Automated Gear Design

Getting Started:
1. Please use Remote Desktop Connection and connect to **elabs.wpi.edu**
2. This program works with SolidWorks 2020

Step 0: Survey

1. Before starting the tutorial, please go http://bit.ly/GearGenTest-1 and complete the pre-survey. This will ask some basic questions about you like your major and your experience with gears. Please fill out your WPI email address so that we can link your results.
   a. The survey will ask you to enter a code. The code is generated as follows:

      _ _ _ _ _ _
      1 2 3 4 5 6

      1: Middle initial
      2: First letter of your mother's first name
      3: First letter of your father's first name
      4 and 5: Your two-digit birth month
      6: The number of older siblings you have
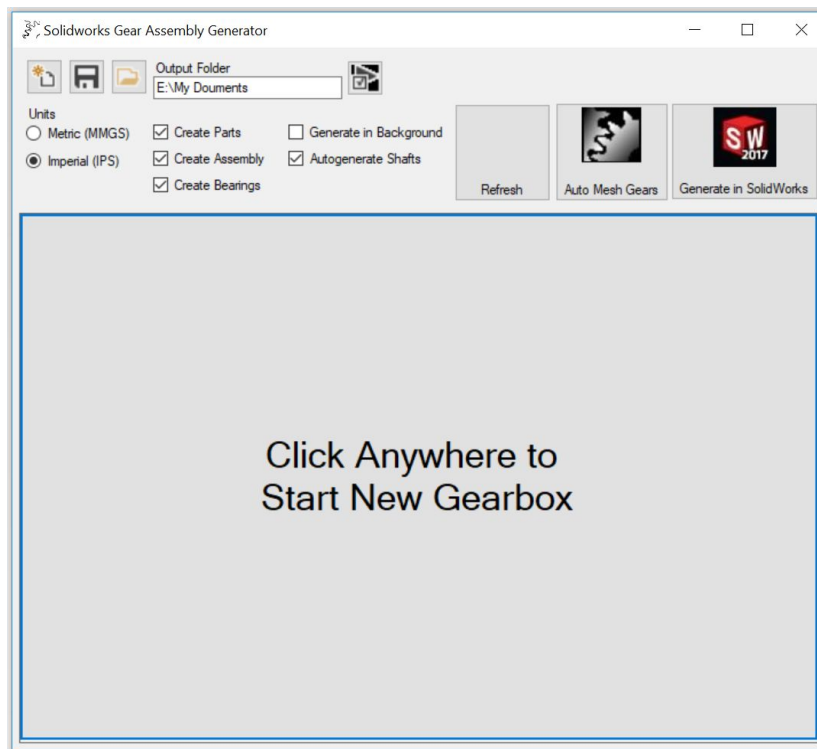
      (use 0 for any unknown values)

Step 1: Download and Install

1. Go to http://tiny.cc/GearGenProg and download the zip file.
2. Once downloaded, extract the contents of the zip file into a folder.
3. Then, click on the SW Gear Generation GUI.exe file.

4. You will see a notice shown below:
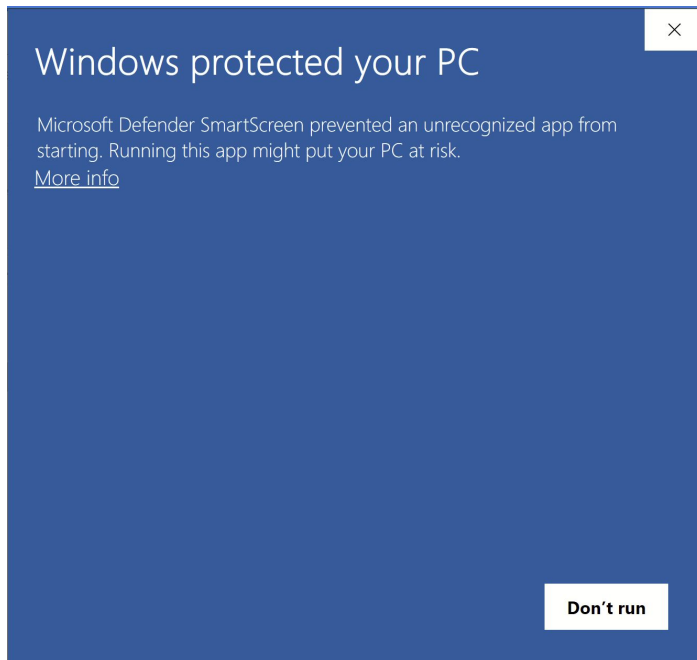
Click on "More Info" and then Select "Run Anyway." You will see the following screen.

Step 2: Design Gearbox

1. You will be designing the following gearbox.

a. Gear Information

Gear	Type	Pitch	# of Teeth	Orientation	(X, Y, Z)	Shaft	Bore Diameter	Face Width
A	Spur	48	12	Z	0, 0, 1.45	Shaft 1	0.125	0.125
B			56	Z	0.72, 0, 2.93	Shaft 2	0.125	0.125
C	Spur	48	24	Z	0.72, 0, 2.93	Shaft 2	0.125	0.25
D			48	Z	0.72, -0.75, 2.93	Shaft 3	0.125	0.25

b. With the program open, click where it says "Click Anywhere to Start New Gearbox" and the gear information will appear:

c. Using the information in the tables above, fill in the information for each gear set. Gears A+B are GearSet 1 and C+D are GearSet 2.

d. GearSet 1 should look like this:

e. To add another gear-set, click on the "Click to Add Gear Set" button. GearSet 2 should look like this:

f. Press "Auto Mesh Gears" at the top right so that the distances between the gears are automatically calculated to adjust the positioning, if needed.
g. Once all this information is put in, press "Generate in Solidworks".
h. Select your output folder.
i. A menu will pop up asking to specify additional options. For this tutorial, you will press "Input Shaft Crank", which will tell SolidWorks to add a crank to the input shaft.
j. Click "Generate" and SolidWorks will open. Once it is fully open, go back to the gearbox design software and indicate that SolidWorks is open (there will be a popup saying "Press OK once SolidWorks has loaded". Once you press OK, SolidWorks will start generating the gearbox.
k. Once SolidWorks is done, please take a screenshot of your resulting gearbox (to be uploaded in the survey in the next step).

Step 3: Survey

1. Once you have completed the task, please go http://bit.ly/GearGenTest-2 and fill out the post survey. This survey will ask questions about your experience using the software and whether you have any feedback about the program.