

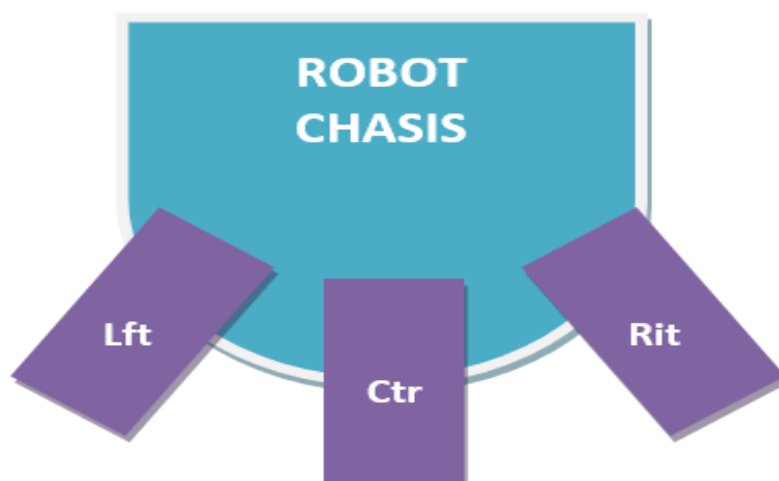
OBJECTIVES:



Fig-1.4.1: Fire sensor module

The main brain of this project is the Arduino ,but in-order to sense fire we use the **Fire sensor module** (flame sensor) that is shown below.

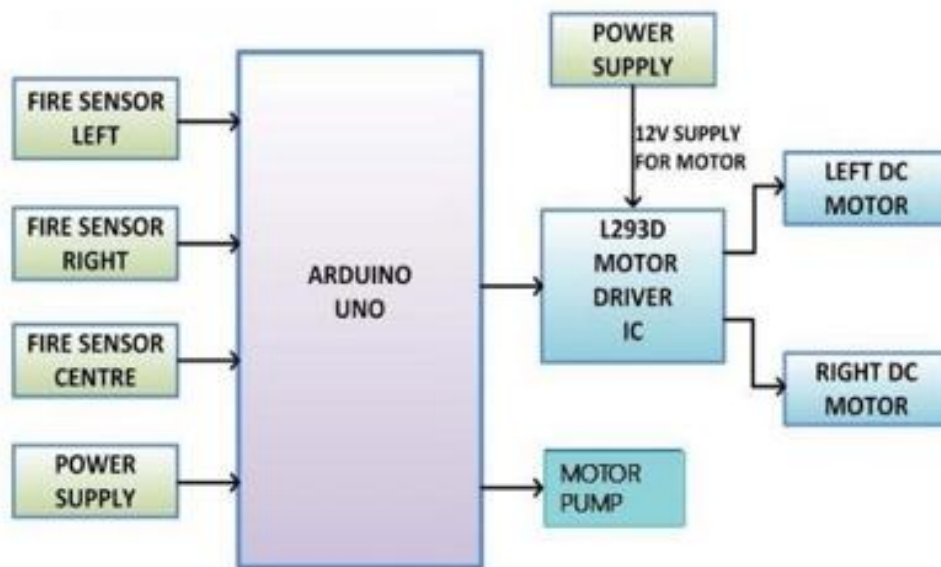
As you can see these sensors have an **IR Receiver (Photodiode)** which is used to detect the fire. How is this possible? When fire burns it emits a small amount of Infra-red light, this light will be received by the IR receiver on the sensor module. Then we use an Op-Amp to check for change in voltage across the IR Receiver, so that if a fire is detected the output pin (DO) will give 0V(LOW) and if there is no fire the output pin will be 5V(HIGH).So, we place three such sensors in three directions of the robot to sense on which direction the fire is burning.



Robot model

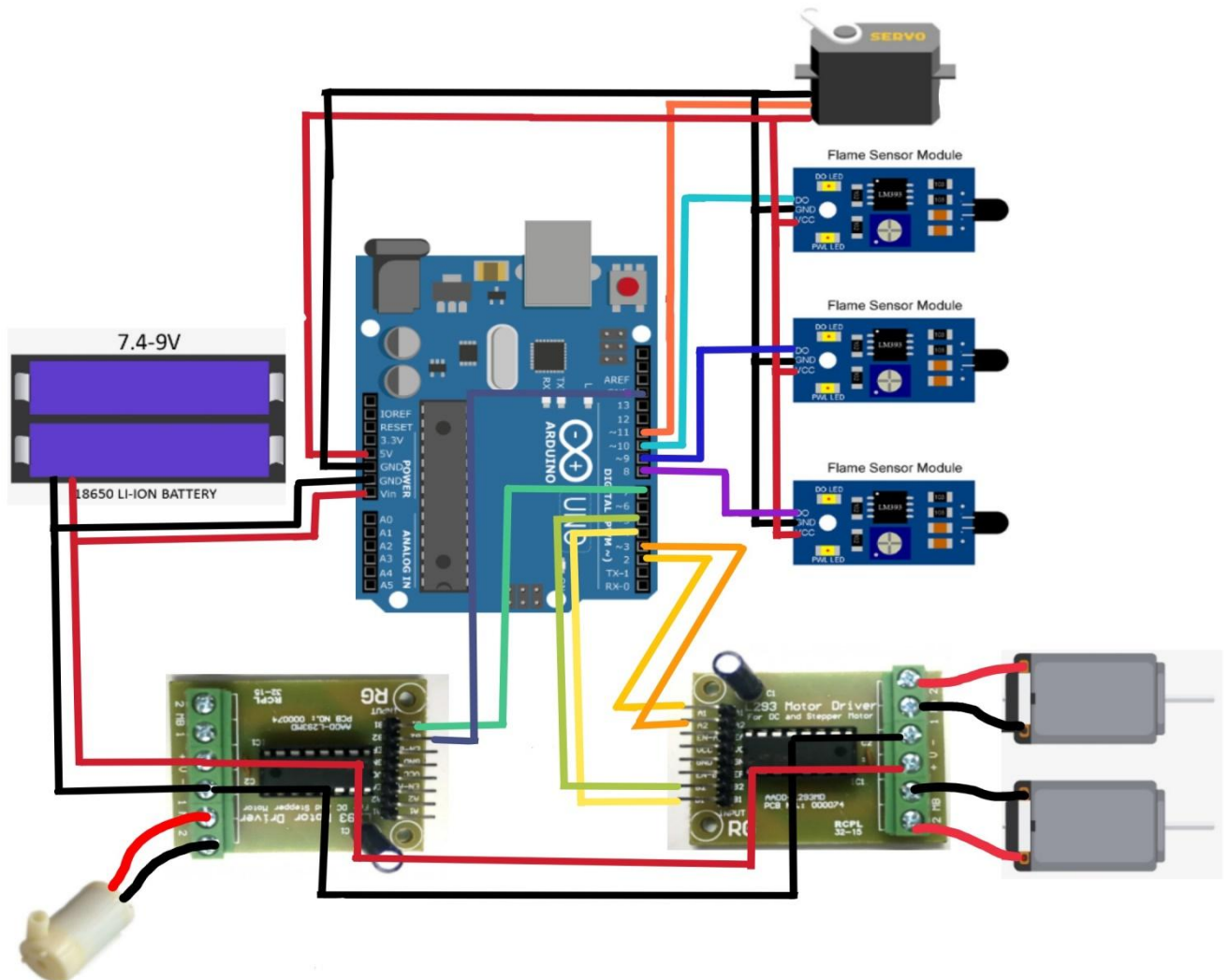
We detect the direction of the fire we can use the motors to move near the fire by driving our motors through the **L293D module**. When near a fire we have to put it out using water. Using a small container we can carry water, a 5V pump is also placed in the container and the whole container is placed on top of a **servo motor** so that we can control the direction in which the water has to be sprayed.

Block Diagram:



Block diagram

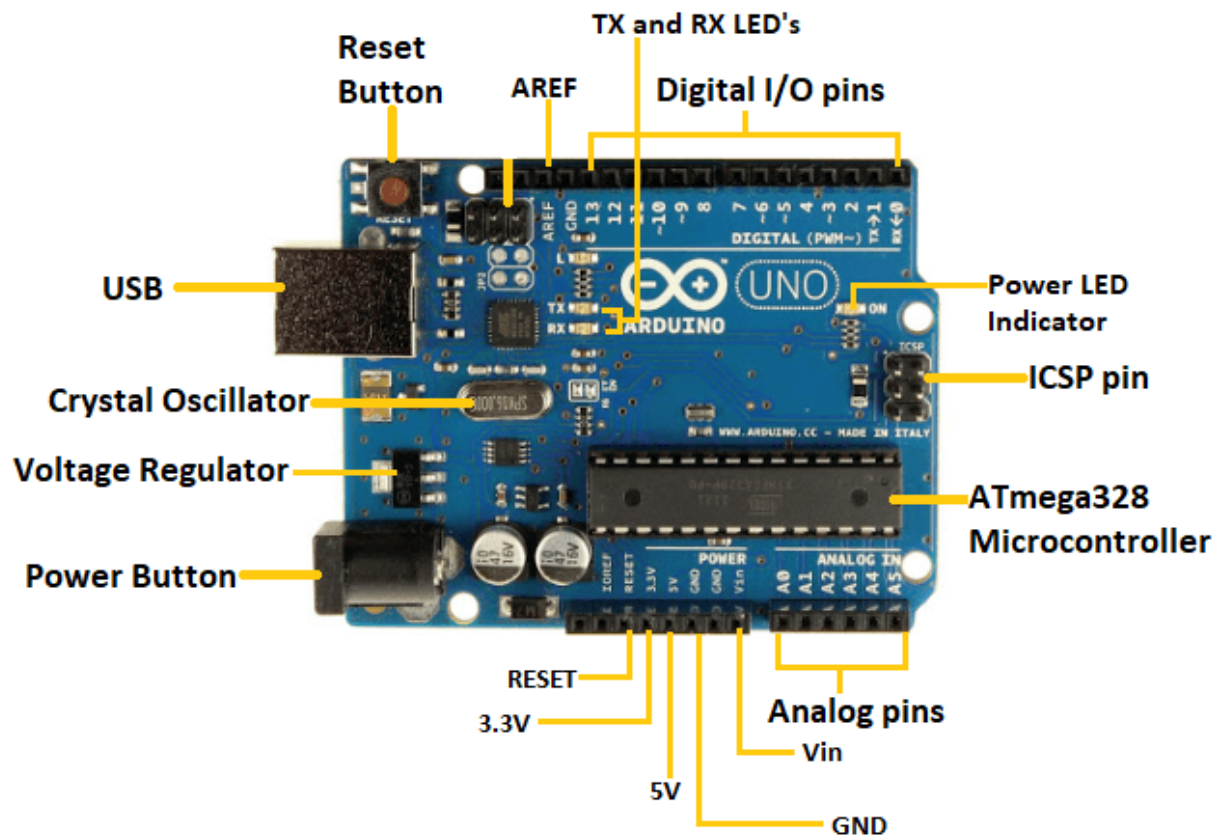
CIRCUIT DIAGRAM:



Circuit diagram

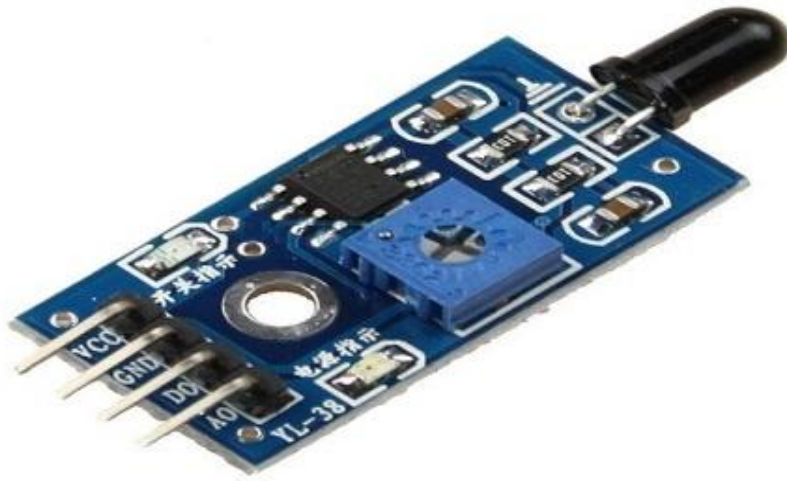
Hardware requirements:

ARDUINO UNO MINI:



ARDUINO UNO MINI

FLAME SENSOR:



FLAME SENSOR

Servo SG90



Servo SG90

Mini water pump(5v)



Mini water pump

Bo motor Wheel

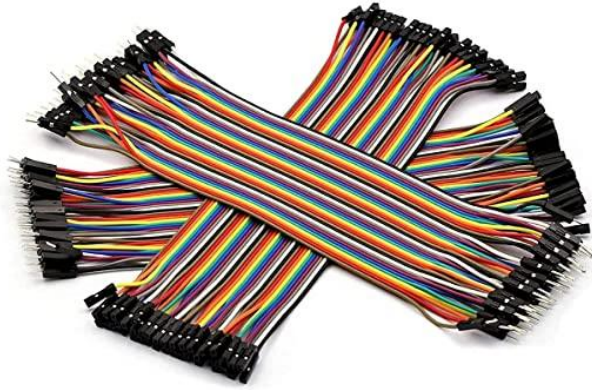


Bo motor wheel

Mini Bread-Board :



Jumper wires

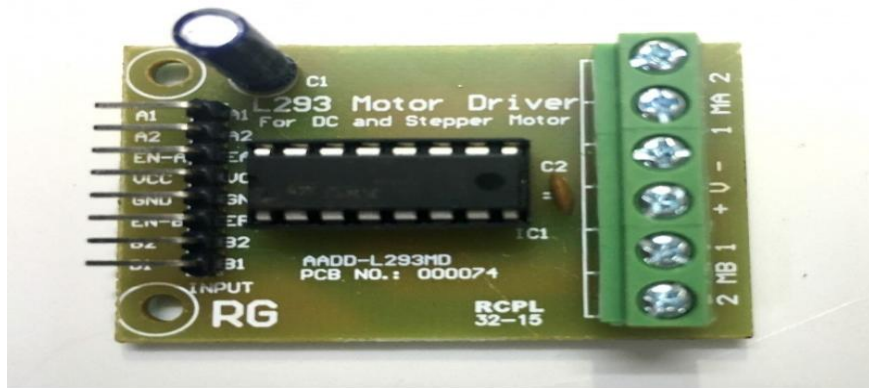


Jumper wires

Battery Slot:



L293 Motor Driver



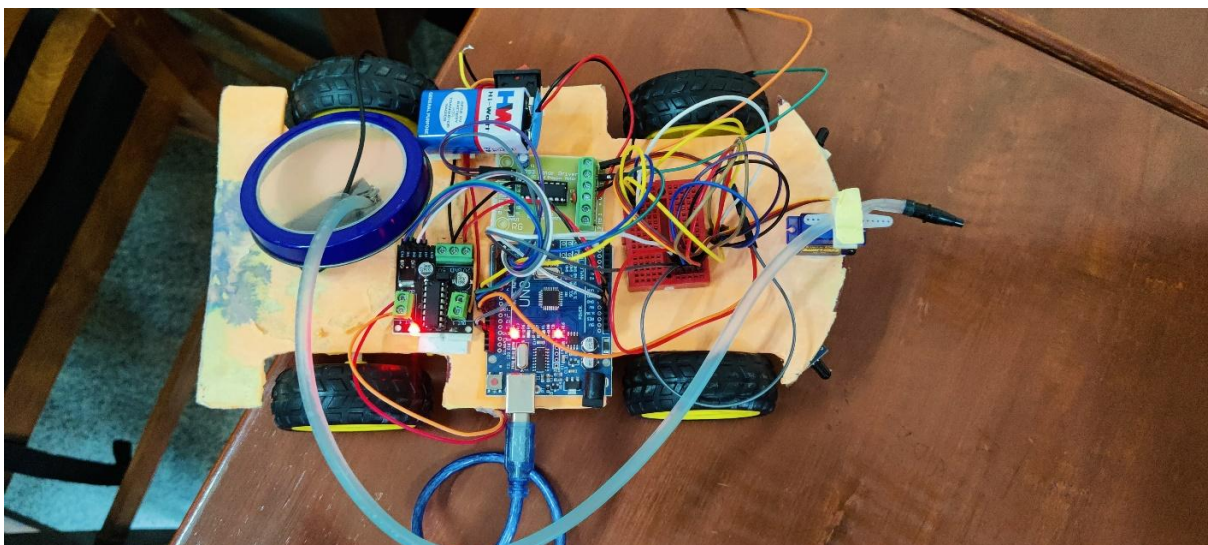
L293 Motor Driver

Software requirements:

Arduino IDE

Actual project image:

Flame sensor testing without fire:



Flame sensor testing with fire:

