/\*declerations for ultrasonic sensor\*/

// defines pins numbers

const int trigPin = 6;

const int echoPin = 7;

// defines variables

long duration;

int distance;

/\*declerations for motors \*/

int val;

int m1 = 2; //Motor1 PIN=1

int m2 = 3; //Motor1 PIN=2

int m3 = 4; //Motor2 PIN=1

int m4 = 5; //Motor2 Pin=2

void setup() {

/\*ultrasonic sensor\*/

pinMode(trigPin, OUTPUT); // Sets the trigPin as an Output

pinMode(echoPin, INPUT); // Sets the echoPin as an Input

/\*motors\*/

pinMode(m1, OUTPUT);

pinMode(m2, OUTPUT);

pinMode(m3, OUTPUT);

pinMode(m4, OUTPUT);

Serial.begin(9600); // Starts the serial communication

}

void loop() {

// Clears the trigPin

digitalWrite(trigPin, LOW);

delay(1000);

// Sets the trigPin on HIGH state for 10 micro seconds

digitalWrite(trigPin, HIGH);

delay(1000);

digitalWrite(trigPin, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

duration = pulseIn(echoPin, HIGH);

// Calculating the distance

distance= duration\*0.034/2; //s=d/t here speed=0.034 since the wave travelles from trig to object and object to echo so the distance is divided by 2

// Prints the distance on the Serial Monitor

Serial.print("Distance(cm): ");

Serial.println(distance);

if(distance>=10)

{

Serial.println("No obstacle detected ,moving");

if( Serial.available() )

{

val = Serial.read();

}

if( val == '1' ) // Move Forward

{

Serial.println("Moving Forward");

digitalWrite(m1, HIGH);

digitalWrite(m2, LOW);

digitalWrite(m3, HIGH);

digitalWrite(m4, LOW);

}

else if ( val == '2' ) // Move RIGHT

{

Serial.println("Moving Right");

digitalWrite(m1, HIGH);

digitalWrite(m2, LOW);

digitalWrite(m3, HIGH);

digitalWrite(m4, LOW);

}

else if ( val == '3' ) // Move LEFT

{

Serial.println("Moving Left");

digitalWrite(m3, HIGH);

digitalWrite(m4, LOW);

digitalWrite(m1, HIGH);

digitalWrite(m2, LOW);

}

else if ( val == '4' ) // Move BACKWARD

{

Serial.println("Moving Backward");

digitalWrite(m3, LOW);

digitalWrite(m4, HIGH);

digitalWrite(m1, LOW);

digitalWrite(m2, HIGH);

}

else {

Serial.println("Stop");

digitalWrite(m1, LOW);

digitalWrite(m2, LOW);

digitalWrite(m3, LOW);

digitalWrite(m4, LOW);

} //Stop The All Motor

delay(100);

}

else

{

Serial.println("obstacle detected ,TURNING");

//right turn ,we can keep any turn

digitalWrite(m1, HIGH);

digitalWrite(m2, LOW);

digitalWrite(m3, HIGH);

digitalWrite(m4, LOW);

}

}