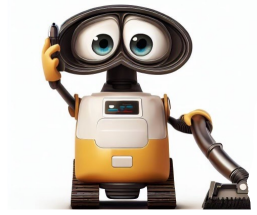




# Wal-E: Weaponry Area Lead-Dust Eliminator

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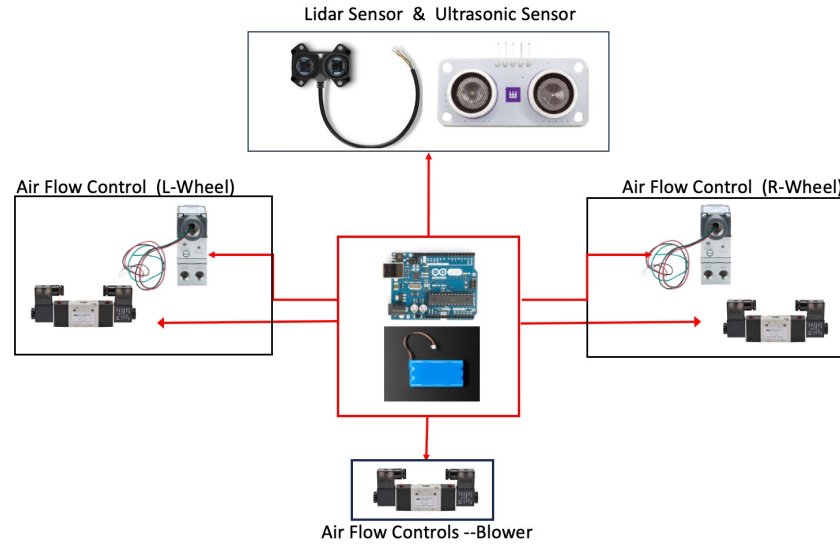
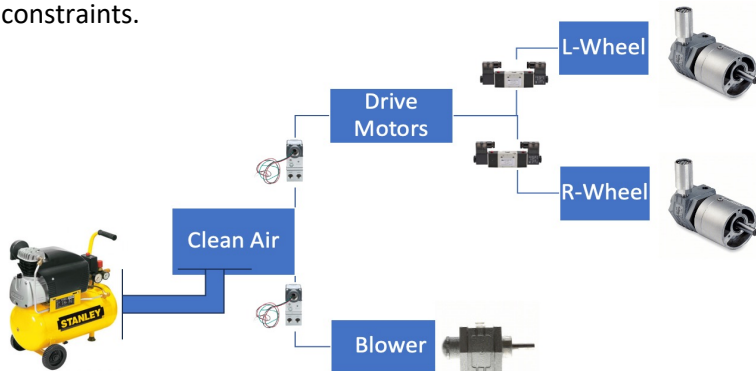
## Project Objective and Intern Contribution:

The objective for this summer was to build an autonomous robotic vacuum that could collect lead, dust, and other particles in indoor shooting ranges. The robotic was intended to be pneumatic while only allowing conductive materials to be in contact with the air and having no components that connect to Wi-Fi or Bluetooth.

To accomplish these tasks, we researched pneumatic systems, Arduinos, programming, and circuitry, among other things to acquire knowledge regarding the project. Using this knowledge, we printed pneumatic components using 3D printers, while also designing a chassis for our robotic using CAD software, specifically SolidWorks.

We constructed a prototype for our robot by first designing and setting up a pneumatic system containing components such as a blower, sensors, an Arduino, valves, wheels, all of which were connected using piping, wiring, and connectors.

We were ultimately unable to finish the project due to time constraints.



## What are you most proud of this summer?

- We acquired knowledge and gained new skills to design and develop our project
- We gained hands-on experience working with 3D printers, circuits, and pneumatic components.

## Why was the internship valuable?

- We gained a significant amount of experience with the engineering process, such as researching and prototyping that will help with our engineering futures.
- We made quite a few connections working alongside others.

## Advice for future teams?

- Learning by doing is an effective strategy.
- Researching is a very effective way to gain knowledge and help with your project.

## Results/ Accomplishments / Next Steps:

This project could be very beneficial for the Navy as it could significantly decrease the amount of money needed to be spent to clean indoor shooting ranges.

Our team cooperated to develop as many areas of the project as possible.

This robot should ultimately be able to autonomously remove dust and other particles from indoor shooting ranges in the future.

The next steps for this project would include continuing to develop the code connected to the Arduino and testing the robot at an indoor shooting range once the project is completed.

