

## Rotary encoder turbo and PCA9685

Logarithmic applied scale to rotary encoder turbo. Turbo mode start if turning rapidly rotary wheel and stop automatically after 3 seconds. Tested with stm32f103c8t6 (blue-pill) and PCA9685. For used scale I added gnumeric spreadsheet for double type value control match with integers in arduino sketch.

You can modify this code according your own needs. Pls consider this:

- using for led dimming:

with logarithmic derived scale consider apparent light intensity modulation not of light source but for whole light reflecting 3d area;

with scale range (here 500 steps) and timing for turbo mode, you can adapt this code with whole 3d area regarding light reflecting characteristics and rotary using mode also reducing 360° rotary turns number not needing very large single step luminosity difference;

- with motors, ... be careful using turbo. :-)

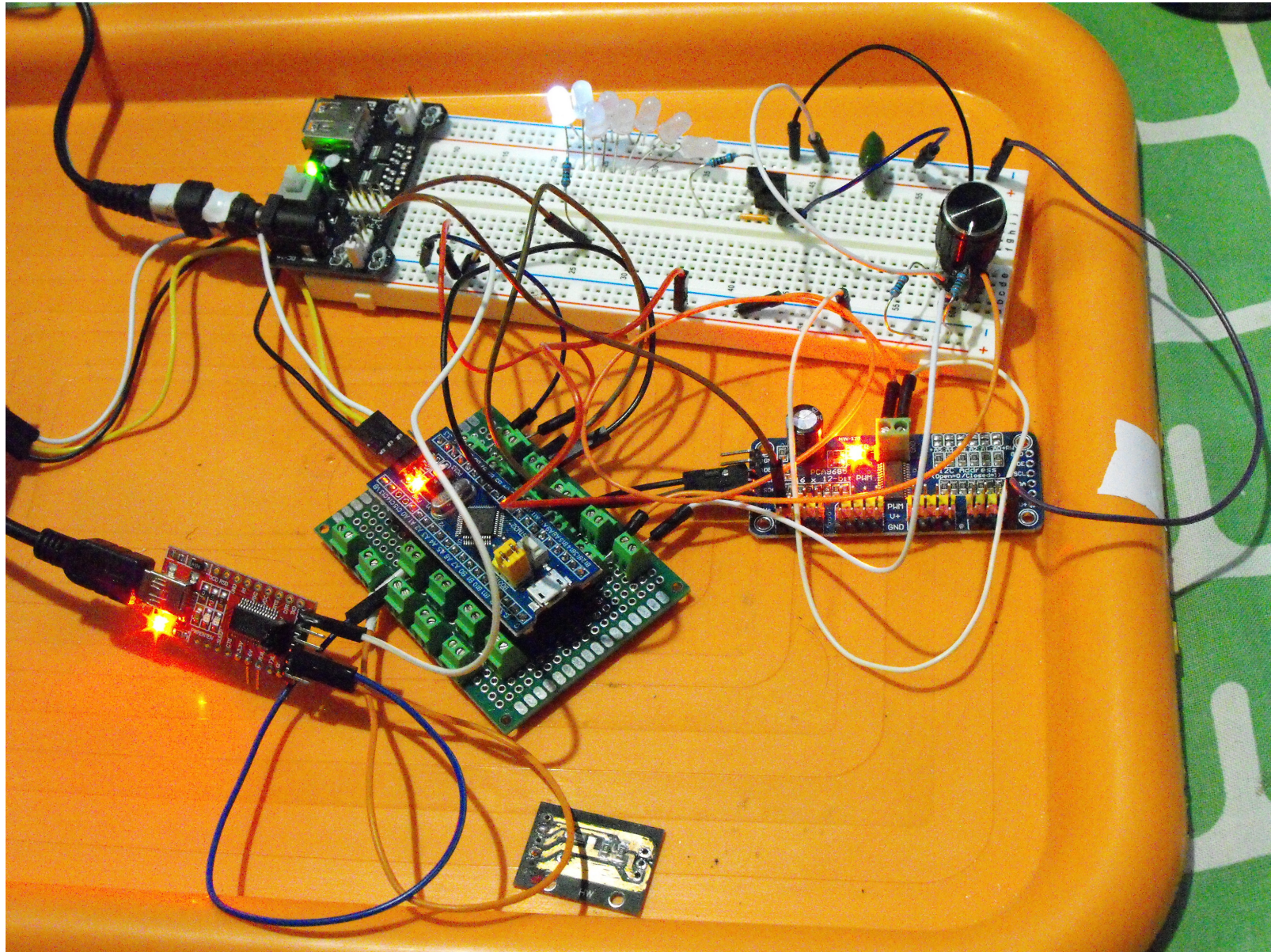
Arduino sketch:

[Code using stm32f103c8t6](#)

Gnumeric spreadsheet for double type value control match with integers in arduino sketch:

[Logarithmic potentiometer ADC formula sheet demonstration](#)

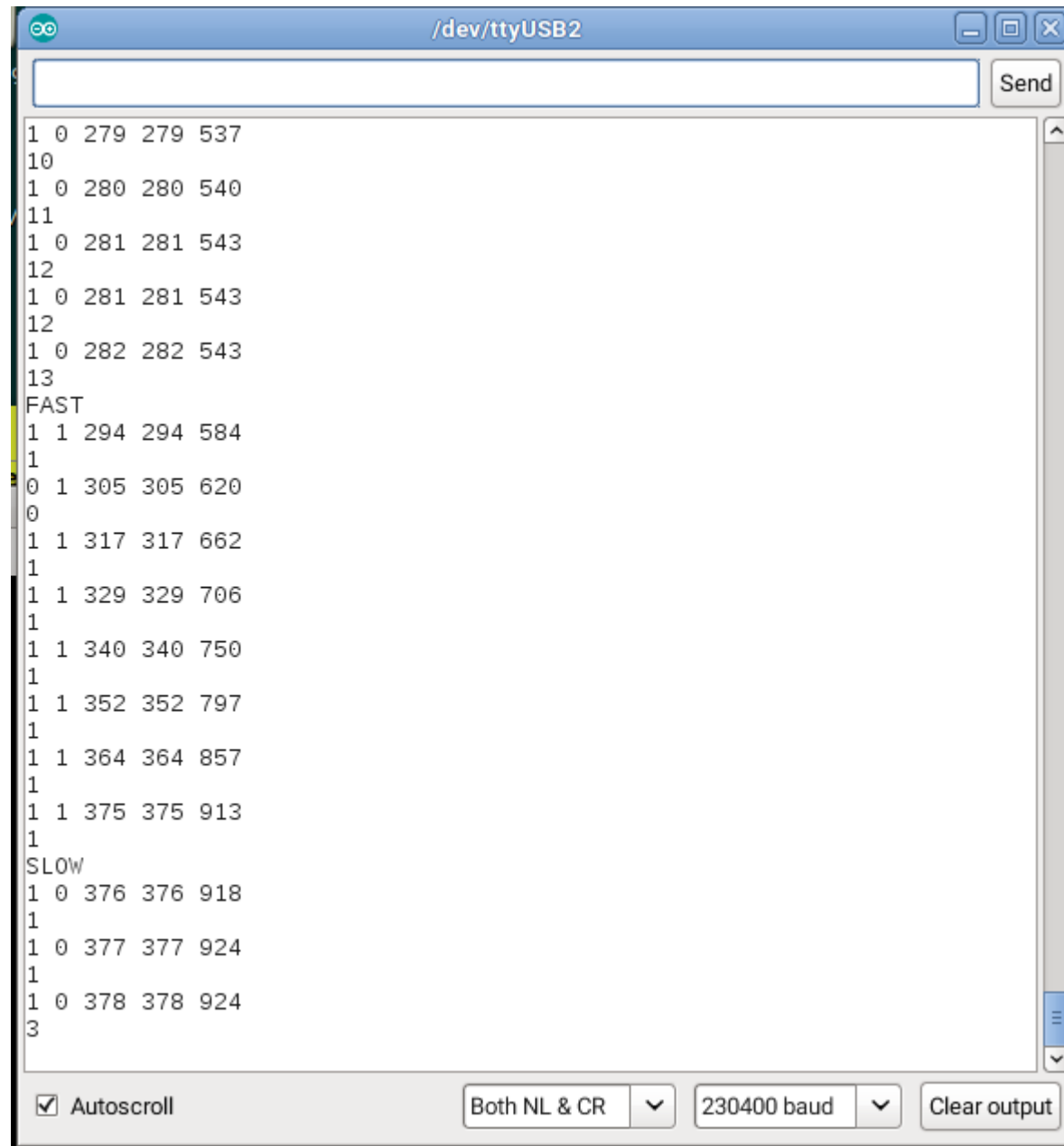
My test environment (blue pill is inserted and removable):



If use Serial2, send string  $x*y$  for pwm setting (e.g  $0*4095$  means led0 always on, fixed on start to 0), for rate (frequency) use Rx (e.g. R24 for rate 24 Hz).



Arduino serial encoder debugging (with glitch in data as twin line for rotary false contact moving wheel, but code works well) :



The screenshot shows a serial terminal window titled "/dev/ttyUSB2". The window contains a text area with the following output:

```
1 0 279 279 537
10
1 0 280 280 540
11
1 0 281 281 543
12
1 0 281 281 543
12
1 0 282 282 543
13
FAST
1 1 294 294 584
1
0 1 305 305 620
0
1 1 317 317 662
1
1 1 329 329 706
1
1 1 340 340 750
1
1 1 352 352 797
1
1 1 364 364 857
1
1 1 375 375 913
1
SLOW
1 0 376 376 918
1
1 0 377 377 924
1
1 0 378 378 924
3
```

At the bottom of the window, there are several controls: a checked "Autoscroll" checkbox, a dropdown menu set to "Both NL & CR", a baud rate dropdown set to "230400 baud", and a "Clear output" button.