DrawingTests-Copy2

September 2, 2017

1 Drawing Tests

1.1 Object

• Play around with drawing things.

2 Code:

```
In [18]: import GCode
         import GRBL
         import numpy as np
         from utils import picture
         cnc = GRBL.GRBL(port="/dev/cnc_3018")
         print("Laser Mode: {}".format(cnc.laser_mode))
         from enum import IntEnum
         class Tool(IntEnum):
             SPINDLE = 0
             LASER = 1
         from enum import IntEnum
         class LaserPower(IntEnum):
             CONSTANT = 0
             DYNAMIC = 1
         LaserPower.CONSTANT
         def init(power = LaserPower(0), feed = 200, laser = 1):
             program = GCode.GCode()
             program.G20() # Metric Units
             program.G91() # Absolute positioning.
             program.G1(F=feed) #
             if power==LaserPower.CONSTANT:
                 program.M3(S=laser) # Laser settings
             else:
```

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program.M4(S=laser) # Laser settings
return program

def end():
    program = GCode.GCode()
    program.M5() # Laser settings.
    return program

def square(size=0.25):
    program = GCode.GCode()
    program.G1(X=size)
    program.G1(Y=-size)
    program.G1(Y=size)
    program.G1(Y=size)
    return program
```

Laser Mode: 1.0

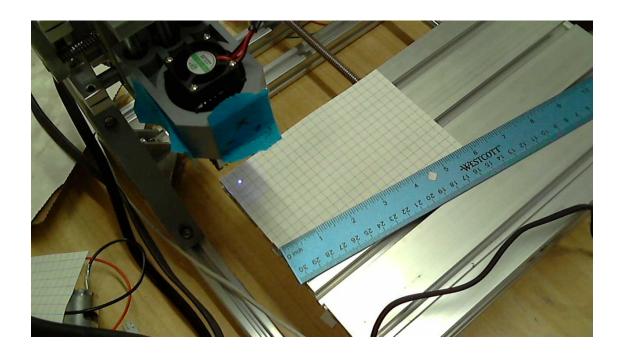
2.1 Test Setup

Power Supply: - CicuitSpecialists CSI3010SW @ 12V - PostIt Note Grid notes. .25" grid. Position the paper & other things.

```
In [44]: def laser_on(pwm):
             if int(pwm) != np.uint8(pwm):
                 raise(Exception("UINT8! {}".format(pwm)))
             # Set minimal power setting to focus and position laser
             cnc.cmd("M3 S{:03d}".format(np.uint8(pwm)))
             cnc.cmd("G1 F10") # Laser On
         def laser_off():
             cnc.cmd("M5") # Laser off
In [51]: cnc.cmd("$X")
Out[51]: ['ok', 'ok']
In [52]: laser_on(1) # Position the axis by hand
In [53]: laser_off()
In [54]: tests_x = 10
         tests_y = 7
In [55]: cnc.run(init(laser=0.1)+square(0.25))
Out[55]: 0.8327279090881348
```

```
In [56]: def jogx(x=10):
             program = GCode.GCode()
             program.GO(X=x)
             cnc.run(program)
         def jogy(y=10):
             program = GCode.GCode()
             program.GO(Y=y)
             cnc.run(program)
         def jogz(z=10):
             program = GCode.GCode()
             program.GO(Z=z)
             cnc.run(program)
In [ ]: square_size = 0.25
   Test Setup
In [57]: cnc.cmd("$G")
Out[57]: ['ok', '[GC:G1 G54 G17 G20 G91 G94 M3 M9 T0 F5080 S0]', 'ok']
In [58]: cnc.cmd("$#")
Out[58]: ['ok',
          '[G54:0.000,0.000,0.000]',
          '[G55:0.000,0.000,0.000]',
          '[G56:0.000,0.000,0.000]',
          '[G57:0.000,0.000,0.000]',
          '[G58:0.000,0.000,0.000]',
          '[G59:0.000,0.000,0.000]',
          '[G28:0.000,0.000,0.000]',
          '[G30:0.000,0.000,0.000]',
          '[G92:0.000,0.000,0.000]',
          '[TLO:0.000]',
          '[PRB:0.000,0.000,0.000:0]',
          'ok']
In [59]: cnc.cmd("$$")
Out[59]: ['ok',
          '$0=10',
          '$1=25',
          '$2=0',
          '$3=5',
          '$4=0',
          '$5=0',
          '$6=0',
          '$10=3',
```

```
'$11=0.010',
          '$12=0.002',
          '$13=0',
          '$20=0',
          '$21=1',
          '$22=0',
          '$23=0',
          '$24=25.000',
          '$25=500.000',
          '$26=250',
          '$27=1.000',
          '$30=1000',
          '$31=0',
          '$32=1',
          '$100=800.000',
          '$101=800.000',
          '$102=800.000',
          '$110=800.000',
          '$111=800.000',
          '$112=500.000',
          '$120=10.000',
          '$121=10.000',
          '$122=10.000',
          '$130=200.000',
          '$131=200.000',
          '$132=200.000',
          'ok']
In [60]: cnc.cmd("$I")
Out[60]: ['ok', '[VER:1.1f.20170801:]', '[OPT:V,15,128]', 'ok']
In [61]: picture()
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In [65]: cnc.cmd("!") Out[65]: ['ok', 'ok'] In [66]: cnc.reset()