**Line Follower Robot**

#define rs 2 // Declaration for right sensor

#define ms 3 // Declaration for middle sensor

#define ls 4 // Declaration for left sensor

#define rt 11 //(optional) right indicator

#define lt 13 //(optional) left indicator

#define lm1 6 // Declaration for left motor control

#define lm2 7

#define rm1 8 // Declaration for right motor control

#define rm2 9

int st = 10,i=0; // The delay values will change based on your sensor so make sure you calibrate the sensors based on your track and your code

int d1,d2,d3; // variables to take in the values from the sensor

void setup() {

// put your setup code here, to run once:

pinMode(rs,INPUT);

pinMode(ms,INPUT); // Sensors will give the input

pinMode(ls,INPUT);

pinMode(rt,OUTPUT); //(optional) INdicators will give output

pinMode(lt,OUTPUT);

pinMode(lm1,OUTPUT);

pinMode(lm2,OUTPUT); // Both the metors will generate output

pinMode(rm1,OUTPUT);

pinMode(rm2,OUTPUT);

Serial.begin(9600);

}

void Straight(){

Serial.print("Straight");

digitalWrite(rt,LOW);

digitalWrite(lt,LOW);

digitalWrite(lm1,HIGH);

digitalWrite(lm2,LOW); // The motors will generate the rotation in forward direction

digitalWrite(rm1,HIGH);

digitalWrite(rm2,LOW);

delay(100);

}

void Stop(){

Serial.print("Stop");

digitalWrite(rt,LOW);

digitalWrite(lt,LOW);

digitalWrite(lm1,LOW); // The motors will remain stationary

digitalWrite(lm2,LOW);

digitalWrite(rm1,LOW);

digitalWrite(rm2,LOW);

delay(500);

}

void soft\_left(){

Serial.print("Soft Left");

digitalWrite(lt,HIGH);

digitalWrite(rt,LOW);

digitalWrite(lm1,LOW);

digitalWrite(lm2,LOW); // The motors will turn softly in the left direction

digitalWrite(rm1,HIGH);

digitalWrite(rm2,LOW);

delay(st);

}

void soft\_right(){

Serial.print("Soft Right");

digitalWrite(rt,HIGH);

digitalWrite(lt,LOW);

digitalWrite(lm1,HIGH); // THe motors will turn softly in the right direction

digitalWrite(lm2,LOW);

digitalWrite(rm1,LOW);

digitalWrite(rm2,LOW);

delay(st);

}

void sharp\_right(){

delay(1000);

slow\_for();

Serial.print("Sharp Right");

digitalWrite(rt,HIGH);

digitalWrite(lt,LOW); // THe motors will make a 90 degree right turn

digitalWrite(lm1,HIGH);

digitalWrite(lm2,LOW);

digitalWrite(rm1,LOW);

digitalWrite(rm2,HIGH);

delay(525);

Stop();

}

void sharp\_left(){

delay(1000);

slow\_for();

Serial.print("Sharp Left");

digitalWrite(lt,HIGH);

digitalWrite(rt,LOW);

digitalWrite(lm1,LOW); // The motors will make a 90 degree left turn

digitalWrite(lm2,HIGH);

digitalWrite(rm1,HIGH);

digitalWrite(rm2,LOW);

delay(525);

Stop();

}

void slow\_for(){

Serial.print("Slow Forward");

digitalWrite(rt,LOW);

digitalWrite(lt,LOW);

digitalWrite(lm1,HIGH);

digitalWrite(lm2,LOW); // This is used to align the bot on the track in case of 90 degree turn

digitalWrite(rm1,HIGH);

digitalWrite(rm2,LOW);

delay(525);

Stop();

}

void loop() {

// put your main code here, to run repeatedly:

d1=digitalRead(ls);

d2=digitalRead(ms); // THe values from the infrared sensors are stored here

d3=digitalRead(rs);

Serial.print(d1);

Serial.print("\t");

Serial.print(d2);

Serial.print("\t");

Serial.println(d3);

if(d1==0 && d2==1 && d3==0){ // This code will make the bot follow a black or a very dark line

Straight();

}

else if(d1==1 && d2==1 && d3==0){

soft\_left();

}

else if(d1==0 && d2==1 && d3==1){

soft\_right();

}

else if(d1==1 && d2==1 && d3==1)

{

i++;

if(i==1){

sharp\_right(); // YOu can insert your own turns here based on your choice,simply denote it with the increment variable i

}

else if(i==2){

sharp\_left();

}

else{

Stop();

}

}

else

Stop();

}