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//Servomotor library
#include <Servo.h>

// Define stepper motor connections and steps per revolution:
#define dirPin 2
#define stepPin 3
#define stepsPerRevolution 200

//LCD settings
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27, 16, 2);

//PEN ServoMotor
Servo penMotor; //define the servomotor
int potpin = A1; //define servomotor pin
int val; //variable for servomotor

const int buttonPin = 4; // the number of the pushbutton pin
int buttonState = 0; // variable for reading the pushbutton status

const int buttonPin1 = 5;
int buttonState1 = 0;
int home = 0;
int prediction = 0;
int start = 0;

long ranValue;

void penUp(){
//PEN UP
delay(1000);
val = 0;
val = map(val, 0, 1023, 0, 180);
penMotor.write(val);
}

void penDown(){
//PEN DOWN
val = 90;
penMotor.write(val);
}

void setup() {

Serial.begin(9600);
// Declare pins as output:
pinMode(stepPin, OUTPUT);
pinMode(dirPin, OUTPUT);
pinMode(buttonPin, INPUT);

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penMotor.attach(potpin);
randomSeed(analogRead(0));

lcd.begin();
lcd.backlight();
}

void initit() {

if ((buttonState == HIGH) && (home == 0)) {
  digitalWrite(dirPin, HIGH);
  Serial.println("Reset...");

  void penUp();
  prediction = 0;

  //Spin the stepper motor 5 revolutions fast:
  for (int i = 0; i < stepsPerRevolution; i++) {
    // These four lines result in 1 step:
    digitalWrite(stepPin, HIGH);
    delayMicroseconds(500);
    digitalWrite(stepPin, LOW);
    delayMicroseconds(500);
  }
} else if (buttonState == LOW) {
  //Serial.println("Ready!");
  home = 1;
}
}

void loop() {

// read the state of the pushbutton value:
buttonState = digitalRead(buttonPin);
buttonState1 = digitalRead(buttonPin1);

initit();

if ((buttonState1 == LOW) && (home == 1)) {

  ranValue = random(0,23); // 1000*20200
  ranValue = ranValue * 100;

  lcd.clear();
  lcd.setCursor(2,0);
  Serial.println("Predicting...");
  lcd.print("Predicting...");

  if (prediction == 0) {
    digitalWrite(dirPin, LOW);
  }
}
}

```

```
void penDown();

for (int i = 0; i < ranValue; i++) {
  // These four lines result in 1 step:
  digitalWrite(stepPin, HIGH);
  delayMicroseconds(500);
  digitalWrite(stepPin, LOW);
  delayMicroseconds(500);
  prediction = 1;
}
//the prediction is done!
lcd.clear();
Serial.print("Your Lifex is: ");
Serial.println(ranValue/23);
lcd.setCursor(1,0);
lcd.print("Your Lifex is: ");
lcd.setCursor(7,1);
lcd.print((ranValue/23)+10);

//get back Home
void penUp();
delay(5000);
home = 0;
//initit();
}
}
}
```