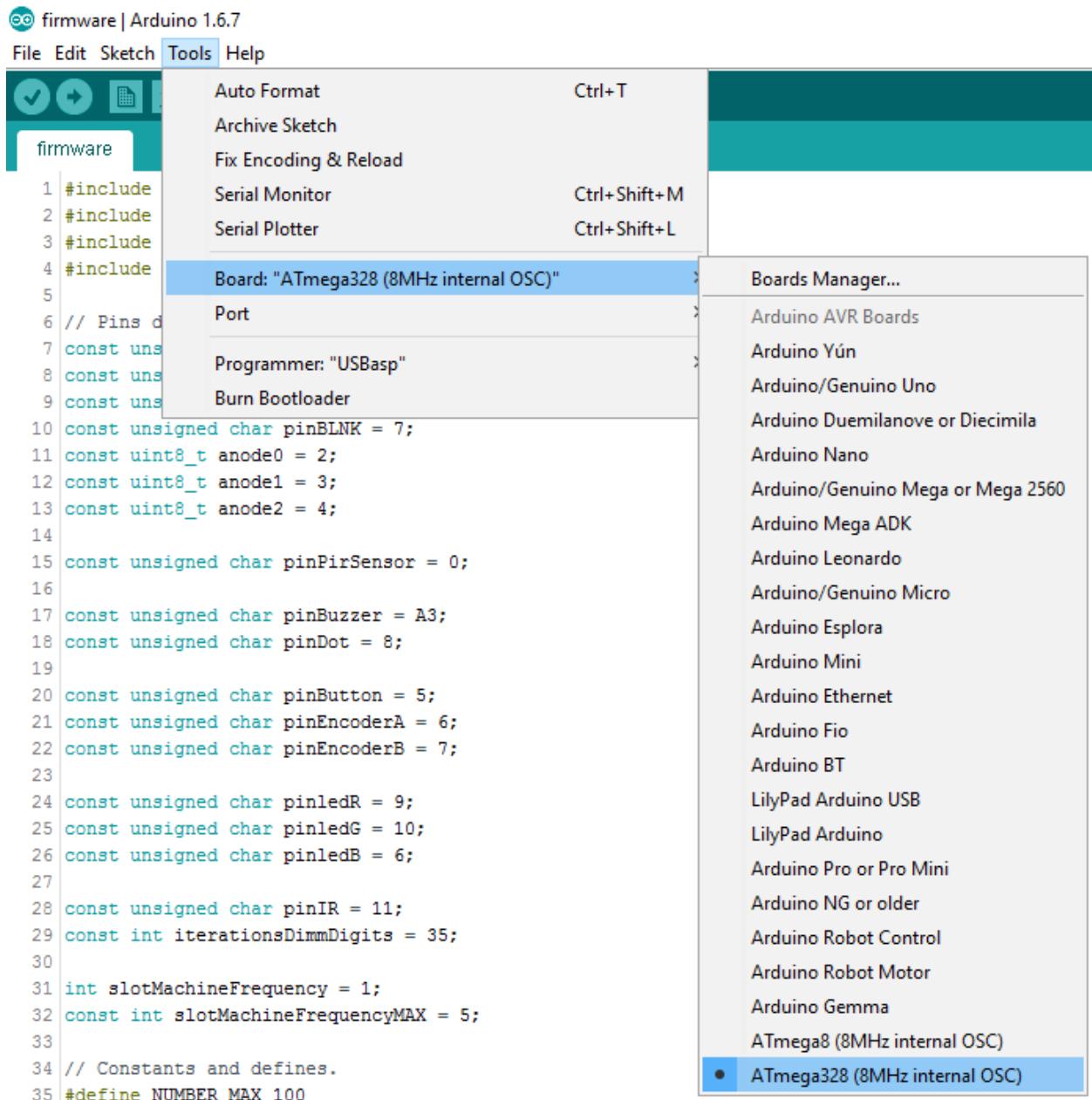


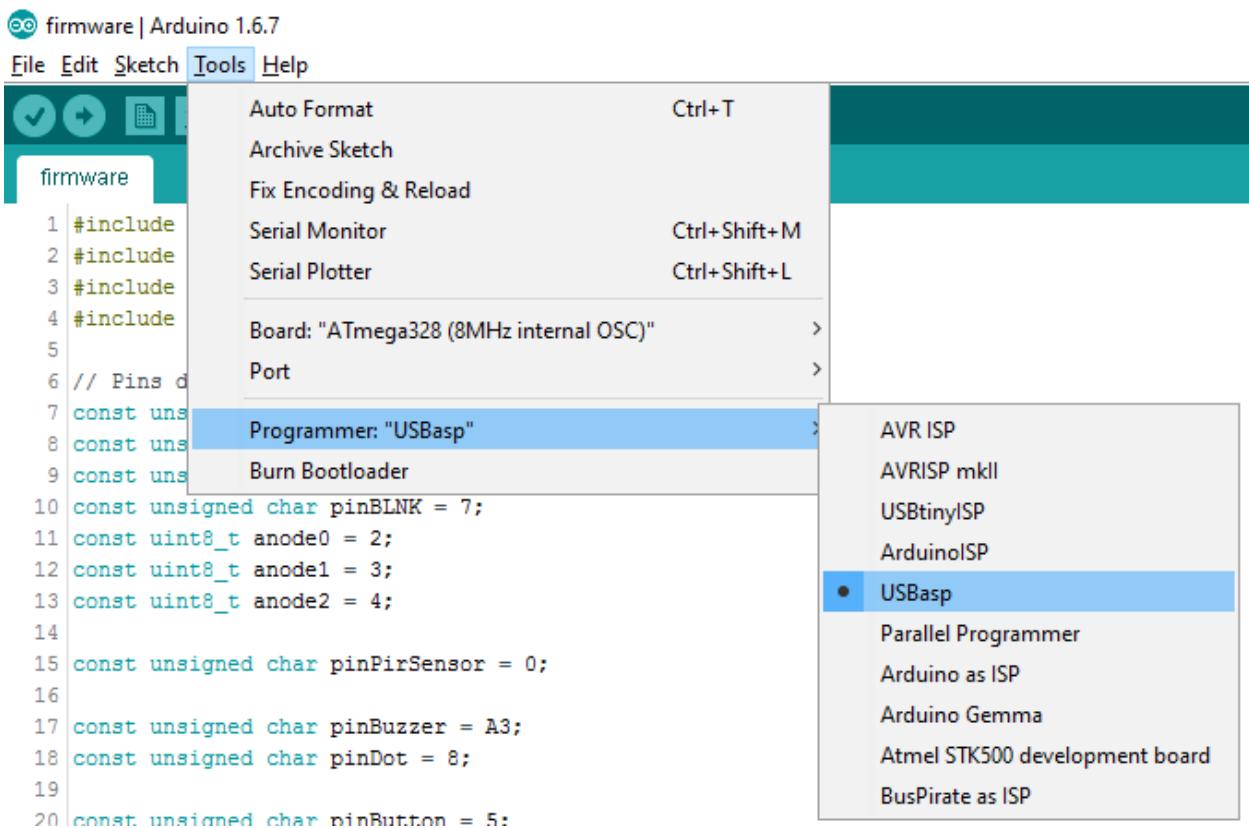
Hello, here is a short tutorial how to update the IN-14/IN-8-2 nixie clocks firmware:

1. To update the firmware we will need a programmer. I use this one [here](#). It is cheap and reliable. It also has a 10pin to 6pin adapter that is must.
2. Install the USB driver for the usbasp programmer. Here is a good video covering all the process - <https://www.youtube.com/watch?v=gZ3a5NcJpZ4> (the website with the drivers is - <http://www.fischl.de/usbasp/>).
3. Download the archive with the arduino IDE that contains all patched libraries. It is available on my dropbox -
<https://www.dropbox.com/s/2no58r0yaoojmxu/Arduino.zip?dl=0>
4. Download the firmware source file from github -
<https://github.com/petrovodopyan/firmware/blob/master/firmware.ino>
5. Extract the IDE from the archive and run arduino.exe.
6. Open the firmware file (firmware.ino) in the arduino IDE.

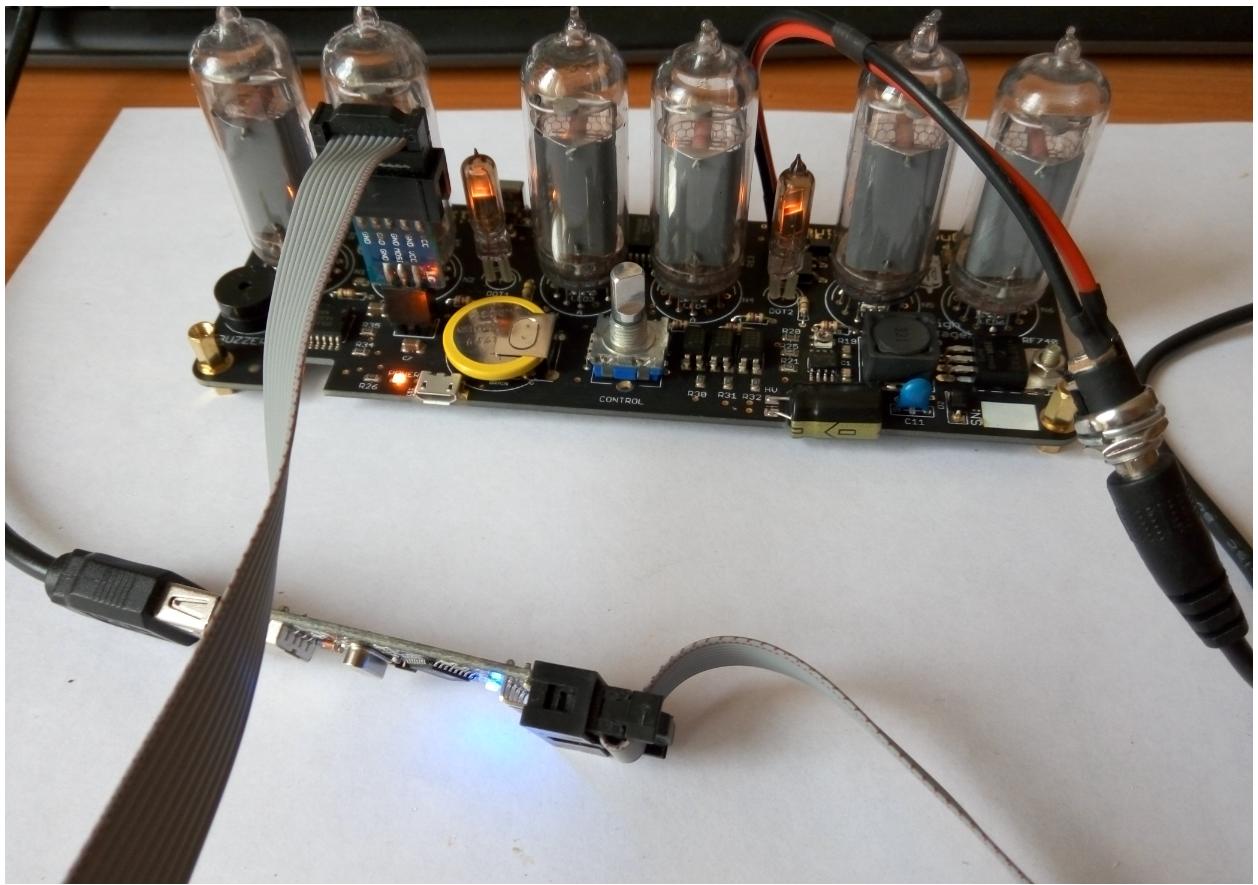
7. Select correct board:

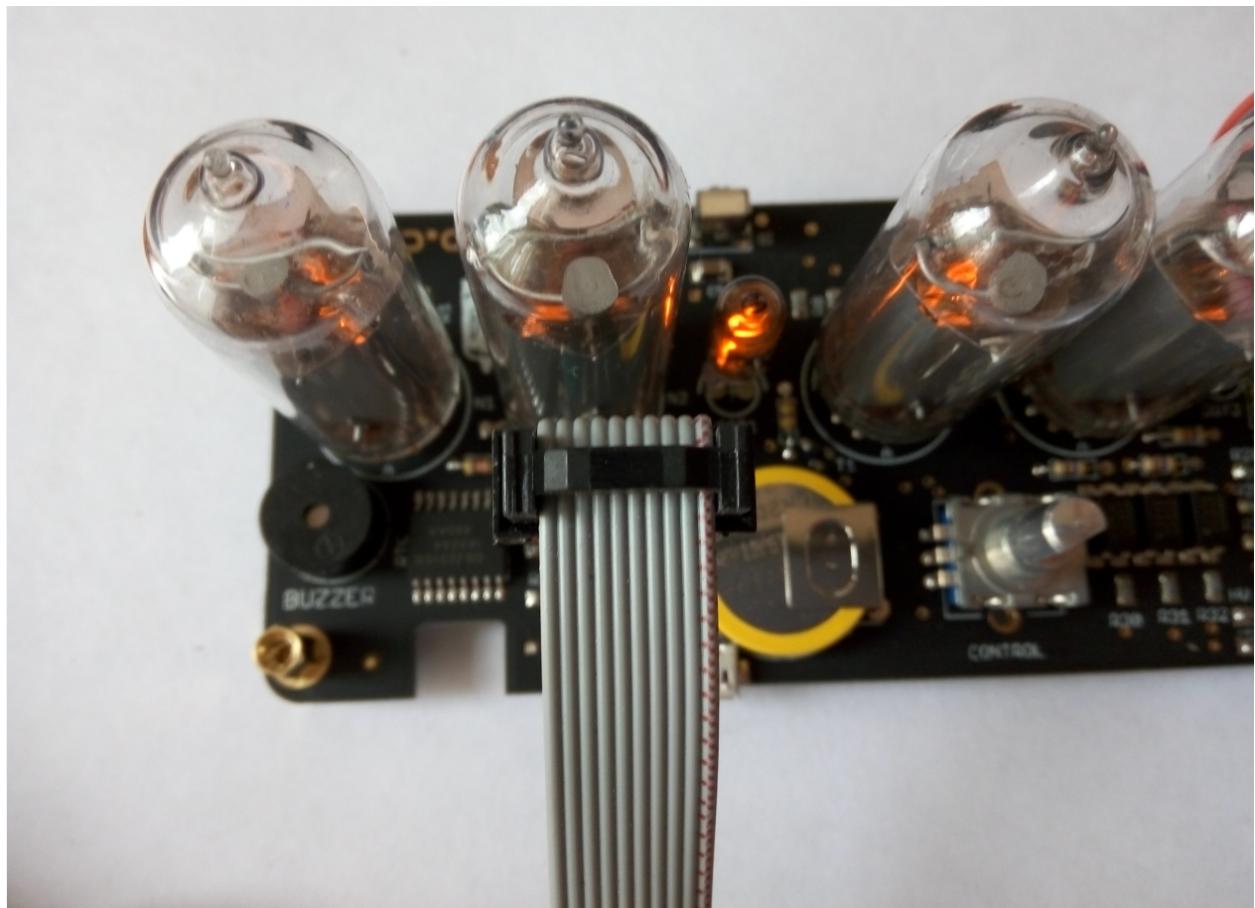


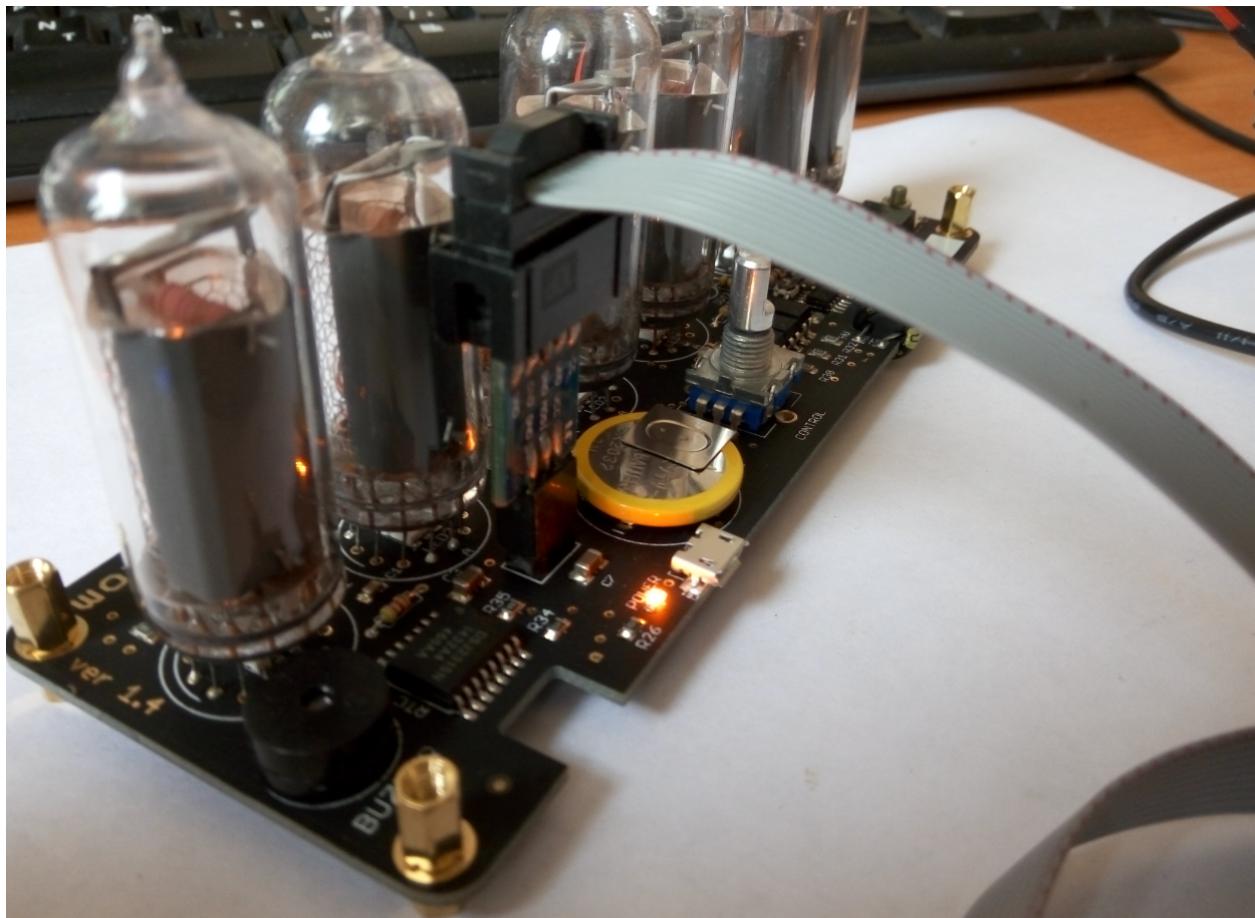
8. Select the programmer:



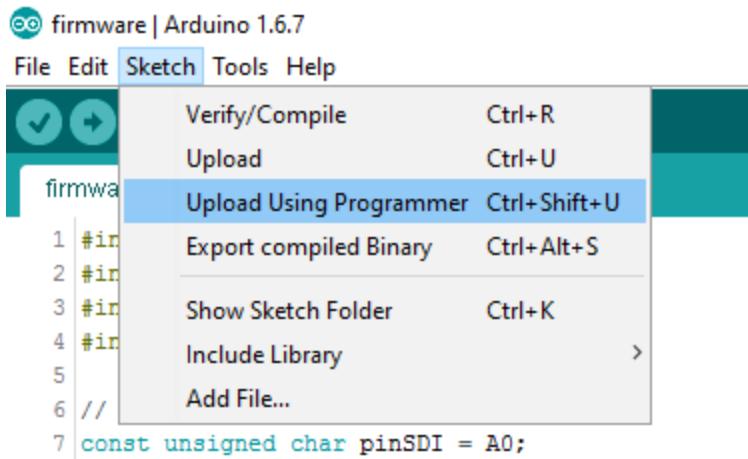
9. Open the clock enclosure and connect the programmer to the ISP header:



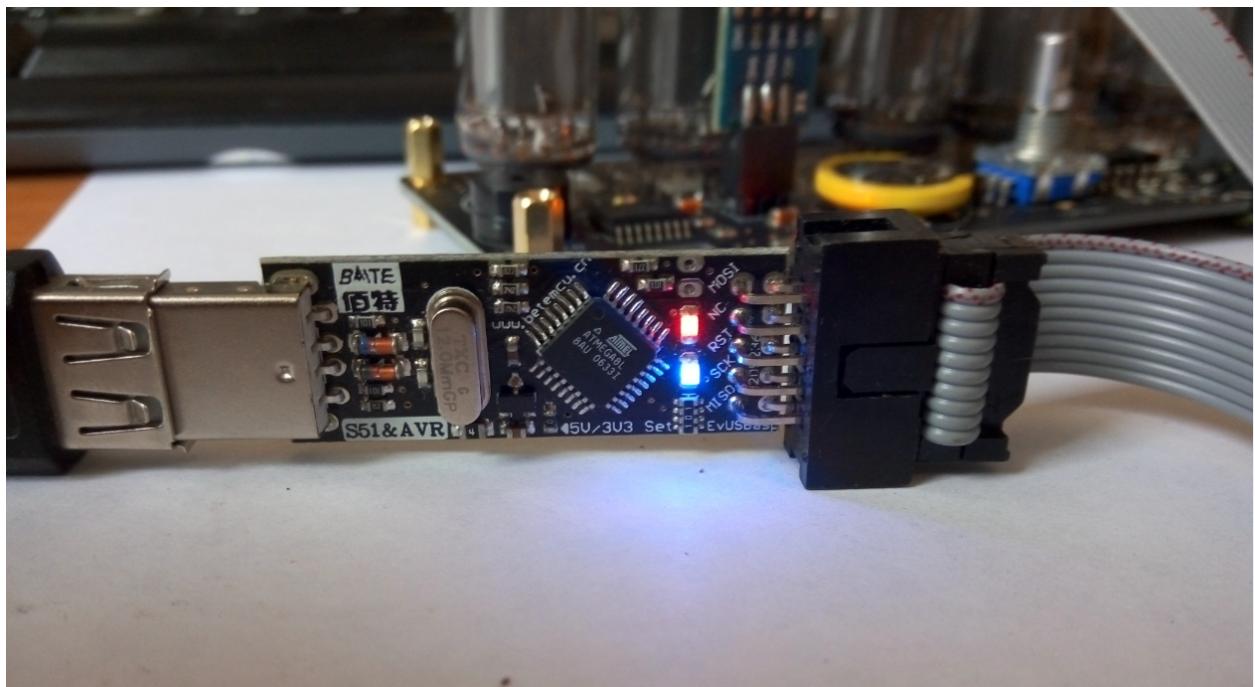
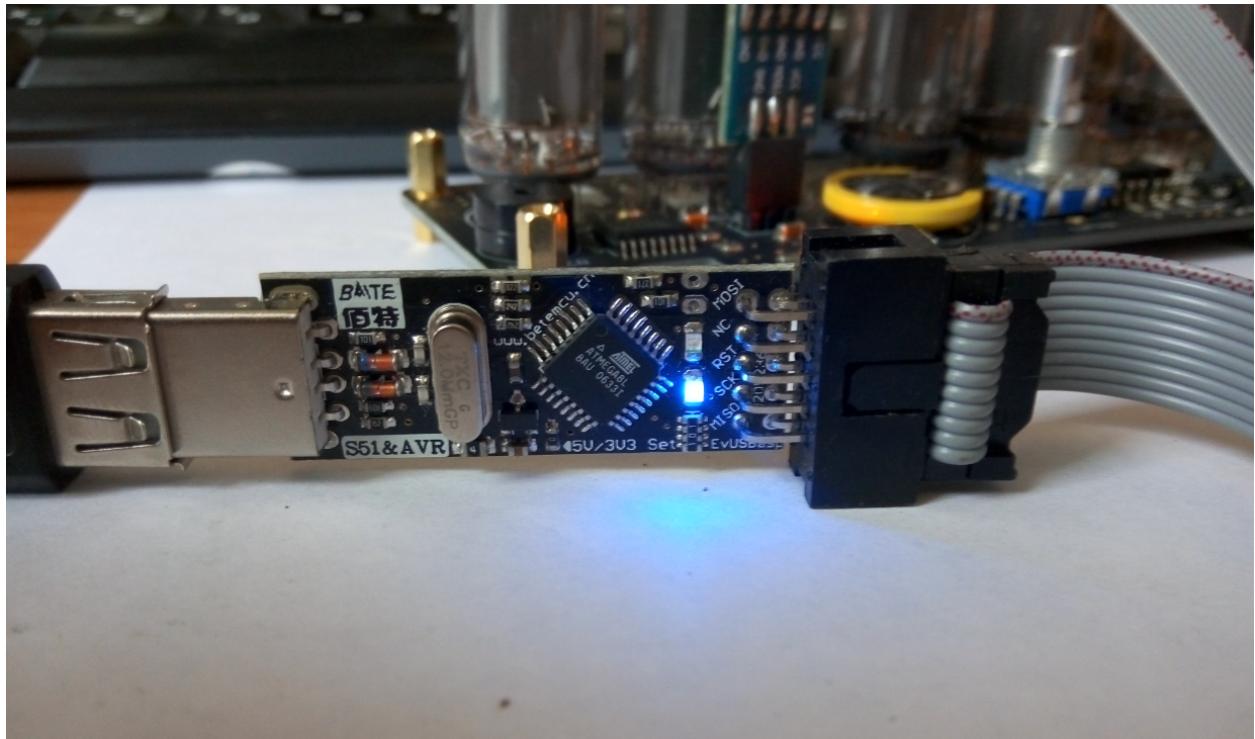




9. Upload the firmware:



10. The indicator LEDs will light:



Once the uploading is over, the clock will beep and reboot. All the settings will be reseted. The IDE will show the following output:

```
9 const unsigned char pinLE = A2;
10 const unsigned char pinBLNK = 7;
11 const uint8_t anode0 = 2;
12 const uint8_t anode1 = 3;
13 const uint8_t anode2 = 4;
14
15 const unsigned char pinPirSensor = 0;
16
17 const unsigned char pinBuzzer = A3;
18 const unsigned char pinDot = 8;
19
20 const unsigned char pinButton = 5;
21 const unsigned char pinEncoderA = 6;
22 const unsigned char pinEncoderB = 7;
23
24 const unsigned char pinledR = 9;
25 const unsigned char pinledG = 10;
26 const unsigned char pinledB = 6;
27
28 const unsigned char pinIR = 11;
29 const int iterationsDimmDigits = 35;
30
31 int slotMachineFrequency = 1;
32 const int slotMachineFrequencyMAX = 5;
33
```

Done uploading.

```
Board arduino:avr:atmega8_8mhz doesn't define a 'build.board' preference. Auto-set to: AVR_ATMEGA8_8MHZ
Board arduino:avr:atmega328_8mhz doesn't define a 'build.board' preference. Auto-set to: AVR_ATMEGA328_8MHZ
Build options changed, rebuilding all
```

```
Sketch uses 10,350 bytes (33%) of program storage space. Maximum is 30,720 bytes.
Global variables use 497 bytes of dynamic memory.
avrdude: warning: cannot set sck period. please check for usbasp firmware update.
avrdude: warning: cannot set sck period. please check for usbasp firmware update.
```