

A red and black drone is shown in flight against a bright blue sky with scattered white clouds. The drone has four arms, each with a propeller, and a central body with a red star emblem. It is positioned on the left side of the frame, angled towards the right. A large, semi-transparent brown rectangle covers the right half of the image, containing the title text.

# ADHAM ABDELRAHIM PORTFOLIO

Here is where your presentation  
begins

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**01**

# **INTRODUCTION**



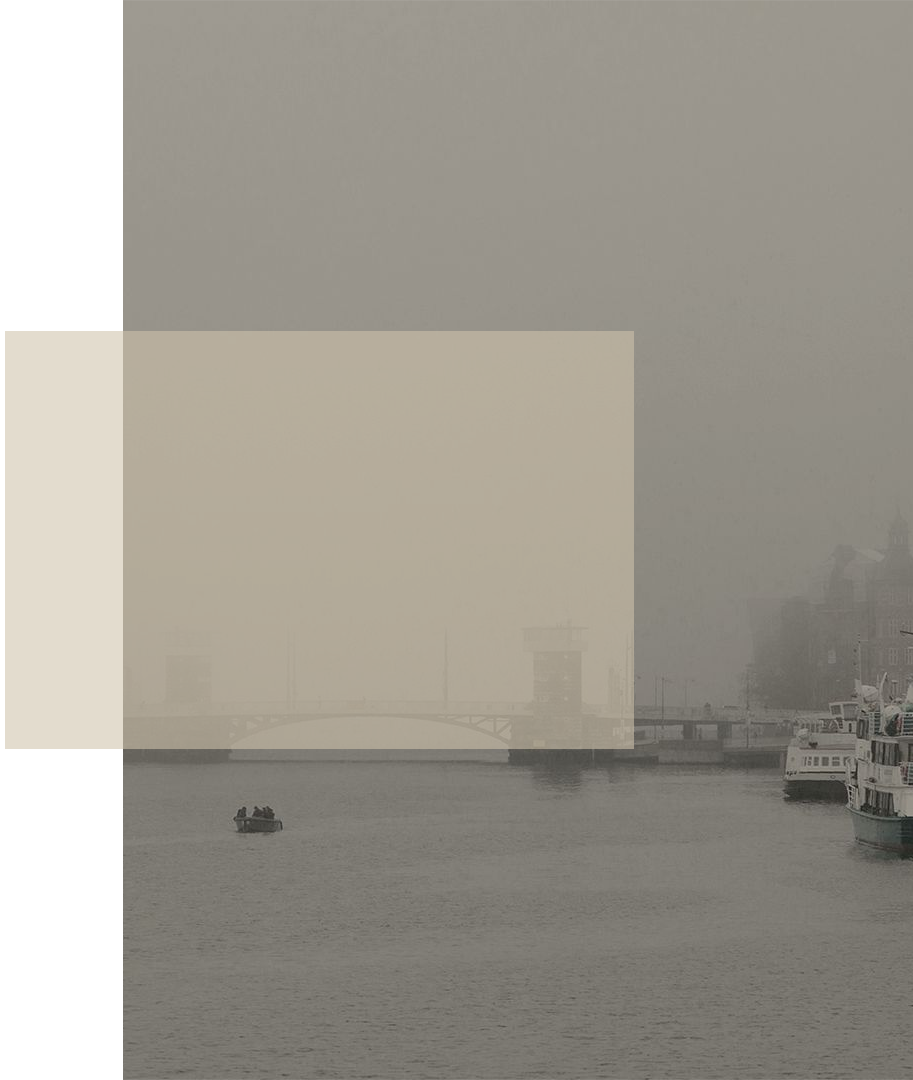
# Why did I start designing.

My interest in design was first sparked in design during the covid shutdown in 2021. I was bored and was looking for a new skill to learn and I decided to learn how to cad. I have been improving my abilities over time by using resources available to me at school like tech design courses and the robotics program.

# How I design.

When I design my ideas mainly come to me through the easiest way that I can think of to solve a problem. This does mean that a lot of the time I will dive headfirst into a problem and slowly figure out how to solve it.

My designs are typically inspired to look as sleek and simple as possible. This means when I do go out and search for inspiration I will typically be inspired by the simpler and more elegant design rather than the complicated fancy one



**02**

# **Work Samples**

# WHAT HAVE I BEEN WORKING ON?

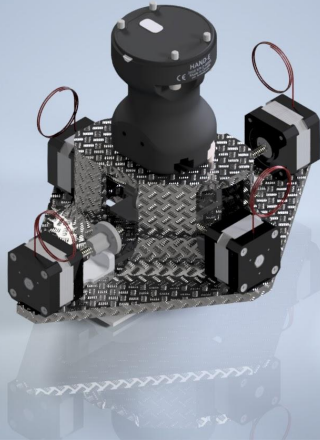
## Primary Project:

Drone



## Secondary project:

Ontario skills competition.





**MADE IN A LAB.**



## **DRONE DESIGN IDEOLOGY**

My design Ideology for the drone was to be as lightweight as possible while being able to fly at high speed or altitudes in order to survey an area for whatever reason you may need.

## **STRUGGLES**

There were many struggles but the main one was keeping the weight down while allowing for that high altitude functionality.

## **ELECTRICS.**

I had never known how to lay out electronics before this drone but after going through a lot of references I figured out how to wire this thing. Although someone with more experience than me might say that I didn't do a great job I feel for a first time it was done fairly well





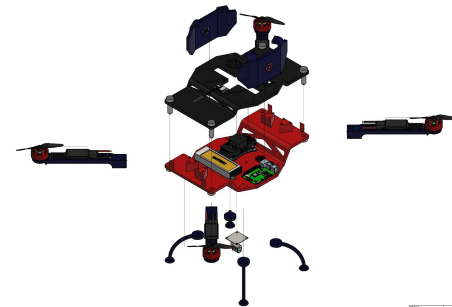
## Focus: DRONE ARMS →

I believe that this drone arm (rev 2) may be the best designed part i have made this year. It has sleek aesthetics while being extremely lightweight allowing for the perfect amount of strength for its job, The center line on the mesh is actually at an angle to allow for more strength where it is needed. The little side hole on the back block is a magnet mount so the arm doesn't move during flight while still allowing for the drone to fold up . Although the piece may not be that complicated i believe it may be my most elegant and well done part this semester.

# DRONE DRAWINGS



DATE	2023-01-01	TIME	10:00 AM
DESIGNER	ALAN M. ALAN	PROJECT	DRONE
REV	1.0	DESCRIPTION	DRONE PART ASSEMBLY
PROJECT	1.0	DATE	2023-01-01
REV	1.0	DATE	2023-01-01
REV	1.0	DATE	2023-01-01



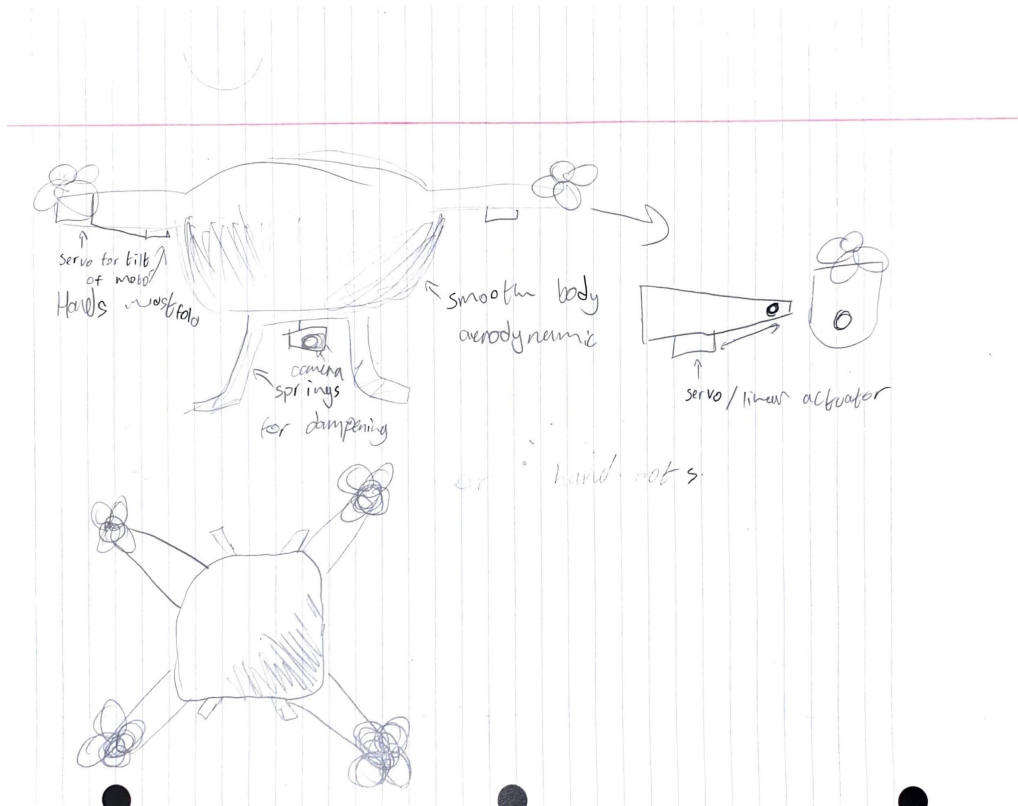
DATE	2023-01-01	TIME	10:00 AM
DESIGNER	ALAN M. ALAN	PROJECT	DRONE
REV	1.0	DESCRIPTION	DRONE PART ASSEMBLY
PROJECT	1.0	DATE	2023-01-01
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REV	1.0	DATE	2023-01-01

# DRONE DEVELOPMENT

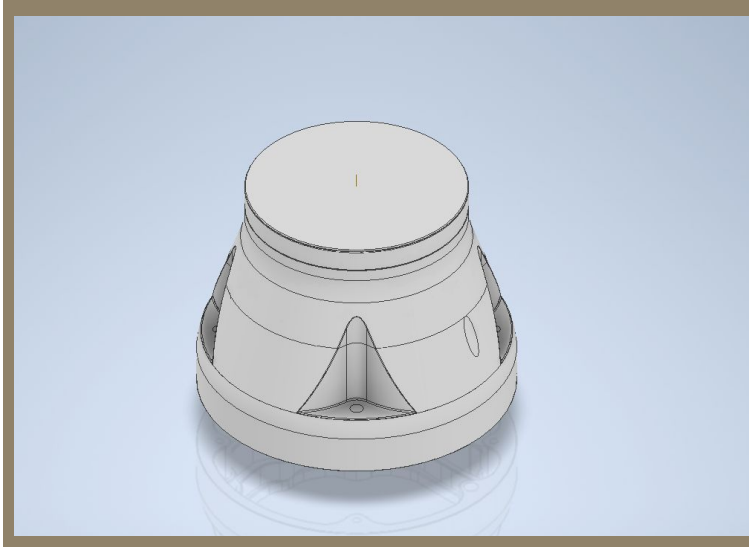
This is my initial idea, I initially wanted a smooth chassis but I instead used a more mechanical chassis which turned out to be much lighter. I also used a different arm design because the old one would have weighed much much more.



# SECONDARY PROJECT: ONTARIO SKILLS CONTEST

## AM challenge

Recreating piece

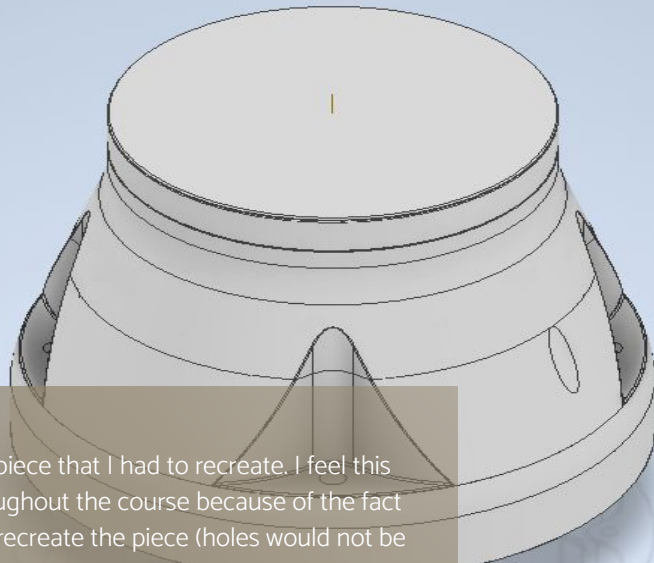


## PM challenge

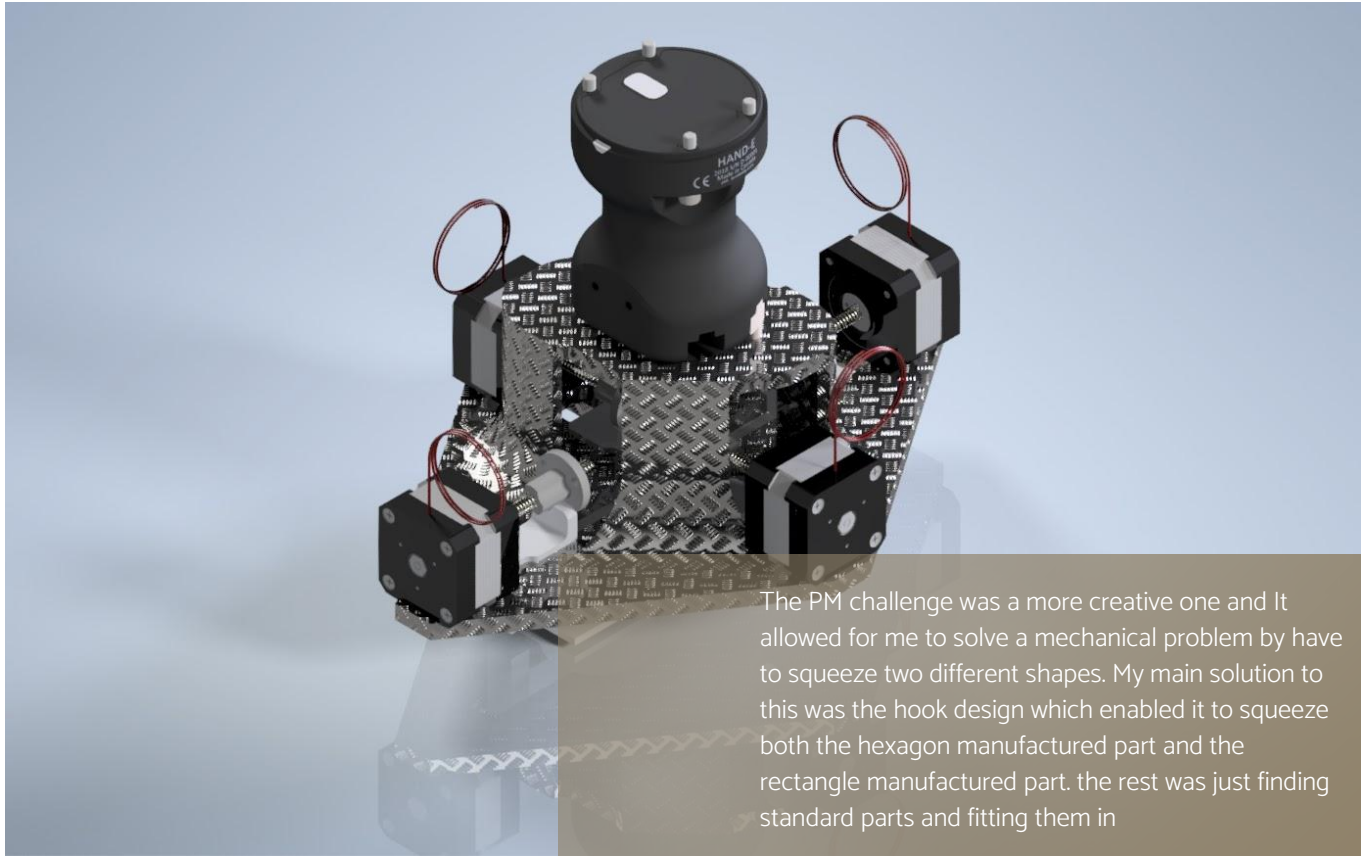
Mechanical challenge



# AM



This was a very challenging piece that I had to recreate. I feel this may be my worst piece throughout the course because of the fact that I failed to fully properly recreate the piece (holes would not be holes at the top, instead left a tiny piece.) Although I think this was a great learning experience and that it progressed my CAD skills a lot due to me having to find new ways to solve the challenge.



The PM challenge was a more creative one and It allowed for me to solve a mechanical problem by have to squeeze two different shapes. My main solution to this was the hook design which enabled it to squeeze both the hexagon manufactured part and the rectangle manufactured part. the rest was just finding standard parts and fitting them in

PM

**03**

# **CAREERS**

# AEROSPACE ENGINEER



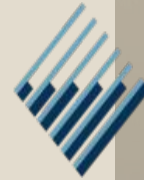
-Aerospace engineers research, design and develop aerospace vehicles, aerospace systems and their components, and perform duties related to their testing, evaluation, installation, operation and maintenance.

-Average ontario salary is 92K a year.



# CAREER REQUIREMENTS

- A bachelor's degree in aerospace engineering or in a related engineering discipline, such as mechanical engineering or engineering physics
- A master's degree or doctorate in a related engineering discipline may be required.
- Licensing by a provincial or territorial association of professional engineers is required to approve engineering drawings and reports and to practise as a Professional Engineer (P.Eng.).



Professional Engineers  
Ontario

**04**

# **REFLECTION**

# SKILLS LEARNT



# REFLECTION



This course has been an enjoyable stress reliever. Although I could get a bit bored at times I think this courses highlights (I.E 3D printing my drone,) are unmatched by any other course I have ever taken. Although some challenges came my way using my available resources it was easy to overcome. My favourite project this year was the drone I think that it was super enjoyable and a terrific learning experience. **For the future** I think that if you offered students the choice between a choice between mechanical or architecture style primary project and then make them do the other for a secondary project that might allow for students to learn both programs but still do what they enjoy.