

SpindleTests-Copy2

September 2, 2017

1 Spindle Cutting Tests

1.1 Objective

- Play around with Dremel High Speed Cutter 115 in the ER11 spindle

1.2 Test Setup

- Oak Board 63mm x 300mm x 19mm
- Dremel High Speed Cutter "Carving / Engraving" 115.
- CSI3010SW dialed all the way up.

2 Code:

```
In [4]: import GCode
import GRBL
import numpy as np
from utils import picture
from uuid import uuid4
import os

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

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

def init(feed = 10):
    program = GCode.GCode()
    program.G21() # Metric Units
    program.G91() # Absolute positioning.
    program.G1(F=feed)
    return program

def end():
    program = GCode.GCode()
    return program
```

Laser Mode: None

```
In [7]: cnc.cmd("?")
        cnc.reset()
```

```
In [13]: cnc.cmd("!")
         status1 = cnc.cmd("?")
```

```
In [14]: cnc.cmd("!")
         cnc.reset()
         status2 = cnc.cmd("?")
```

```
In [29]: for status in [status1, status2]:
         status_clean = [s for s in status if s != "ok"]
         print(status_clean)
         status_clean2 = [s.strip("<>") for s in status_clean]
         if len(status_clean2) != 1:
             raise Exception(status_clean2)
         status = status_clean2[0]
         print(status)
         stati = status.split("|")
         print(stati)
         print("")
```

```
['<Hold:0|MPos:-137.293,0.000,1.000|Bf:15,125|FS:0,0|Ov:100,100,100>']
```

```
Hold:0|MPos:-137.293,0.000,1.000|Bf:15,125|FS:0,0|Ov:100,100,100
```

```
['Hold:0', 'MPos:-137.293,0.000,1.000', 'Bf:15,125', 'FS:0,0', 'Ov:100,100,100']
```

```
['<Idle|MPos:-137.293,0.000,1.000|Bf:15,127|FS:0,0|WC0:0.000,0.000,0.000>']
```

```
Idle|MPos:-137.293,0.000,1.000|Bf:15,127|FS:0,0|WC0:0.000,0.000,0.000
```

```
['Idle', 'MPos:-137.293,0.000,1.000', 'Bf:15,127', 'FS:0,0', 'WC0:0.000,0.000,0.000']
```

```
In [64]: def test_program(feed=10):
         prog = GCode.GCode()
         prog.M3(S=10000)
         dZ = -0.1
         dX = 10
         X = 0
         Z = 0
         for loops in range(20):
             prog.G1(Z=dZ, F=1)
             prog.G1(X=dX, F=feed)
             X+=dX
             Z+=dZ
         prog.M3(S=0)
         prog.G0(Z=np.round(-Z, 4)) #TODO: Add this to core library.
```

```

        prog.G0(X=np.round(-X, 4))
        prog.G0(Z=2)
        return prog

In [65]: test_program()

Out[65]: <GCode>[cmds=45]

In [78]: test_run = GCode.GCode()
        # TODO: Get z-axis probe.
        test_run+=init()
        for XFeed in [50]:
            test_run += test_program(feed=XFeed)

In [79]: test_run

Out[79]: <GCode>[cmds=48]

In [80]: gcode_file = "SpindleTests-Copy2.gcode"

In [81]: test_run.save(gcode_file)

        del test_run
        test_run = GCode.GCode()

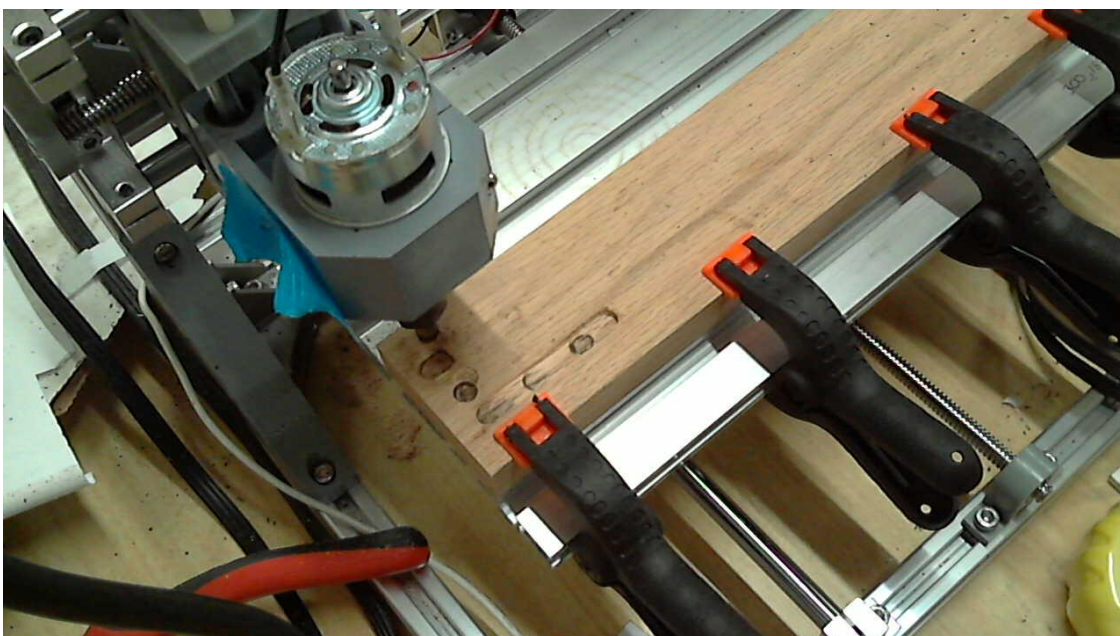
        test_run.load(gcode_file)

In [82]: test_run.buffer[0:5]

Out[82]: ['G21', 'G91', 'G1 F10', 'M3 S10000', 'G1 Z-0.1 F1']

In [83]: picture()

```



```

In [84]: from time import sleep

In [85]: cnc.cmd("?")

Out[85]: ['ok',
          '<Idle|MPos:-128.925,0.000,-1.200|Bf:15,127|FS:0,0|WCO:0.000,0.000,0.000>',
          'ok']

In [86]: cnc.reset()

In [87]: cnc.cmd("?")

Out[87]: ['ok',
          '<Idle|MPos:-128.925,0.000,-1.200|Bf:15,127|FS:0,0|WCO:0.000,0.000,0.000>',
          'ok']

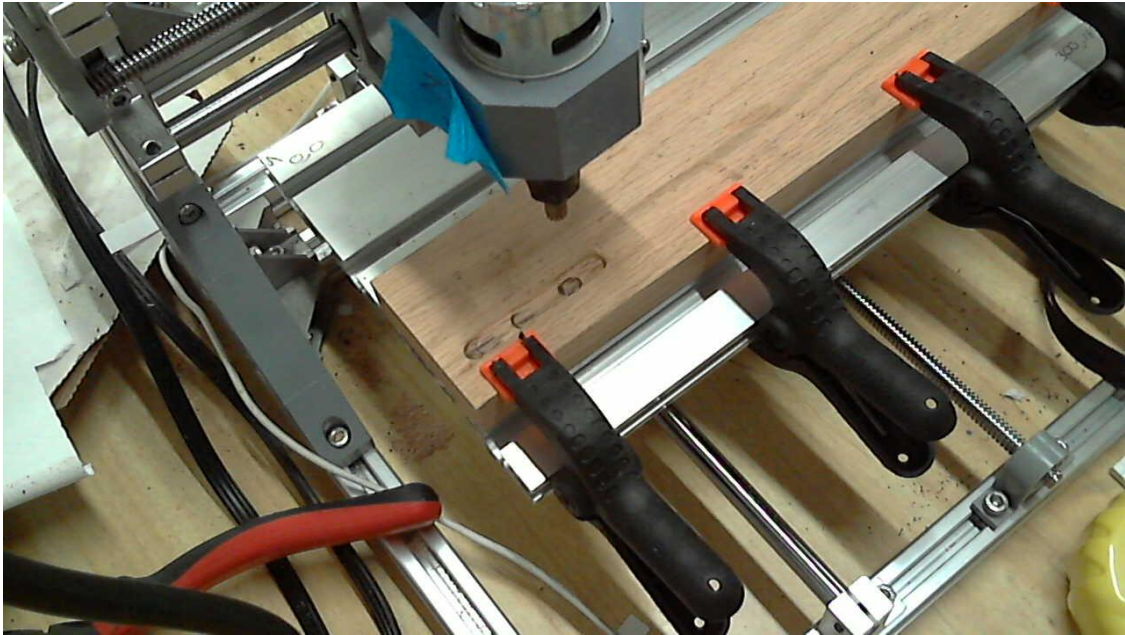
In [88]: while 1:
        try:
            cnc.run(test_run)
            while 1:
                print(cnc.status)
                sleep(5)
        except KeyboardInterrupt as error:
            print("Feed Hold")
            cnc.cmd("!")
            while 1:
                try:
                    cnc.reset()
                    break;
                except:
                    pass
            print("^C")
            break
        except:
            raise

<Run|MPos:71.075,0.000,-2.531|Bf:12,127|FS:246,0|Ov:100,100,100>
<Run|MPos:18.079,0.000,-1.200|Bf:13,127|FS:800,0>
<Run|MPos:-49.334,0.000,-1.200|Bf:13,127|FS:800,0>
<Run|MPos:-116.768,0.000,-1.200|Bf:13,127|FS:800,0>
<Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0>
<Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0>
<Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0>
<Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0>
<Idle|MPos:-128.925,0.000,0.800|Bf:15,127|FS:0,0>
Feed Hold
^C

```

```
In [77]: cnc.reset()
```

```
In [53]: picture()
```



3 Test Aborted.

Cuts were way too aggressive.