#include <AFMotor.h>

#include <NewPing.h>

#include <Servo.h>

#define TRIG\_PIN A0

#define ECHO\_PIN A1

#define MAX\_DISTANCE 200

#define MAX\_SPEED 190 // sets speed of DC motors

#define MAX\_SPEED\_OFFSET 20

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

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

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

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

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

Servo myservo;

boolean goesForward=false;

int distance = 100;

int speedSet = 0;

void setup() {

myservo.attach(10);

myservo.write(115);

delay(2000);

distance = readPing();

delay(100);

distance = readPing();

delay(100);

distance = readPing();

delay(100);

distance = readPing();

delay(100);

}

void loop() {

int distanceR = 0;

int distanceL = 0;

delay(40);

if(distance<=15)

{

moveStop();

delay(100);

moveBackward();

delay(300);

moveStop();

delay(200);

distanceR = lookRight();

delay(200);

distanceL = lookLeft();

delay(200);

if(distanceR>=distanceL)

{

turnRight();

moveStop();

}else

{

turnLeft();

moveStop();

}

}else

{

moveForward();

}

distance = readPing();

}

int lookRight()

{

myservo.write(50);

delay(500);

int distance = readPing();

delay(100);

myservo.write(115);

return distance;

}

int lookLeft()

{

myservo.write(170);

delay(500);

int distance = readPing();

delay(100);

myservo.write(115);

return distance;

delay(100);

}

int readPing() {

delay(70);

int cm = sonar.ping\_cm();

if(cm==1)

{

cm = 250;

}

return cm;

}

void moveStop() {

motor1.run(RELEASE);

motor2.run(RELEASE);

motor3.run(RELEASE);

motor4.run(RELEASE);

}

void moveForward() {

if(!goesForward)

{

goesForward=true;

motor1.run(FORWARD);

motor2.run(FORWARD);

motor3.run(FORWARD);

motor4.run(FORWARD);

for (speedSet = 0; speedSet < MAX\_SPEED; speedSet +=2) // slowly bring the speed up to avoid loading down the batteries too quickly

{

motor1.setSpeed(speedSet);

motor2.setSpeed(speedSet);

motor3.setSpeed(speedSet);

motor4.setSpeed(speedSet);

delay(5);

}

}

}

void moveBackward() {

goesForward=false;

motor1.run(BACKWARD);

motor2.run(BACKWARD);

motor3.run(BACKWARD);

motor4.run(BACKWARD);

for (speedSet = 0; speedSet < MAX\_SPEED; speedSet +=2) // slowly bring the speed up to avoid loading down the batteries too quickly

{

motor1.setSpeed(speedSet);

motor2.setSpeed(speedSet);

motor3.setSpeed(speedSet);

motor4.setSpeed(speedSet);

delay(5);

}

}

void turnRight() {

motor1.run(FORWARD);

motor2.run(FORWARD);

motor3.run(BACKWARD);

motor4.run(BACKWARD);

{

motor1.setSpeed(500);

motor2.setSpeed(500);

motor3.setSpeed(500);

motor4.setSpeed(500);

}

delay(500);

motor1.run(FORWARD);

motor2.run(FORWARD);

motor3.run(FORWARD);

motor4.run(FORWARD);

}

void turnLeft() {

motor1.run(BACKWARD);

motor2.run(BACKWARD);

motor3.run(FORWARD);

motor4.run(FORWARD);

{

motor1.setSpeed(500);

motor2.setSpeed(500);

motor3.setSpeed(500);

motor4.setSpeed(500);

}

delay(500);

motor1.run(FORWARD);

motor2.run(FORWARD);

motor3.run(FORWARD);

motor4.run(FORWARD);

}