ASSIGNMENT 1

INTERFACING FLAME SENSOR WITH ARDUINO

A sensor which is most sensitive to a normal light is known as a flame sensor. That's why this sensor module is used in flame alarms. This sensor detects flame otherwise wavelength within the range of 760 nm – 1100 nm from the light source. This sensor can be easily damaged to high temperature. So this sensor can be placed at a certain distance from the flame. The flame detection can be done from a 100cm distance and the detection angle will be 600. The output of this sensor is an analog signal or digital signal. These sensors are used in fire fighting robots like as a flame alarm.

CONNECTION

Arduino Uno has a set of Analog input pins which can are used to take analog input signals from a sensor.

Analog output (A0): Real-time output voltage signal on the thermal resistance.

Digital output (D0): When the temperature reaches a certain threshold, the output high and low signal threshold adjustable via potentiometer.
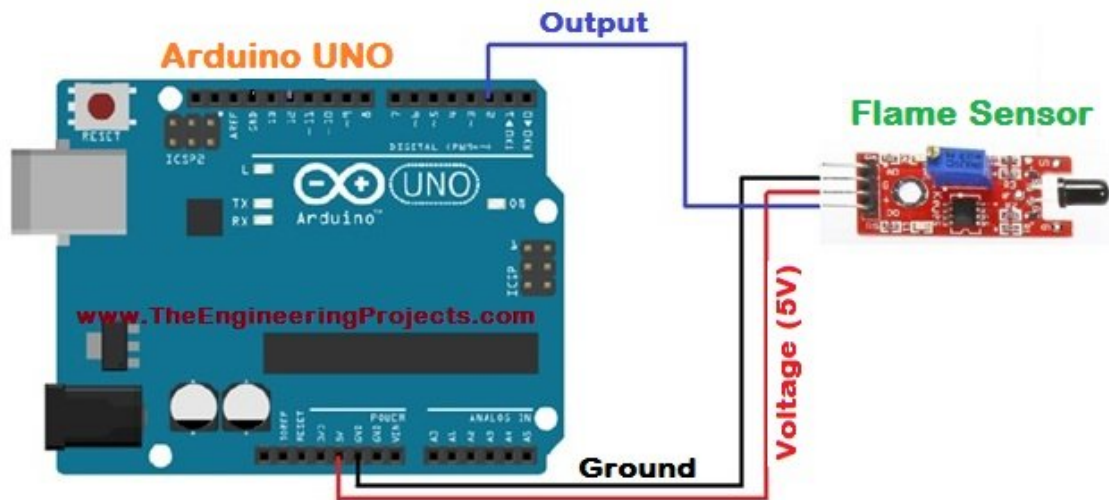
Pins:

VCC...... Positive voltage input: 5v for analog 3.3v for Digital.

A0.......... Analog output

D0......... Digital output

GND..... Ground

Flame Sensor Interfacing with Arduino

Uses

These types of sensors are used for short range fire detection and can be used to monitor projects or as a safety precaution to cut devices off / on.

COMPONENTS

- Male to Female jumper wires
- An Arduino, any flavor.
- Lighter or another flame source for testing.
- Flame Sensor (model with an analog Out)

CODE

```
// lowest and highest sensor readings:
const int sensorMin = 0;     // sensor minimum
const int sensorMax = 1024;  // sensor maximum

void setup() {
  // initialize serial communication @ 9600 baud:
  Serial.begin(9600);
}
void loop() {
  // read the sensor on analog A0:
          int sensorReading = analogRead(A0);
  // map the sensor range (four options):
  // ex: 'long int map(long int, long int, long int, long int, long int)'
          int range = map(sensorReading, sensorMin, sensorMax, 0, 3);

  // range value:
  switch (range) {
  case 0:    // A fire closer than 1.5 feet away.
    Serial.println("** Close Fire **");
    break;
  case 1:    // A fire between 1-3 feet away.
    Serial.println("** Distant Fire **");
    break;
  case 2:    // No fire detected.
    Serial.println("No Fire");
    break;
  }
  delay (1);  // delay between reads
}
```