/\*Pat's IR Mecanum 4 WheelRobot Finger On to Run movement Actions, Off to Stop Actions.

  This is coded for the AIWA remote, NOTE- the DAEWOO remote has the 4 outer buttons reversed.

  Push centre Stop Button to turn off the Blue, Orange & Red LED's only. The Horn will stay on for 1 second then go off (because it is anoying!)

  Modified by Pat McMahon 23/7/2023, in1=3,in2=4,in3=5,in4=6,in5=7,in6=8,in7=9,in8=10, added Front Lights pin 12, Middle extra pin 13,Back Lights pin A0,Horn pin 11.

\*/

#include <IRremote.h>

// connect motor controller pins to Arduino digital pins

// motor one`

const int in1 =3;

const int in2 = 4;

// motor two

const int in3 = 5;

const int in4 = 6;

// motor three

const int in5 =7;

const int in6 = 8;

// motor four

const int in7 = 9;

const int in8 = 10;

// LEDs

const int frontLights = 12;

const int middleLights = 13;

const int backLights = A0;

const int horn = 11;

const int delayTime =1000;

const int RECV\_PIN = 2;

int lastMiniIRCommand = 0;

IRrecv irrecv(RECV\_PIN);

void setup()

{

  // set all the motor control pins to outputs

  pinMode(in1, OUTPUT);

  pinMode(in2, OUTPUT);

  pinMode(in3, OUTPUT);

  pinMode(in4, OUTPUT);

  pinMode(in5, OUTPUT);

  pinMode(in6, OUTPUT);

  pinMode(in7, OUTPUT);

  pinMode(in8, OUTPUT);

  pinMode(frontLights, OUTPUT);

  pinMode(middleLights, OUTPUT);

  pinMode(backLights, OUTPUT);

  pinMode(horn, OUTPUT);

  irrecv.enableIRIn(); // Start the receiver

}

void loop()

{

  decode\_results results;

  if (irrecv.decode(&results)) // if there is an IR reading

  {

    Serial.println(results.value, HEX);

    lastMiniIRCommand = results.value;

    switch (results.value)

    {

      case 0x2F0:

        Serial.println("Forwards");

        forwards();

        break;

      case 0xAF0:

        Serial.println("Backwards");

        backwards();

        break;

      case 0x2D0:

        Serial.println("Left");

        left();

        break;

      case 0xCD0:

        Serial.println("Right");

        right();

        break;

      case 0x90:

        Serial.println("Clockwise!");

       clockwise();

        break;

      case 0x490:

        Serial.println("AntiClockwise!");

        antiClockwise();

        break;

      case 0xA70:

        Serial.println("Stop");

        halt();

        break;

      case 0x37EE:

        Serial.println("ForwardRight!");

        forwardRight();

        break;

      case 0x6D25:

        Serial.println("BackRight!");

        backRight();

        break;

      case 0xE90:

        Serial.println("ForwardLeft!");

        forwardLeft();

        break;

      case 0x70:

        Serial.println("BackLeft!");

        backLeft();

        break;

      case 0x5D0:

        Serial.println("stationary!");

        stationary();

        break;

      case 0xF38:

        Serial.println("FrontLights!");

        FrontLights();

        break;

      case 0x738:

        Serial.println("MiddleLights!");

        MiddleLights();

        break;

      case 0x338:

        Serial.println("BackLights!");

        BackLights();

        break;

      case 0xB38:

        Serial.println("Horn!");

        Horn();

        break;

    }

irrecv.resume();  // Receive the next value

 }

 }

void forwards()

{

  // Forward

  digitalWrite(in1, HIGH);

  digitalWrite(in2, LOW);

  digitalWrite(in3, HIGH);

  digitalWrite(in4, LOW);

  digitalWrite(in5, HIGH);

  digitalWrite(in6, LOW);

  digitalWrite(in7, HIGH);

  digitalWrite(in8, LOW);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

 }

void backwards()

{

  // Backwards

  digitalWrite(in1, LOW);

  digitalWrite(in2 ,HIGH);

  digitalWrite(in3, LOW);

  digitalWrite(in4, HIGH);

  digitalWrite(in5, LOW);

  digitalWrite(in6, HIGH);

  digitalWrite(in7, LOW);

  digitalWrite(in8, HIGH);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

void right()

{

 // Right

  digitalWrite(in1, HIGH);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, HIGH);

  digitalWrite(in5, LOW);

  digitalWrite(in6, HIGH);

  digitalWrite(in7, HIGH);

  digitalWrite(in8, LOW);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

void left()

{

  //left

  digitalWrite(in1, LOW);

  digitalWrite(in2, HIGH);

  digitalWrite(in3, HIGH);

  digitalWrite(in4, LOW);

  digitalWrite(in5, HIGH);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, HIGH);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

 void clockwise()

{

  digitalWrite(in1, HIGH);

  digitalWrite(in2, LOW);

  digitalWrite(in3, HIGH);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, HIGH);

  digitalWrite(in7, LOW);

  digitalWrite(in8, HIGH);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

 void antiClockwise()

{

  digitalWrite(in1, LOW);

  digitalWrite(in2, HIGH);

  digitalWrite(in3, LOW);

  digitalWrite(in4, HIGH);

  digitalWrite(in5, HIGH);

  digitalWrite(in6, LOW);

  digitalWrite(in7, HIGH);

  digitalWrite(in8, LOW);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

  void forwardRight()

{

  digitalWrite(in1, HIGH);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, HIGH);

  digitalWrite(in8, LOW);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

 void forwardLeft()

{

  digitalWrite(in1, LOW);

  digitalWrite(in2 ,LOW);

  digitalWrite(in3, HIGH);

  digitalWrite(in4, LOW);

  digitalWrite(in5, HIGH);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

  void backRight()

{

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, HIGH);

  digitalWrite(in5, LOW);

  digitalWrite(in6, HIGH);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

 void backLeft()

{

  digitalWrite(in1, LOW);

  digitalWrite(in2, HIGH);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, HIGH);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

 void stationary()

{

  digitalWrite(in1, HIGH);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, HIGH);

  digitalWrite(in5, HIGH);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, HIGH);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

}

void halt()

{

  // stop all motors

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

  digitalWrite(frontLights, LOW);

  digitalWrite(middleLights, LOW);

  digitalWrite(backLights, LOW);

  digitalWrite(horn,LOW);

}

 void FrontLights()

{

 digitalWrite(frontLights, HIGH);

}

void MiddleLights()

{

  digitalWrite(middleLights, HIGH);

}

void BackLights()

{

  digitalWrite(backLights, HIGH);

}

void Horn()

{

  digitalWrite(horn, HIGH);

  delay (delayTime);

  digitalWrite(in1, LOW);

  digitalWrite(in2, LOW);

  digitalWrite(in3, LOW);

  digitalWrite(in4, LOW);

  digitalWrite(in5, LOW);

  digitalWrite(in6, LOW);

  digitalWrite(in7, LOW);

  digitalWrite(in8, LOW);

  digitalWrite(horn,LOW);

}