SpindleTests-Copy1

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 [6]: 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))

        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: 0.0
```

```
In [25]: def test_program(feed=10):
             prog = GCode.GCode()
             prog.M3(S=10000)
             prog.G0(Z=-2)
             dZ = -0.1
             dX = 20
             X = 0
             Z = 0
             for loops in range(10):
                 prog.G1(Z=dZ, F=10)
                 prog.G1(X=dX, F=feed)
                 X+=dX
                 Z+=dZ
             prog.M3(S=0)
             prog.G0(Z=-Z)
             prog.G0(X=-X)
             prog.G0(Z=2)
             return prog

In [26]: test_program()

Out[26]: <GCode>[cmds=26]

In [28]: import numpy as np
         np.round(0.9999999999999999, 4)

Out[28]: 1.0

In [31]: def test_program(feed=10):
             prog = GCode.GCode()
             prog.M3(S=10000)
             prog.G0(Z=-2)
             dZ = -0.1
             dX = 20
             X = 0
             Z = 0
             for loops in range(10):
                 prog.G1(Z=dZ, F=10)
                 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 [32]: test_run = GCode.GCode()
         # Lower head to touching part manually.
```

```
        # TODO: Get z-axis probe.
        # Then lift by 2.
        test_run.G0(Z=2)
        for XFeed in [10, 25, 50]:
            test_run += test_program(feed=XFeed)
```

In [33]: test_run

Out[33]: <GCode>[cmds=79]

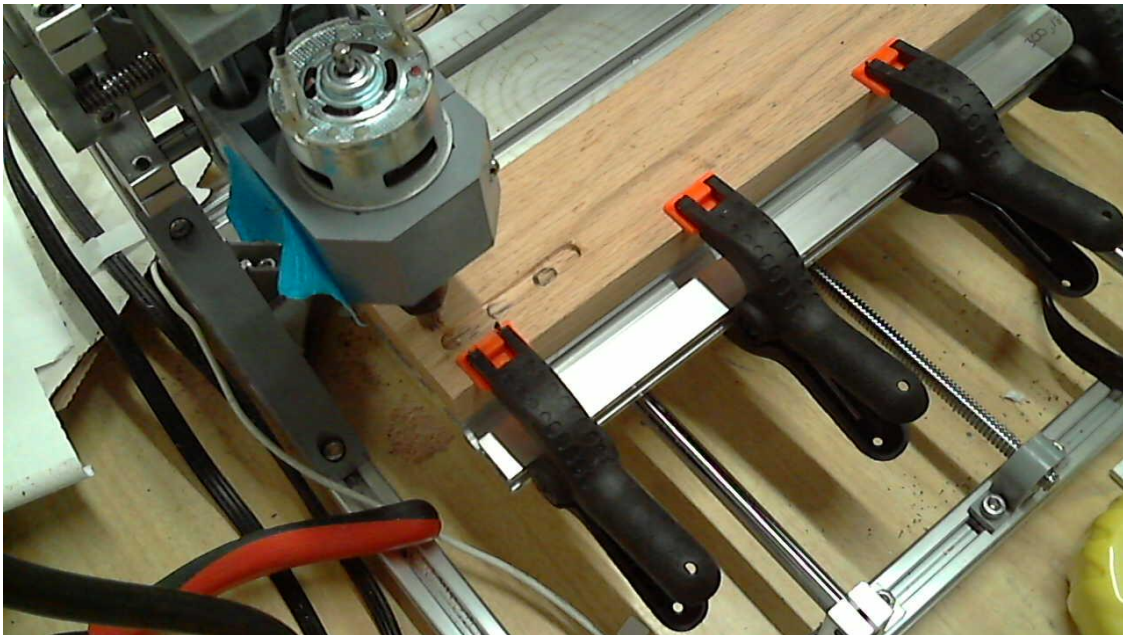In [34]: gcode_file = "SpindleTests-Copy1.gcode"

In [35]: test_run.save(gcode_file)

```
        del test_run
        test_run = GCode.GCode()

        test_run.load(gcode_file)
```

In [36]: test_run.buffer[0:5]

Out[36]: ['G0 Z2', 'M3 S10000', 'G0 Z-2', 'G1 F10 Z-0.1', 'G1 X20 F10']

In [37]: picture()

In [38]: from time import sleep

In [46]: cnc.cmd("?")
```

```
Out[46]: ['ok',
          '<Idle|MPos:20.000,0.000,0.020|Bf:15,127|FS:0,0|WCO:0.000,0.000,0.000>',
          'ok']

In [47]: cnc.reset()

In [48]: while 1:
             try:
                 cnc.run(test_run)
                 while 1:
                     print(cnc.status)
                     sleep(5)
             except KeyboardInterrupt as error:
                 print("Feed Hold")
                 cnc.cmd("!")
                 print("^C")
                 break
             except:
                 raise

^C


         ---------------------------------------------------------------------------

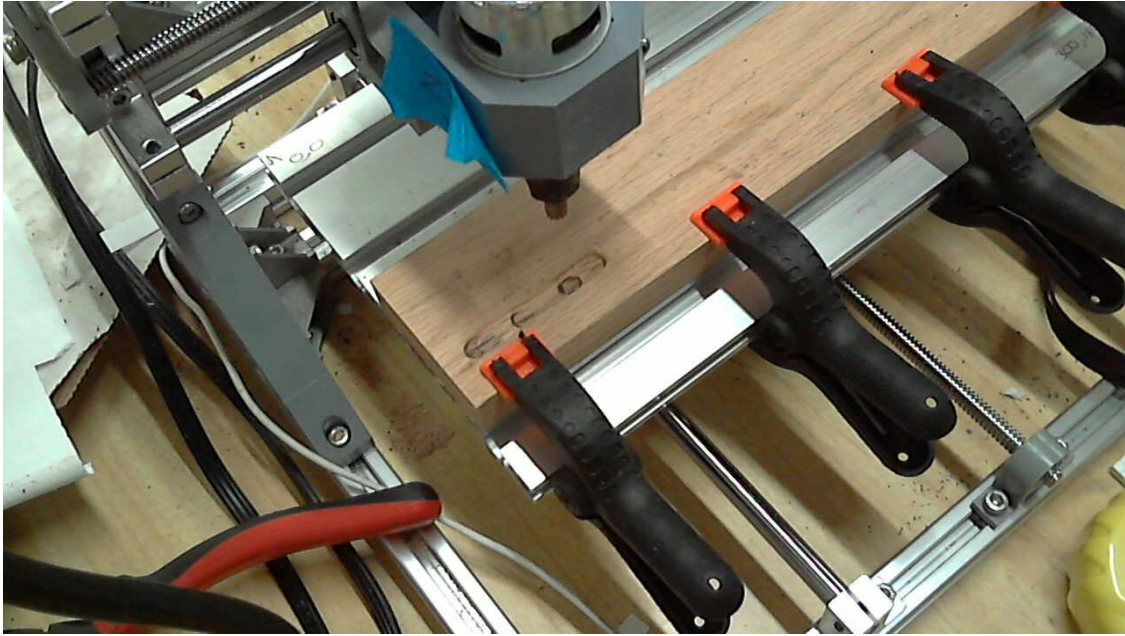         AssertionError                            Traceback (most recent call last)

         <ipython-input-48-c54c312fb5fd> in <module>()
            3            cnc.run(test_run)
            4            while 1:
         ----> 5                print(cnc.status)
            6                sleep(5)
            7        except KeyboardInterrupt as error:


         ~/CNC3018/python_rs274/GRBL/__init__.py in status(self)
           68            """
           69            ret = self.cmd("?")
         ---> 70            assert(ret[-1] == 'ok')
           71            return ret[1]
           72

         AssertionError:


In [53]: picture()
```

4

3 Test Aborted.

Cuts were way too aggressive.