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#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
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#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 Speed

analogWrite(enB, Speed); // Write The Duty Cycle 0 to 255 Enable Pin B for Motor2 Speed

delay(500);

}

void loop(){

s1 = analogRead(ir_R);

s2 = analogRead(ir_F);
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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);
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    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
}
```