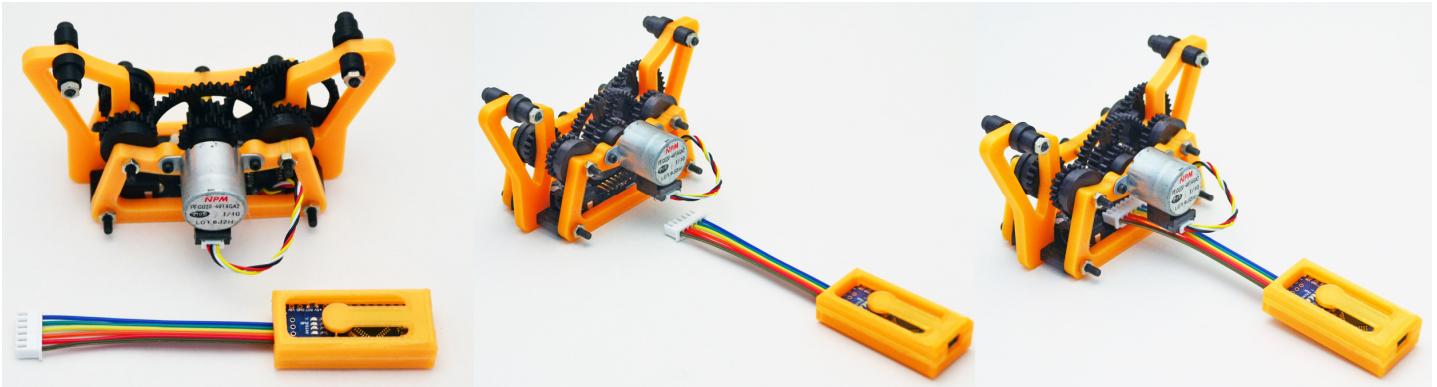## Step 1

Insert the programming socket with the pins facing upwards in the back of the board.

Connect the programming board to the pc using a usb mini cable
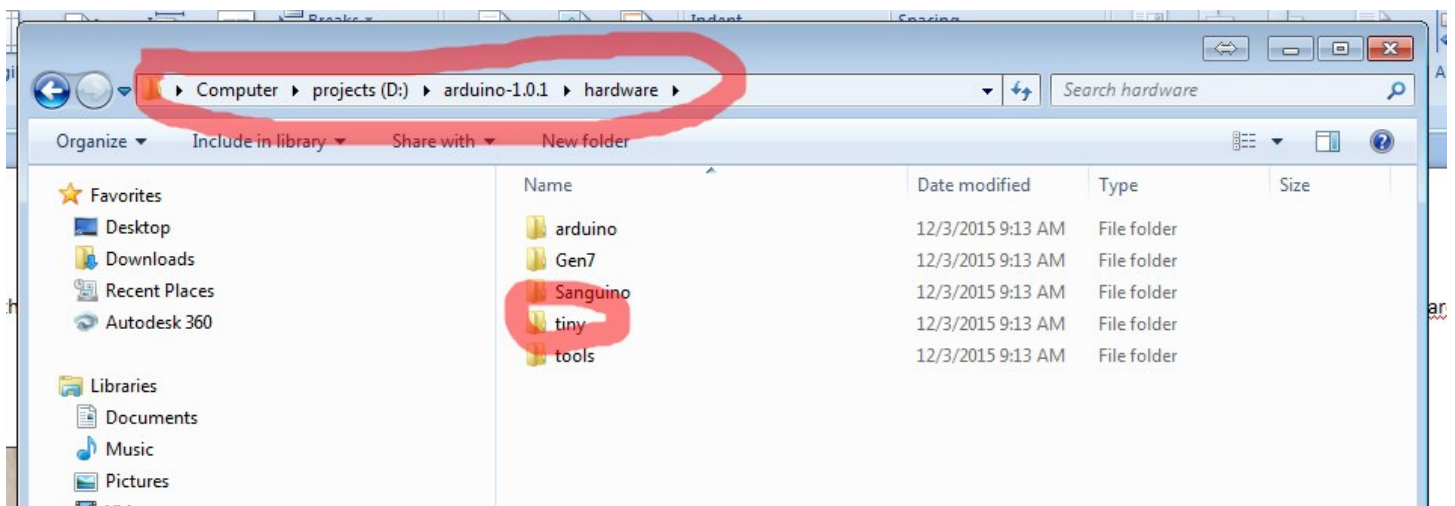

step 2

download arduino 1.0.1 from the arduino site (old versions) the newer ones have a problem

step 3

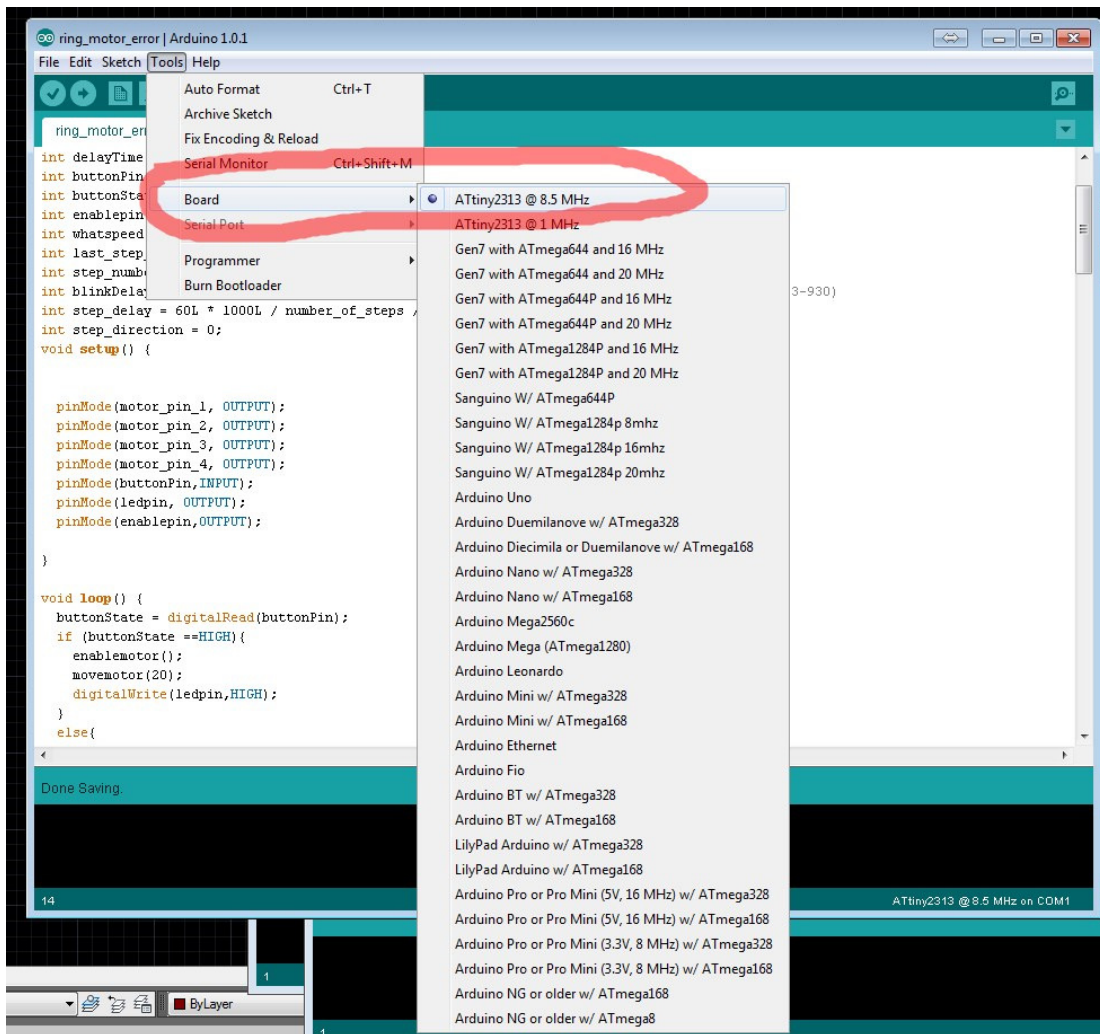download the Arduino sketch and the tiny library from the github

https://github.com/ekaggrat/holo_clock

put the **tiny** folder in the arduino's hardware folder as follows:

step 4

open the arduino 1.0.1 and the boards list now you should see attiny as follows
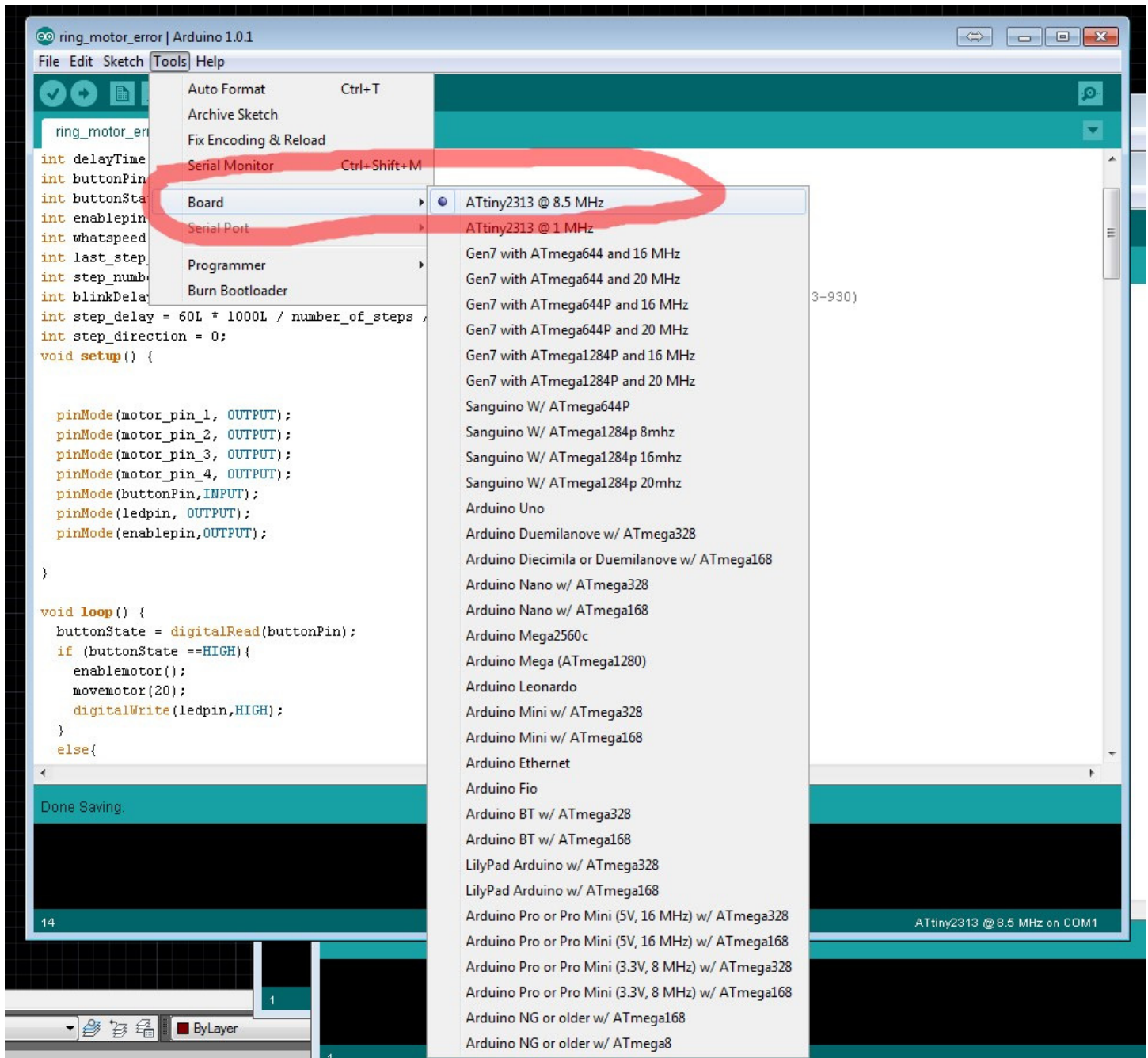

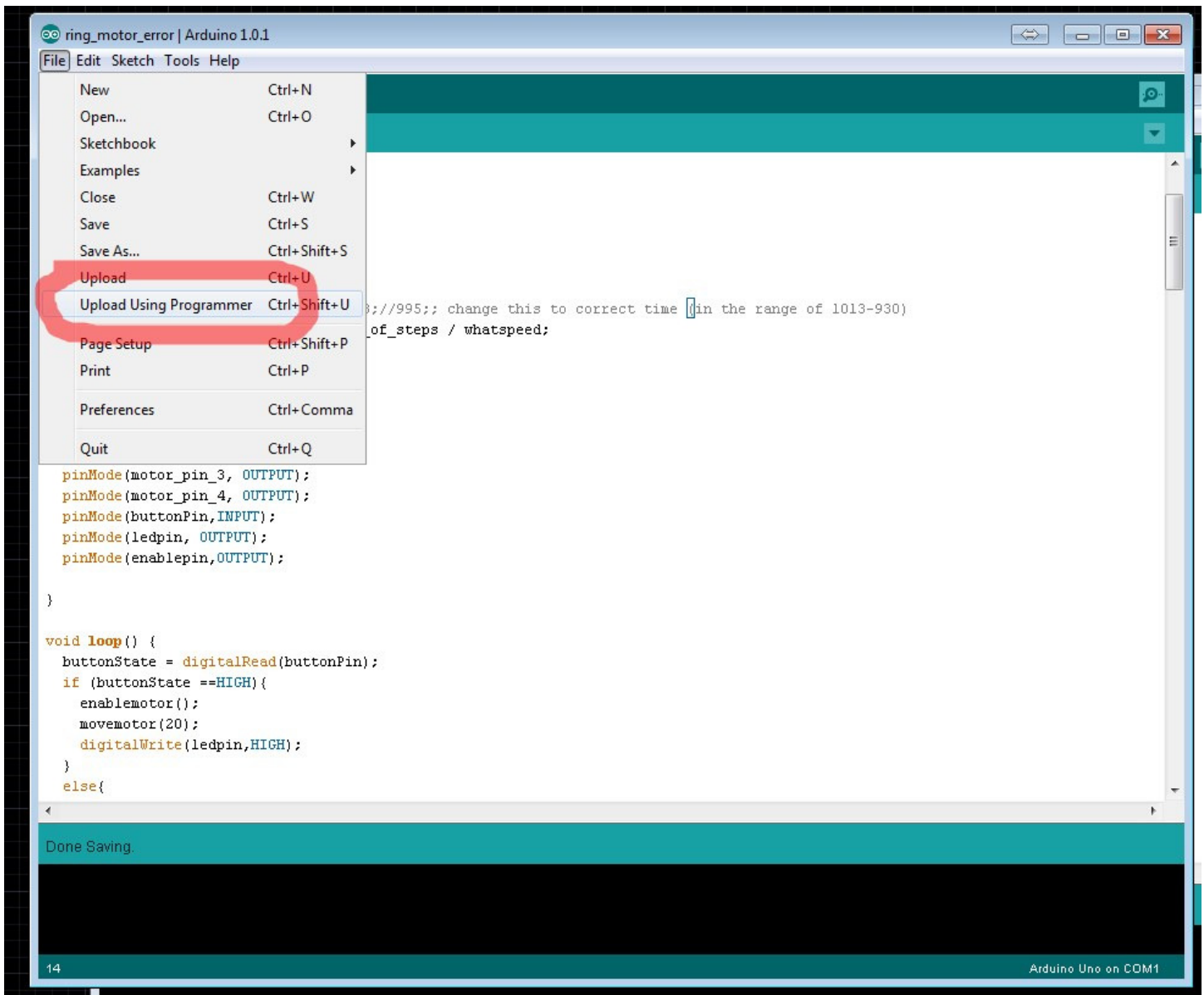if not check the tiny folder is in the right location

step 7

open the Arduino sketch

upload the sketch using the following method.. (dont upload as usual because that will not work) First select the board as

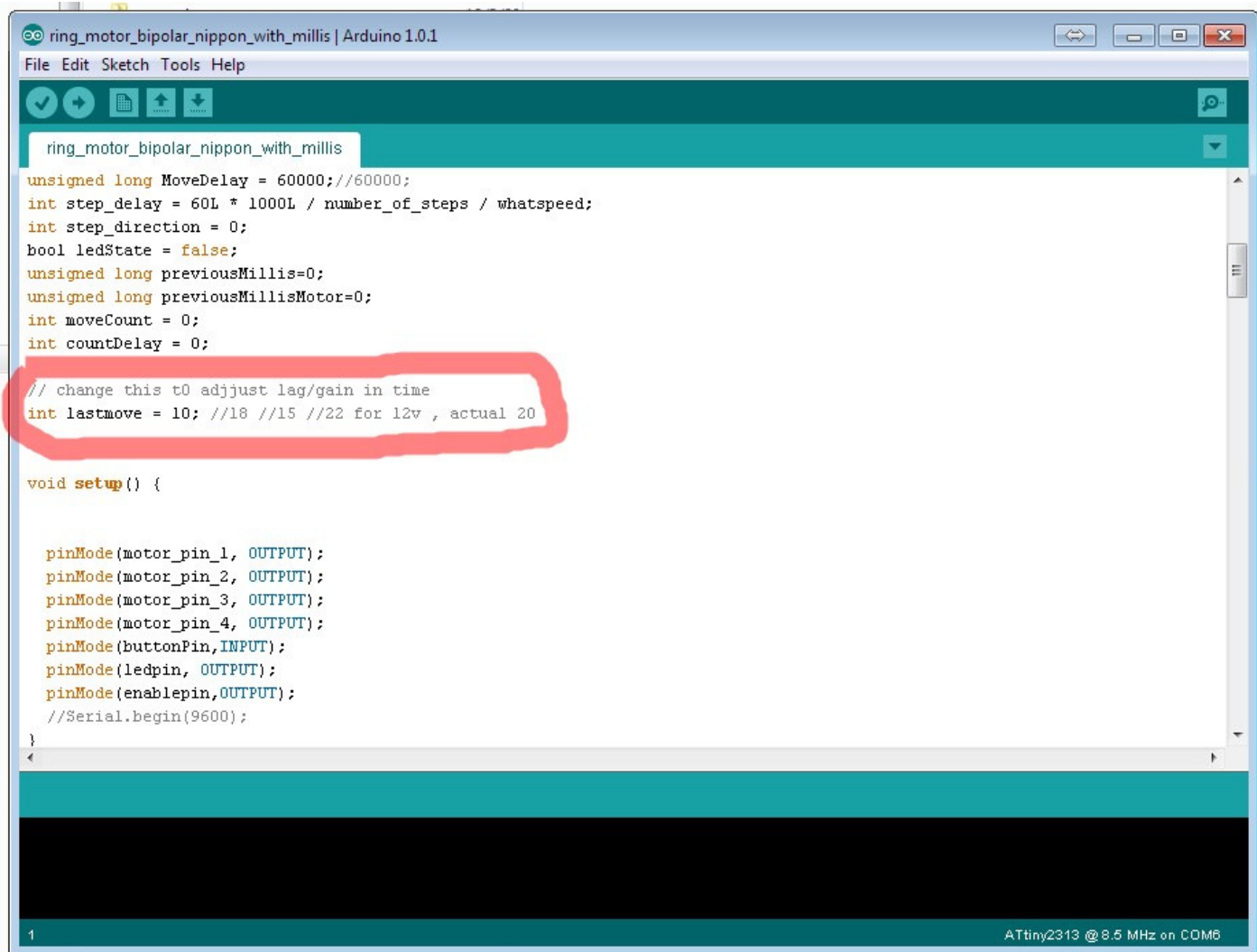attiny2313@ 8.5 . then upload using programmer

ring_motor_error | Arduino 1.0.1

File Edit Sketch Tools Help

New	Ctrl+N
Open...	Ctrl+O
Sketchbook	▶
Examples	▶
Close	Ctrl+W
Save	Ctrl+S
Save As...	Ctrl+Shift+S
Upload	Ctrl+U
Upload Using Programmer	Ctrl+Shift+U
Page Setup	Ctrl+Shift+P
Print	Ctrl+P
Preferences	Ctrl+Comma
Quit	Ctrl+Q

```
;//995;; change this to correct time (in the range of 1013-930)
of_steps / whatspeed;

pinMode(motor_pin_3, OUTPUT);
pinMode(motor_pin_4, OUTPUT);
pinMode(buttonPin,INPUT);
pinMode(ledpin, OUTPUT);
pinMode(enablepin,OUTPUT);

}

void loop() {
  buttonState = digitalRead(buttonPin);
  if (buttonState ==HIGH){
    enablemotor();
    movemotor(20);
    digitalWrite(ledpin,HIGH);
  }
  else{
```

Done Saving.

14   Arduino Uno on COM1

should be done ..

step 8

If the clock is gaining or loosing time adjust the timing by changing the value for the last move

A value of 5 works well but it can vary depending on the power supply used.

```
ring_motor_bipolar_nippon_with_millis | Arduino 1.0.1

File Edit Sketch Tools Help

ring_motor_bipolar_nippon_with_millis

unsigned long MoveDelay = 60000;//60000;
int step_delay = 60L * 1000L / number_of_steps / whatspeed;
int step_direction = 0;
bool ledState = false;
unsigned long previousMillis=0;
unsigned long previousMillisMotor=0;
int moveCount = 0;
int countDelay = 0;

// change this t0 adjjust lag/gain in time
int lastmove = 10; //18 //15 //22 for 12v , actual 20


void setup() {


  pinMode(motor_pin_1, OUTPUT);
  pinMode(motor_pin_2, OUTPUT);
  pinMode(motor_pin_3, OUTPUT);
  pinMode(motor_pin_4, OUTPUT);
  pinMode(buttonPin,INPUT);
  pinMode(ledpin, OUTPUT);
  pinMode(enablepin,OUTPUT);
  //Serial.begin(9600);
}
```

ATtiny2313 @ 8.5 MHz on COM6

That's it . the clock should be working fine now

To adjust the time just press the button on the left side and wait patiently for the needles to reach the correct position.

The clock only moves to change minutes and hours. The rest of the time it just blinks quietly to indicate seconds.