UE17CS256: MICROPROCESSOR AND COMPUTER ARCHITECTURE LABORATORY

Project by:

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Title: Fire Fighting Robot

Aim/Objective: The Arduino based Fire Fighting Robot senses nearby breakouts of fire and navigates across a plain surface to put out the fire.

Description:
In this project, we build a simple arduino based robot which is capable of sensing a fire within its vicinity and navigates its way on a plain surface to pump out water onto the fire, thus extinguishing it.
Fire emits a small amount of infrared light, which will be received by the IR receiver on the sensor module. Then we use an Op-Amp to check for change in voltage across the IR Receiver which indicates the presence of a fire breakout. We use motors to move the robot in the direction of the fire. A small container carrying water is placed on a servo motor which is used to control the direction in which the water has to be sprayed to extinguish it.

Hardware Requirements:

- Arduino Microcontroller
- IR sensor
- Ultrasonic sensor
- Flame sensor
- Servo Motors
- Video Recording Device
- Breadboard
- Container
- Wheels
- Connecting wires

Input: The IR sensor detects presence of fire within its vicinity and sends signals which act as input to the servo motors.

Output: Once the fire is detected, the robot navigates towards the fire and extinguishes it with the water stored in its container.

Applications: This robot can be installed in different environments such as homes, offices and other institutions and will attempt to handle breakouts in a secure manner without risking lives.