modules that provide a range of 50 meters and 100 metres.

Any trigger we send from mobile is received using Bluetooth here. For which we need a monitor, the received message must be displayed, so that PORT C will have an LCD display. This demonstration is16x2 in that we have a ground pin that is connected to ground. We've got a distinction pin to adjust LCD's splendour.

It has 3 control pins 1) Rs–Data path 2) R / w-Read / Write 3) Activate the controller with Data order stick and activate pin from all these pins. R / w pin is tied to the wall. It does have 8 pins (D0 to D7) for details. In any way, port C does not have too many pins so we only connect 4 pins from (D4 to D7).

Temperature and gas sensor are sensors used. The thermistor is used as a 10k NTC temperature sensor, and MQ-6 is used as gas sensor. The transmission is an electromechanical mechanism that is used to provide the engine and is 12V hand-off.

5. Results and Discussions

The created robot has been tried to assess execution examination just as to exhibit the capacity to stifle the fire. The robot has demonstrated very great execution to identify and smother the fire utilizing temperature sensor and created fire stifling unit.when the temperature increments than the limit esteem the sensor detects it and gets alert ,at that point by utilizing versatile application we can control the robot to douse the fire and to decrease the property misfortune .It us exceptionally helpful where human can't do the hazardous things The robot can be checked by the human from the portable application.

6. Conclusion

This framework can be utilized in a troublesome circumstance where demolition is more and to maintain a strategic distance from any issues in human life like life misfortune. We can even evacuate impediments that can make simpler for fire fighters. Nowadays the robot period has a prime situation inside the headway of this framework. Limit of the laborers are moving nearer to the bearer locale and no longer to the financial district. As a final product, there exists a degree for computerizing the entirety of the activities executed by method for the laborers in businesses. The worldview advanced is a great deal of purchaser amicable and less dearer. It'll play out the favored activity easily. The gadget can be overseen inside in excess of a couple 10 meters the utilization of any android advanced mobile phone, which permits you to be extra material in bundles that incorporate bomb defusing, remote and area, cleaning applications. Notwithstanding enhancement, the automated arm might be intended for various projects include in cultivating, farming projects, and numerous others. Selective sensors examine the area of the things and furthermore the total methodology is programmed and it might talk with individual through systems administration.

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