

Group 17 Testing

Unit Testing

Parsing			
Test	Expected Result	Actual Result	Solution/Reason
No input layers	Shouldn't do anything		
Single Layer	Should parse		
Incorrect format Layer	Should not that and tell user, exit.		
Different Slicer	Should note that and tell user what to use, exit.		

Z height			
Test	Expected Result	Actual Result	Solution/Reason
No input layers	No change should be done		
Single Layer	No change should be done		
Missing coordinate(format not correct or parser problem/failed to pick it up)	Recognize missing x,y or/and e/z. Should exit		
Space in layer(movement with no extrusion)	Do nothing		
Max vertical change	Should work up to a maximum defined Z layer change		
Min vertical change	Should work for a predefined minimum change of height		
Max width of X for printer	Should be able to vary Z at a max width so that only 1 sinusoid is made across this layer		
XY movement at the same point	Should note that this is not a capability of the program, tell user, and exit.		

Self Test			
Test	Expected Result	Actual Result	Solution/Reason
No input layers	Shouldn't do anything		
Single Layer	Shouldn't do anything		

Conflict in Z printing	Should be testing every change of Z value in the loop so if this is found then the previous layer should be reset and the z change should be lowered		
Unmatched X/Y values	If the previous layer and current layer have x values that exist in one but not the other, it must be checked that the current layer is not in conflict with the layer before the previous layer		

Writing To file			
Test	Expected Result	Actual Result	Solution/Reason
No input layers	Shouldn't write anything		
Single Layer	Shouldn't write anything		
Incorrect format Layer	Should not get those, if it does then it should close the program and report the error		
Writing a new layer *(This is a critical point in our process still)	Should write to the file the correct way such that if layers are made then the layer count is changed and the new layer is insert appropriately. Current file data is moved lower and not replaced		
Changing Z value for layer	Should make the file correct for the X/Y of a given Z value change from the previous function		

Integration Testing

- Parser sends array to Z manipulator
- Z manipulator sends changes to tester

- Tester send detects error
 - Go back to Z manipulator with smaller changes to be made
 - Note there was an error, if it comes back again note the design cannot be Z changed at its current capabilities
- Passes test, send it to write to the file
- Write file succeeds then it goes back to reading the file at the parser

System Testing

- Input a simple cube design
- Change the dimensions of the cube design
- Add design to the cube
- Test for a code not sliced in cura
- Test for a file that is not gcode
- Test the program across machines to see time constraints
- See that the output file is made and correct

Customer Testing

- Note the design of the print
- See how accurate the print is to the CAD design
- Note the layer printing cleanliness
- Is the print any stronger than normal printing
- Does the print take more time than normal printing
- Does the customer believe in the expandability of the design