



Mobile Anechoic Test Chamber

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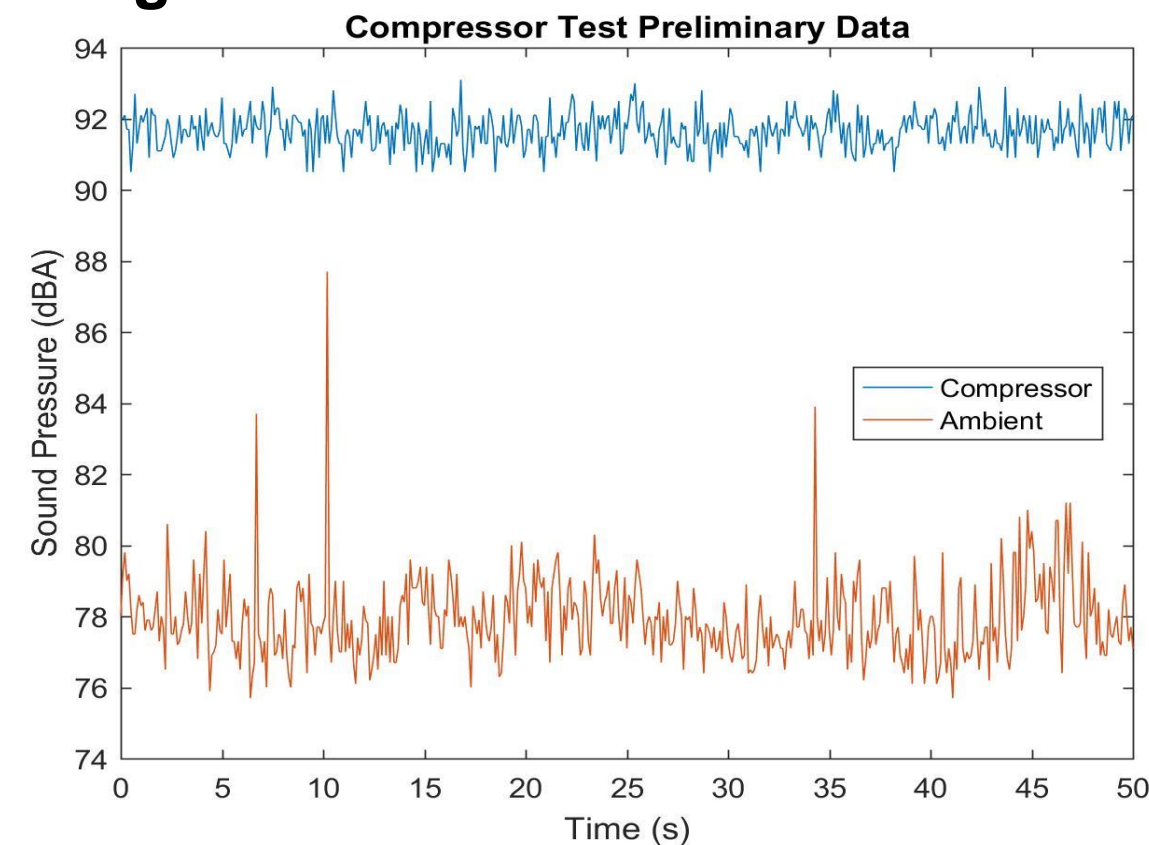
Advisor: Dr. Hellstrom **Instructor:** Dr. McConomy



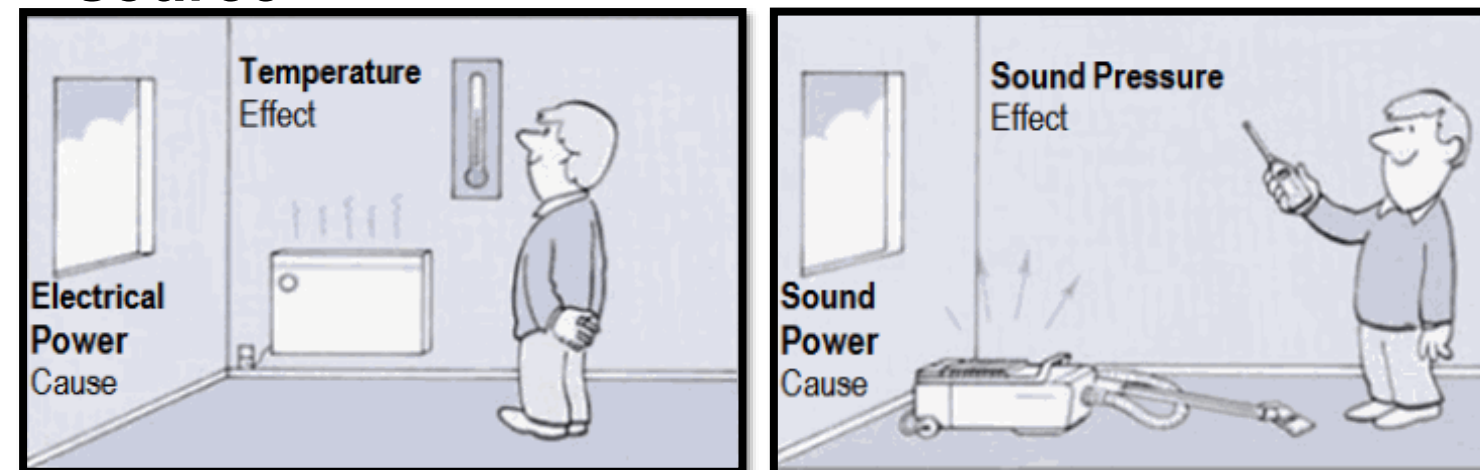
Senior Design
Team 506

PROJECT BACKGROUND

- Danfoss Turbocor TT series compressor's sound pressure is displayed below
- Average Compressor pressure at 1m ~92 dBA
- Average Ambient ~77 dBA



- Sudden spikes in pressure level vary the sound power of the system
- To account for the variations, ambient noise level should be reduced
- Sound Power is energy emitted from the source



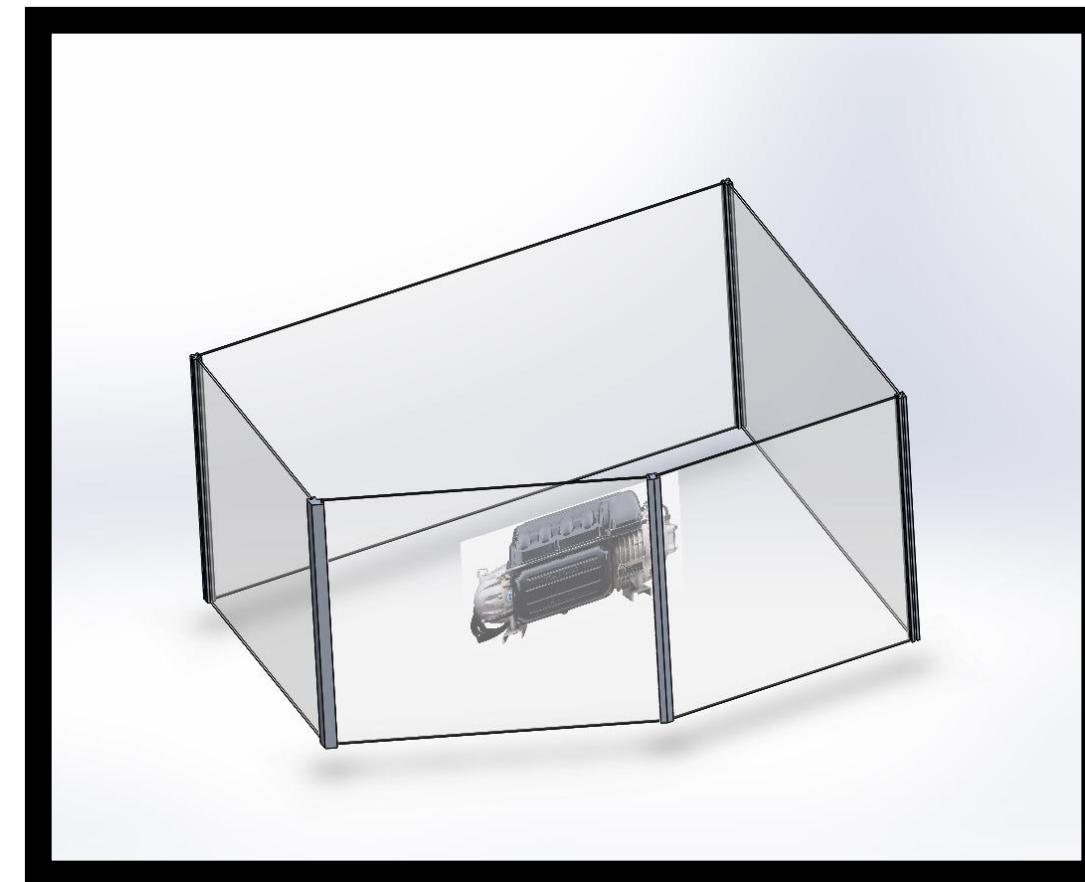
PROJECT OBJECTIVE



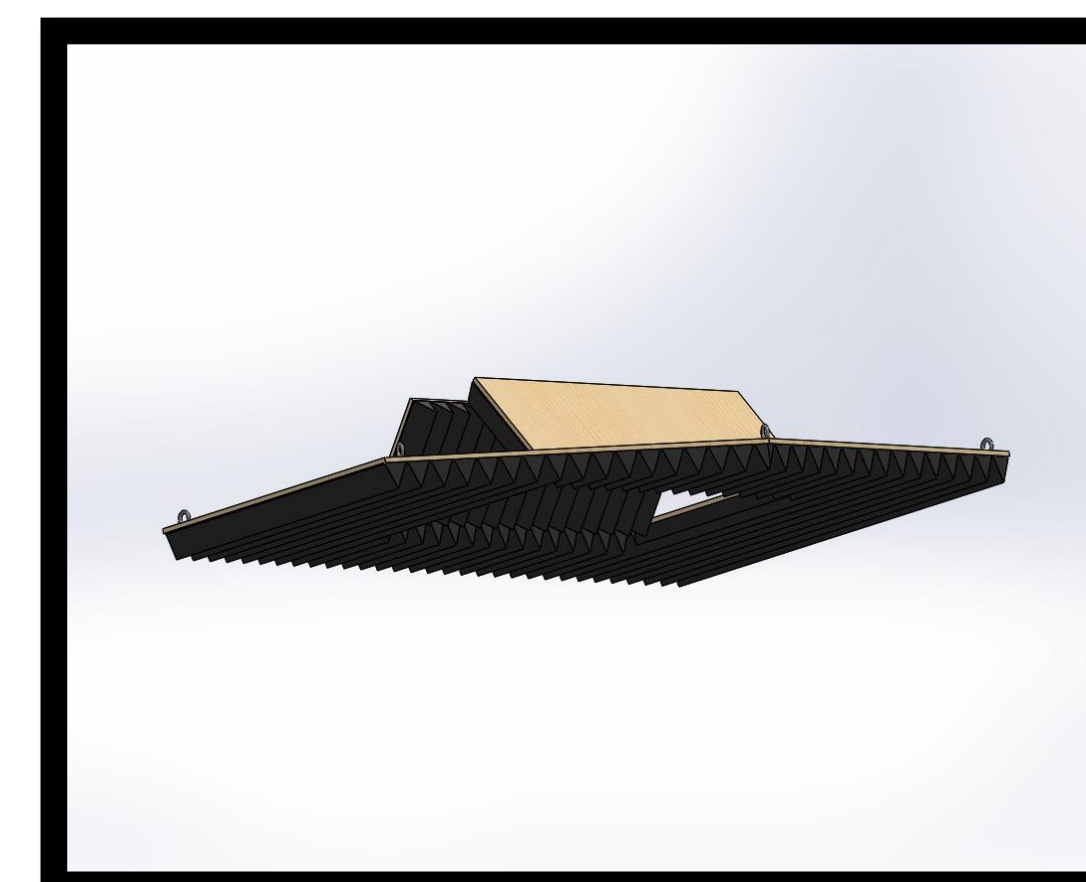
- Consistently record sound while managing surrounding noise level
- System needs to be portable

SUBSYSTEM DESIGNS

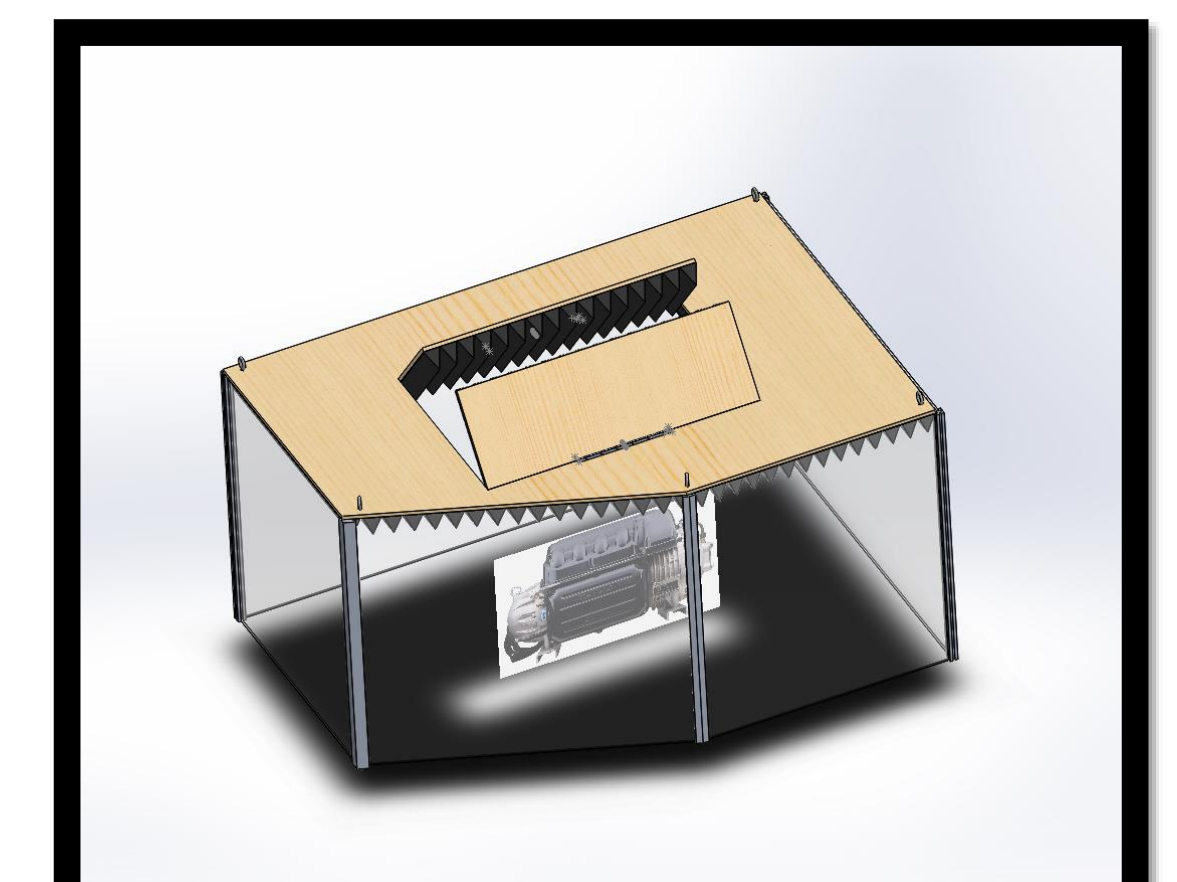
Current Test Stand



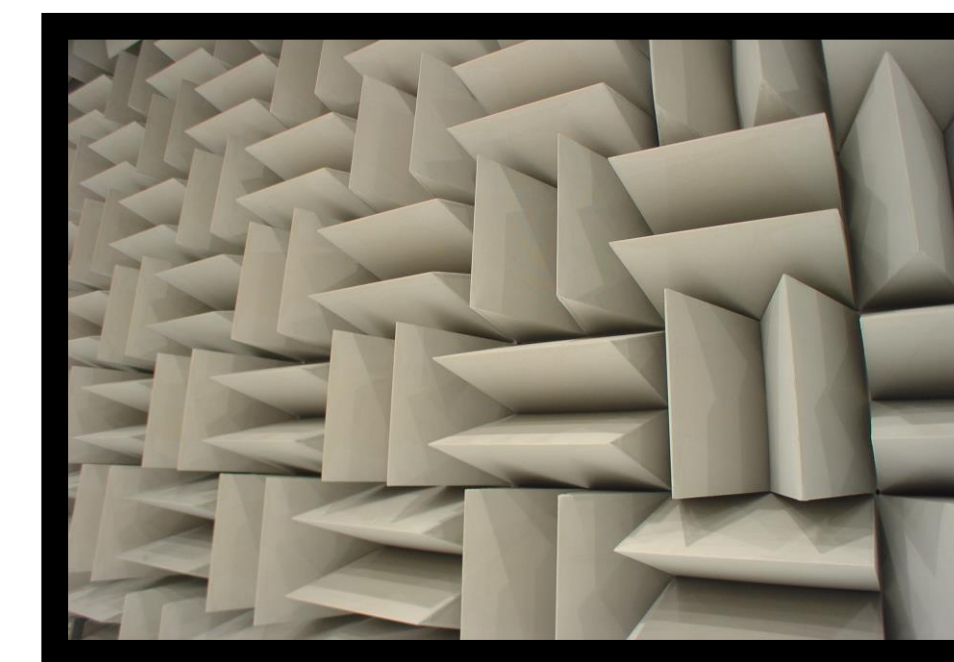
Anechoic Panel



Final Test Station



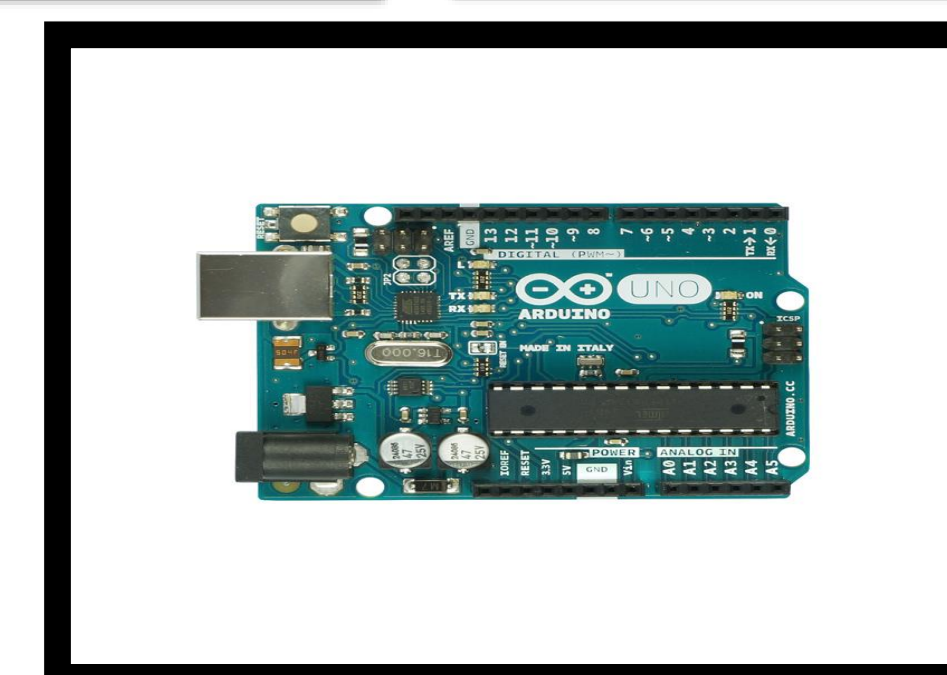
Reduce Ambient Sound
Anechoic chamber will provide insulating foam along the top of the chamber to reduce the surrounding sound.



Record Sound
An array of microphones will record sound pressure and is easily converted to sound power.



Convert to Sound Power
A microcontroller will provide a direct connection from the microphones to the computer to perform the needed conversion.



- Array of microphones will be integrated over the area of the top panel
- Design allows for compressor to be transferred in and out of chamber

SPRING PLAN

Moving forward, the design will need to be modified and components of the design will need to be purchased. After the components are acquired, the manufacturing and testing stages of the design will be conducted. The final design and test results will be presented in April 2019.

ACKNOWLEDGEMENTS

Thank you to Danfoss Turbocor and our project liaisons Arnold Schaefer and William Bilbow for sponsoring this project. We would also like to thank Dr. McConomy for leading the senior design projects and to Dr. Hellstrom for his guidance and advice.