



## Transcend's Prototyping Crash Course

### Steps for creating a Fidget Spinner in SolidWorks

1. Login to CAE Computer (or find Transcend staff)
2. click on the window icon in bottom left window and type in solid works
3. Open Solidworks
4. Select settings gear in top task bar
  - a. Select document properties tab
  - b. Select units
  - c. Change to MMGS
5. Go to sketch tab and select sketch
6. Create a plane to sketch on by selecting the top plane
7. Select center line from drop down box of line segment in upper left corner
8. Draw it vertically to roughly 30 mm, click, and then hit escape to end the line
9. Select smart dimension and click anywhere on the line
10. Drag the dimension out, click, and enter 30 into the window
11. Select the circle button and draw a circle with diameter of 22.3 using smart dimension on both ends of the center line. But only dimension one of the circles.
12. Select both by holding shift and clicking the circles and select the equal relation
13. Drop down the tab of the linear sketch pattern and select circular pattern

14. Click entities to pattern and click the outer circle
15. Change the number 4 to 3
16. Click the green check mark to confirm the pattern
17. Click the offset entities button on the top task bar
18. Set the offset to 6 mm and select the three outer circles
19. Make three 3-point arcs that are close estimates of what the spinner should look like (we will make it look better no worries)
20. Zoom in on one of the arc-circle contact points using the mouse wheel
21. Highlight the contact point
22. Select the make tangent relation from the left task bar
23. Repeat 17-19 for the remaining 5 points
24. Smart dimension the arcs to radius 15 mm
25. Select the trim entities button and click drag a line through the part of the circle within the body of the fidget spinner to remove the line
26. Exit the sketch
27. Go to the features tab and select extrude
28. Select any line on the body
29. Within the entities to extrude box, delete the line, select the body
30. Set depth to 7 mm and click the checkmark
31. Select the fillet button within the features tab
32. Select the face fillet button
33. Click on all of the sides of the fidget spinner excluding the top and bottom faces so that they are in the faces to fillet box
34. Set fillet to 3.25 mm
35. Complete the fillet by selecting the checkmark
36. Create another face fillet, this time for the holes, with a distance of 1 mm for all 8 edges of the holes by selecting each edge in the items to fillet box
37. Create a new part in the top task bar
38. Create a sketch in the top plane
39. Draw a circle, centered on the origin with diameter 48 mm

40. Finish sketch and extrude 4 mm
41. Create a sketch on one of the flat parts of the circle and draw two concentric circles, one with diameter 5 mm, one with diameter of 7.6 mm.
42. Finish sketch and extrude the donut shaped space between the circles 7 mm
43. Create a fillet on the other edge of the circle with a 1mm fillet
44. Repeat steps 33-36 for the other cap of the spinner
45. Create a circle in the center with a diameter of 3.5 mm
46. Extrude 7 mm
47. Create a fillet on the other edge of the circle with a 1 mm fillet
48. Use your mouse middle cursor to scroll around the part and observe it
49. Once you are satisfied with your part it is time to convert it to an STL file
50. Go to file> Save as> and change the file from .sldprt to .stl
51. Hit Ok and save it to a place you will be able to get to easily
52. Now that you have your STL file it is time to 3D print your part!