

THE SMARTFIRE EXTINGUISHER

Code:

```
#define enA 10//Enable1 L298 Pin enA
#define in1 9 //Motor1 L298 Pin in1
#define in2 8 //Motor1 L298 Pin in2
#define in3 7 //Motor2 L298 Pin in3
#define in4 6 //Motor2 L298 Pin in4
#define enB 5 //Enable2 L298 Pin enB
#define ir_R A0
#define ir_F A1
#define ir_L A2
#define servo A4
#define pump A5
int Speed = 160; // Write The Duty Cycle 0 to 255 Enable for Motor Speed
int s1, s2, s3;
void setup(){ // put your setup code here, to run once
  Serial.begin(9600); // start serial communication at 9600bps
  pinMode(ir_R, INPUT); // declare fire sensor pin as input
  pinMode(ir_F, INPUT); // declare fire sensor pin as input
  pinMode(ir_L, INPUT); // declare fire sensor pin as input
  pinMode(enA, OUTPUT); // declare as output for L298 Pin enA
  pinMode(in1, OUTPUT); // declare as output for L298 Pin in1
  pinMode(in2, OUTPUT); // declare as output for L298 Pin in2
  pinMode(in3, OUTPUT); // declare as output for L298 Pin in3
  pinMode(in4, OUTPUT); // declare as output for L298 Pin in4
  pinMode(enB, OUTPUT); // declare as output for L298 Pin enB
  pinMode(servo, OUTPUT);
  pinMode(pump, OUTPUT);
  for (int angle = 90; angle <= 140; angle += 5) {
    servoPulse(servo, angle); }
  for (int angle = 140; angle >= 40; angle -= 5) {
    servoPulse(servo, angle); }
  for (int angle = 40; angle <= 95; angle += 5) {
    servoPulse(servo, angle); }
  analogWrite(enA, Speed); // Write The Duty Cycle 0 to 255 Enable Pin A for Motor1
  SpeedanalogWrite(enB, Speed); // Write The Duty Cycle 0 to 255 Enable Pin B for Motor2
  Speeddelay(500);
}
```

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void loop(){
  s1 = analogRead(ir_R);
  s2 = analogRead(ir_F);
  s3 = analogRead(ir_L);
  //=====
  // Auto Control
  //=====
  Serial.print(s1);
  Serial.print("\t");
  Serial.print(s2);
  Serial.print("\t");
  Serial.println(s3);
  delay(50);
  if(s1<250){
    Stop();
    digitalWrite(pump, 1);
    for(int angle = 90; angle >= 40; angle -= 3){
      servoPulse(servo, angle);
    }
    for(int angle = 40; angle <= 90; angle += 3){
      servoPulse(servo, angle);
    }
  }
  else if(s2<350){
    Stop();
    digitalWrite(pump, 1);
    for(int angle = 90; angle <= 140; angle += 3){
      servoPulse(servo, angle);
    }
    for(int angle = 140; angle >= 40; angle -= 3){
      servoPulse(servo, angle);
    }
    for(int angle = 40; angle <= 90; angle += 3){
      servoPulse(servo, angle);
    }
  }
  else if(s3<250){
    Stop();
    digitalWrite(pump, 1);
    for(int angle = 90; angle <= 140; angle += 3){
      servoPulse(servo, angle);
    }
  }
}

```

```

}
for(int angle = 140; angle >= 90; angle -= 3){
  servoPulse(servo, angle);
}
}
else if(s1>=251 && s1<=700){
  digitalWrite(pump, 0);
  backward();
  delay(100);
  turnRight();
  delay(200);
}
else if(s2>=251 && s2<=800){
  digitalWrite(pump, 0);
  forward();
}
else if(s3>=251 && s3<=700){
  digitalWrite(pump, 0);
  backward();
  delay(100);
  turnLeft();
  delay(200);
}else{
  digitalWrite(pump, 0);
  Stop();
}
delay(10);
}
void servoPulse (int pin, int angle){
  int pwm = (angle*11) + 500; // Convert angle to microseconds
  digitalWrite(pin, HIGH);
  delayMicroseconds(pwm);
  digitalWrite(pin, LOW);
  delay(50); // Refresh cycle of servo
}
void forward(){ //forward
  digitalWrite(in1, HIGH); //Right Motor forward Pin
  digitalWrite(in2, LOW); //Right Motor backward Pin
  digitalWrite(in3, LOW); //Left Motor backward Pin
  digitalWrite(in4, HIGH); //Left Motor forward Pin
}

```

```
void backward(){ //backward
digitalWrite(in1, LOW); //Right Motor forward Pin
digitalWrite(in2, HIGH); //Right Motor backward Pin
digitalWrite(in3, HIGH); //Left Motor backward Pin
digitalWrite(in4, LOW); //Left Motor forward Pin
}
void turnRight(){ //turnRight
digitalWrite(in1, LOW); //Right Motor forward Pin
digitalWrite(in2, HIGH); //Right Motor backward Pin
digitalWrite(in3, LOW); //Left Motor backward Pin
digitalWrite(in4, HIGH); //Left Motor forward Pin
}
void turnLeft(){ //turnLeft
digitalWrite(in1, HIGH); //Right Motor forward Pin
digitalWrite(in2, LOW); //Right Motor backward Pin
digitalWrite(in3, HIGH); //Left Motor backward Pin
digitalWrite(in4, LOW); //Left Motor forward Pin
}
void Stop(){ //stop
digitalWrite(in1, LOW); //Right Motor forward Pin
digitalWrite(in2, LOW); //Right Motor backward Pin
digitalWrite(in3, LOW); //Left Motor backward Pin
digitalWrite(in4, LOW); //Left Motor forward Pin
}
```