// Robotic Car Voice/Bluetooth controlled+Obstacle Avoidance

#include <AFMotor.h>

#include <NewPing.h>

#include<Servo.h>

#define TRIGGER\_PIN A1

#define ECHO\_PIN A0

#define MAX\_DISTANCE 300

#define IR A5

AF\_DCMotor motor1(1, MOTOR12\_1KHZ);

AF\_DCMotor motor2(2, MOTOR12\_1KHZ);

AF\_DCMotor motor3(3, MOTOR34\_1KHZ);

AF\_DCMotor motor4(4, MOTOR34\_1KHZ);

NewPing sonar(TRIGGER\_PIN, ECHO\_PIN, MAX\_DISTANCE);

Servo myservo;

String voice;

void setup()

{

Serial.begin(9600);

myservo.attach(10);

myservo.write(90);

pinMode(IR, INPUT);

}

void loop()

{

int distance = sonar.ping\_cm();

int IR1 = digitalRead(IR);

Serial.println(IR1);

if(Serial.available()>0)

{

voice="";

delay(2);

voice = Serial.readString();

delay(2);

Serial.println(voice);

if (voice == "turn left")

{

left();

}

else if (voice == "left")

{

left();

}

else if(voice == "turn right")

{

right();

}

else if(voice == "right")

{

right();

}

}

while(voice == "move forward")

{

forward();

}

while(voice == "move backward")

{

backward();

}

}

void forward()

{

int distance = sonar.ping\_cm();

if(distance < 10)

{

Stop();

voice="";

}

else

{

motor1.setSpeed(250);

motor1.run(FORWARD);

motor2.setSpeed(250);

motor2.run(FORWARD);

motor3.setSpeed(250);

motor3.run(FORWARD);

motor4.setSpeed(250);

motor4.run(FORWARD);

}

}

void backward()

{

int IR\_Sensor = digitalRead(IR);

if(IR\_Sensor == 0)

{

Stop();

voice="";

}

else

{

motor1.setSpeed(250);

motor1.run(BACKWARD);

motor2.setSpeed(250);

motor2.run(BACKWARD);

motor3.setSpeed(250);

motor3.run(BACKWARD);

motor4.setSpeed(250);

motor4.run(BACKWARD);

}

}

void right()

{

myservo.write(180);

delay(500);

myservo.write(90);

delay(500);

motor1.run(BACKWARD);

motor1.setSpeed(250);

motor2.run(BACKWARD);

motor2.setSpeed(250);

motor3.run(FORWARD);

motor3.setSpeed(250);

motor4.run(FORWARD);

motor4.setSpeed(250);

delay(700);

motor1.run(RELEASE);

motor2.run(RELEASE);

motor3.run(RELEASE);

motor4.run(RELEASE);

}

void left()

{

myservo.write(0);

delay(500);

myservo.write(90);

delay(500);

motor1.run(FORWARD);

motor1.setSpeed(250);

motor2.run(FORWARD);

motor2.setSpeed(250);

motor3.run(BACKWARD);

motor3.setSpeed(250);

motor4.run(BACKWARD);

motor4.setSpeed(250);

delay(700);

motor1.run(RELEASE);

motor2.run(RELEASE);

motor3.run(RELEASE);

motor4.run(RELEASE);

}

void Stop() {

motor1.run(RELEASE);

motor2.run(RELEASE);

motor3.run(RELEASE);

motor4.run(RELEASE);

}