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/* YourDuino.com Example Software Sketch
   Small Stepper Motor and Driver
   http://arduino-direct.com/sunshop/index.php?l=product\_detail&p=126
   terry@yourduino.com */

/*-----( Import needed libraries )-----*/
#include <Stepper.h>
#include <Servo.h>

Servo myservo;

/*-----( Declare Constants, Pin Numbers )-----*/
#define STEPS    100//Number of steps per revolution

/*-----( Declare objects )-----*/
// create an instance of the stepper class, specifying
// the number of steps of the motor and the pins it's
// attached to

//The pin connections need to be 4 pins connected
// to Motor Driver In1, In2, In3, In4  and then the pins entered
// here in the sequence 1-3-2-4 for proper sequencing
Stepper small_stepperV(STEPS, 4, 6, 5, 7);
Stepper small_stepperH(STEPS, 2, 12, 3, 13);

/*-----( Declare Variables )-----*/

int Steps2Take;
int X = 0 ;
int Y = 0;
int Xhome;
int Yhome;
int Move = 200;
int Tsteps = 2000;

void setup()    /*-----( SETUP: RUNS ONCE )-----*/
{
  myservo.attach(9);
  // set the speed of the motor
  small_stepperH.setSpeed(200);
  small_stepperV.setSpeed(200);
  // initialize serial communication:
  Serial.begin(9600);
}/*--(end setup )---*/

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void loop() /*----( LOOP: RUNS CONSTANTLY )----*/
{
myservo.write(170);
if (Serial.available() > 0) {
int inByte =Serial.read();

switch (inByte) {

    case 'c':
myservo.write(170);
delay(500);
myservo.write(0);
delay(800);
myservo.write(50);
delay(800);
myservo.write(0);
delay(800);
myservo.write(170);
break;

case 'l':
    Serial.println("LEFT!");
small_stepperH.step(200);
delay(200);
break;

case 'r':
    Serial.println("RIGHT!");
small_stepperH.step(-200);
delay(200);
break;

case 'd':
    Serial.println("DOWN");
small_stepperV.step(200);
delay(200);
break;

case 'u':
    Serial.println("UP");
small_stepperV.step(-200);
delay(200);
break;

case 'x':
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Serial.println("Random Walk");
randomSeed(analogRead(0)); // read from analog port with nothing connected
Xhome = 0;
Yhome = 0;
for(int i=0; i < Tsteps; i++)
{
  X =random(-Move, Move);
  if(Xhome > 2500 && X > 0)
  X = -X;
  if(Xhome < -2500 && X < 0)
  X = -X;
  small_stepperH.step(X);
  Xhome = Xhome + X;
  delay(200);
  Y =random(-Move, Move);
  if(Yhome > 1250 && Y > 0)
  Y = -Y;
  if(Yhome < -1250 && Y < 0)
  Y = -Y;
  Yhome = Yhome + Y;
  small_stepperV.step(Y);
  delay(200);
  Serial.println("  ");
  Serial.print(i);
  Serial.print("  ");
  Serial.print(Xhome);
  Serial.print("  ");
  Serial.println(Yhome);
  delay(200);
}
break;

case 'h':
  Serial.println("home");
  small_stepperH.step(-Xhome);
  delay(200);
  small_stepperV.step(-Yhome);
  delay(200);
  Xhome = 0;
  Yhome = 0;
  break;

}}}
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