

Janco Tang

Systems Engineering at Simon Fraser University



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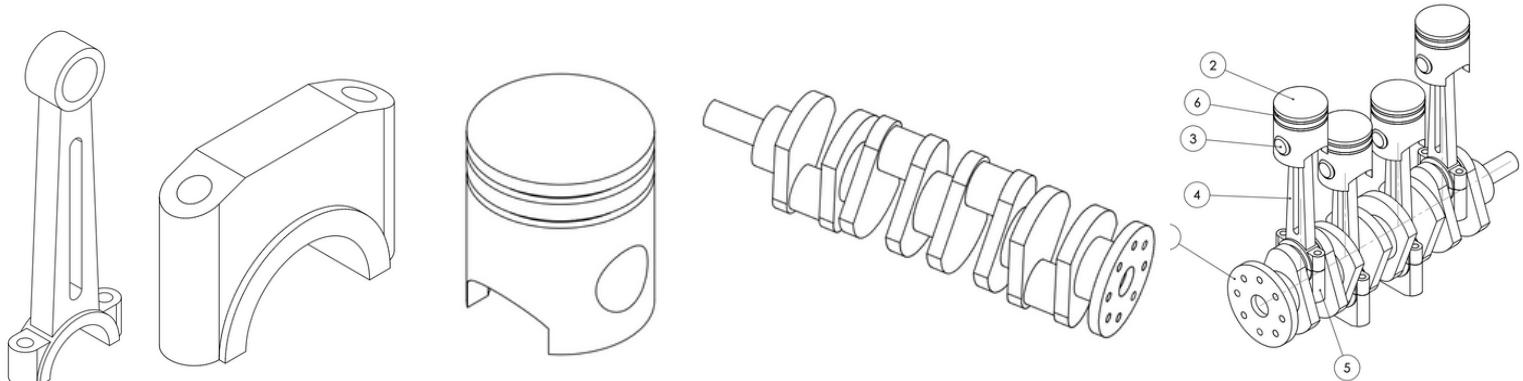


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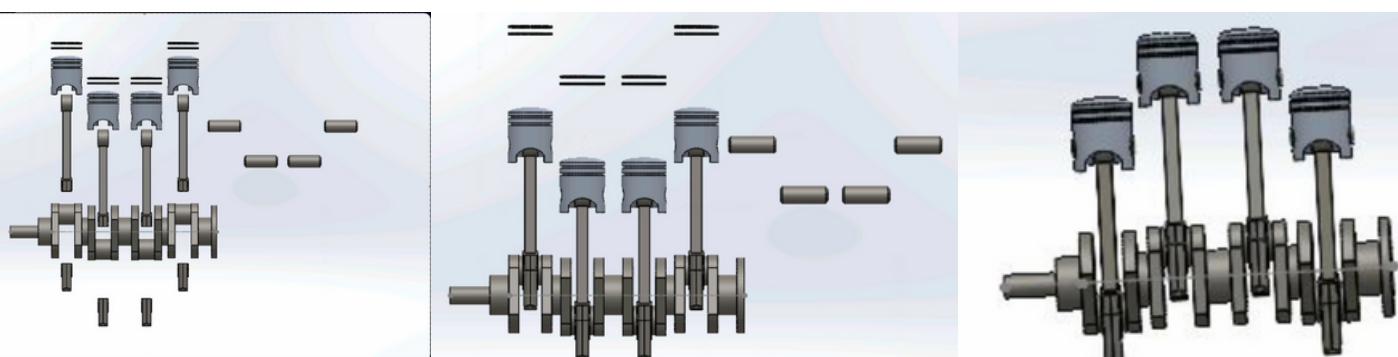
604-832-6638

CAD 4-Cylinder Engine Project



What:

- Designed and constructed each component using SolidWorks
- Followed the **GD&T diagrams** to ensure the scale of each part is 100% accurate
- Used various SolidWorks features such as **revolve**, **fillet**, etc



How:

- Loaded each part using **assembly**
- Used the **mate** feature to build the 4-Cylinder engine
- Added planes to ensure the parts are perfectly aligned



Result:

- Achieved 100% geometric accuracy within $\pm 0.1\text{mm}$ tolerance and reduced assembly time by using planes effectively

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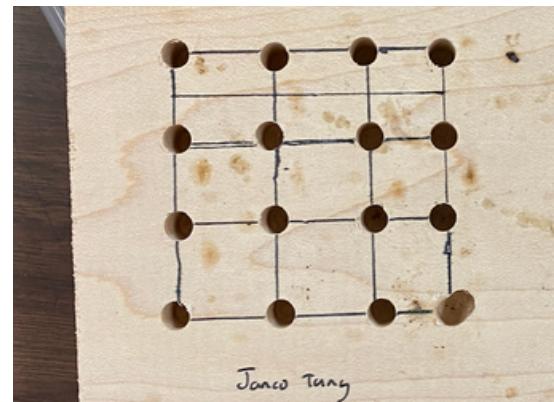
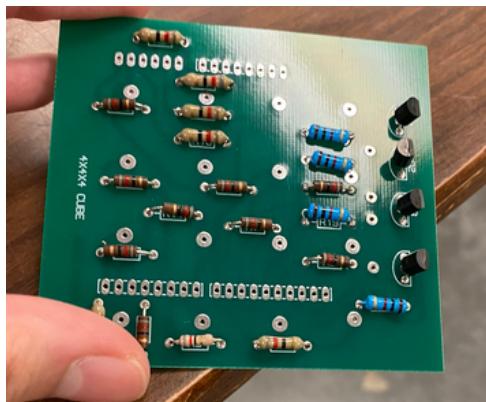


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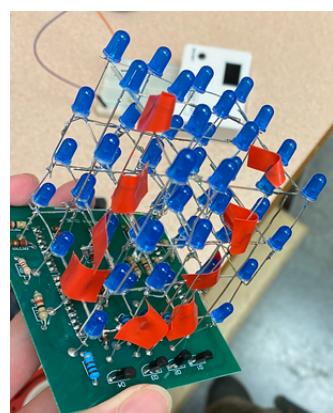
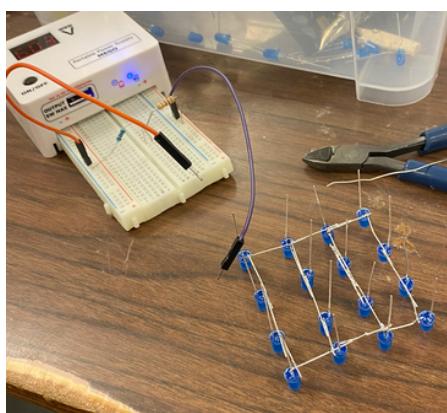
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4x4 LED Cube project



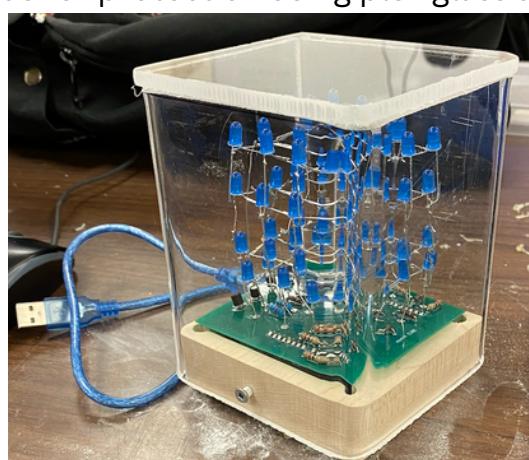
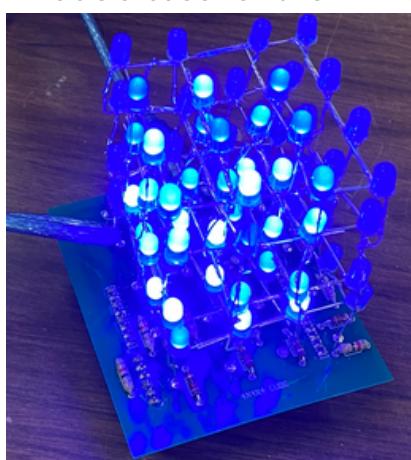
What:

- Tested each LED to ensure it works
- Soldered all transistors and resistors in the PCB shown in the top right corner
- Drilled and drew on a wooden block to help align the LEDs to a cube shape (Shown in the top left corner)



How:

- **Soldered** the LEDs in the PCB circuit and tested each LED with a breadboard to ensure it works
- Combined the LEDS to a 4x4 LED cube and tested the circuit using an **Arduino board**
- Made a case for the LED cube for protection using plexiglass and wood



Result:

- Displayed over 10 animation patterns and improved soldering efficiency by 20% compared to first prototype