HandCodeG

August 29, 2017

1 Hand Code G

My attempt and creating G-code from a drawing.

```
In [1]: import GCode
        import GRBL

        cnc = GRBL.GRBL(port="/dev/cnc_3018")

        print("Laser Mode: {}".format(cnc.laser_mode))
```

```
Laser Mode: 1.0
```

```
In [9]: from enum import IntEnum
        class LaserPower(IntEnum):
            CONSTANT = 0
            DYNAMIC = 1

        def init(power = LaserPower(0), feed = 200, laser = 25):
            program = GCode.GCode()
            program.G21() # Metric Units
            program.G91() # Rel positioning.
            program.G1(F=feed) # Set the feed rate
            program.G0() # But keep the laser off.
            if power==LaserPower.CONSTANT:
                program.M3(S=laser) # Laser settings
            else:
                program.M4(S=laser) # Laser settings
            return program
```

```
In [10]: def end():
             program = GCode.GCode()
             program.M5() # Te
             return program
```

```
In [17]: def heart(scale = 1):
             p = GCode.GCode()
```

```
            p.G0(X=2, Y=0)
            p.G1(X=-2, Y=2)
            p.G2(X=2, Y=0, I=1, J=0)
            p.G2(X=2, Y=0, I=1, J=0)
            p.G1(X=-2, Y=-2)
            return p
```

```
In [18]: heart10 = heart(scale=1)
         print(heart10)
```

```
G0 X2 Y0
G1 X-2 Y2
G2 I1 J0 X2 Y0
G2 I1 J0 X2 Y0
G1 X-2 Y-2
```

```
In [19]: cnc.run(init(laser=5)+heart(scale=1)+end())
```

```
Out[19]: 4.737777233123779
```

```
In [23]: cnc.run(init(laser=100)+heart(scale=1)+end())
```

```
Out[23]: 4.738039255142212
```

```
In [24]: def heart(scale = 1):
             p = GCode.GCode()



             p.G0(X=2*scale, Y=0)
             p.G1(X=-2*scale, Y=2*scale)
             p.G2(X=2*scale, Y=0, I=1*scale, J=0)
             p.G2(X=2*scale, Y=0, I=1*scale, J=0)
             p.G1(X=-2*scale, Y=-2*scale)
             return p
```

```
In [25]: cnc.run(init(laser=100)+heart(scale=2)+end())
```

```
Out[25]: 7.24953031539917
```

1.1 Lots of Hearts

```
In [ ]: class SoftKill(Exception):
            pass
```

```
In [ ]: for scale in [4, 8, 16, 32, 65]:
            try:
                cnc.run(init(laser=100)+heart(scale=scale)+end())
                cnc.cmd("G1 X{}".format(scale)) # Move over to edge of heart
```

```
    cnc.cmd("G1 X10") # Move another 10
except KeyboardInterrupt:
    cnc.cmd("!")
    raise(SoftKill("Keyboard"))
```