

# 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"))
```