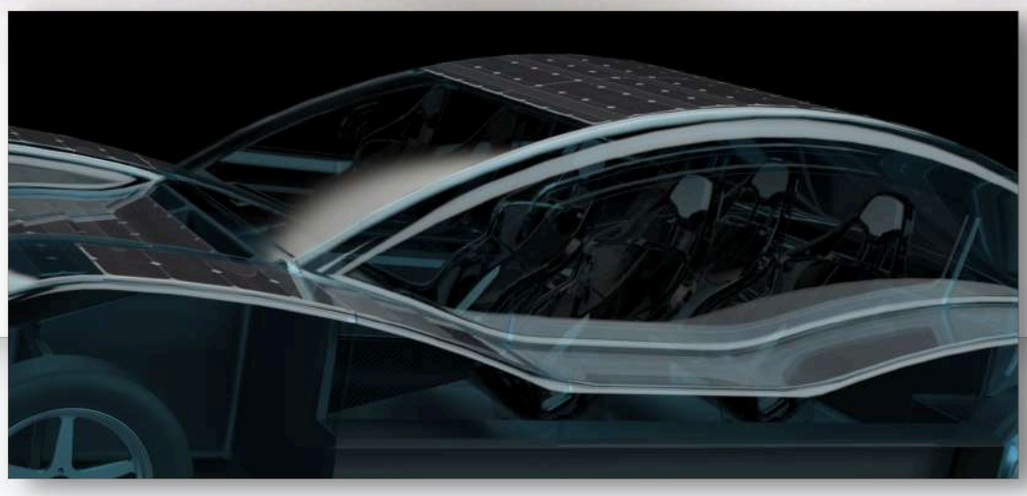
PROJECT PORTFOLFIO

MANTHAN PATEL



DESIGN

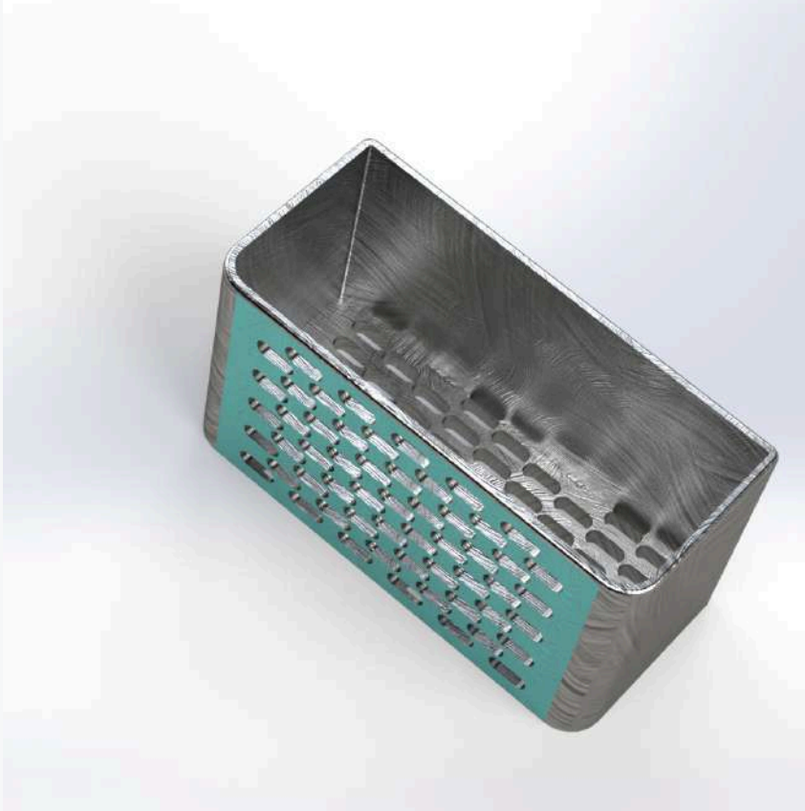
Photogrammetry Drone

As a 2nd year engineering CAD design project, a model drone design seemed an optimum solution. This design used simple extrusions and cut tools along with boundary surfaces.

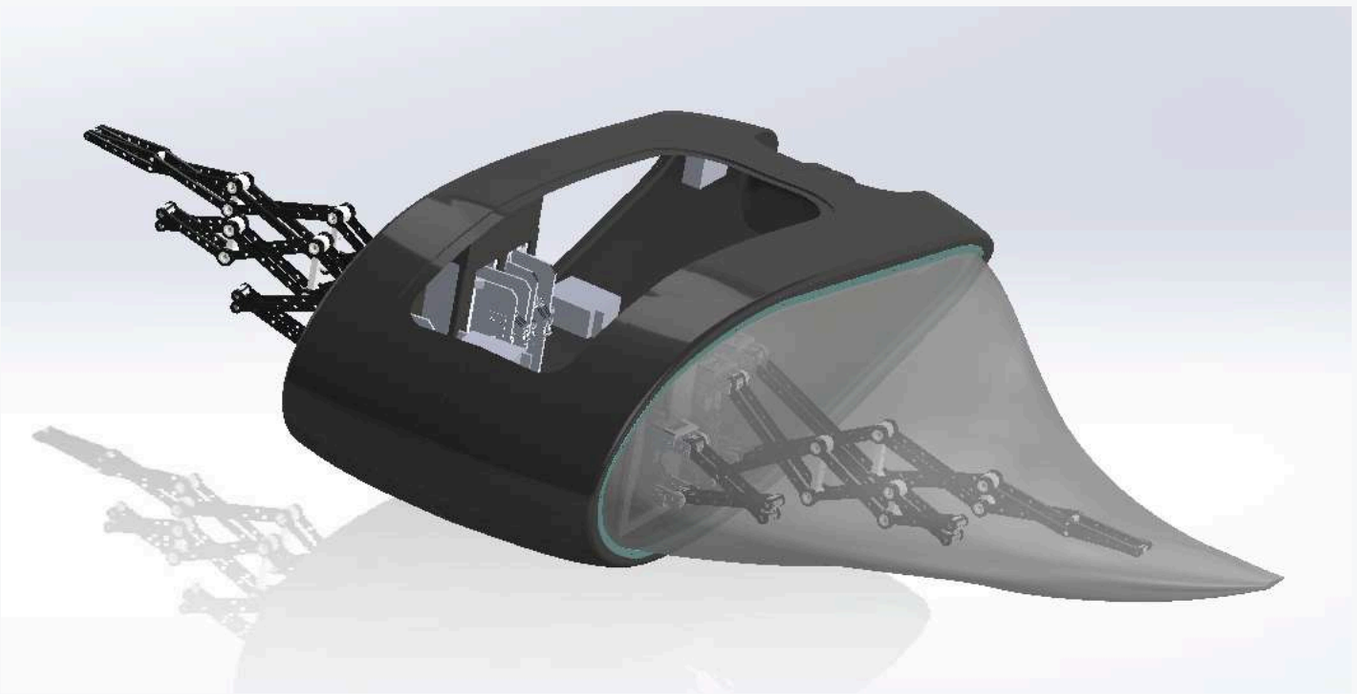
Theoretically, the aim is to manufacture a cheap 3d printed drone using 3d printers for the body and chassis, along with A2212 brushless motors, an IR sensor and an ultrasonic sensor for a mapping function.

Bathroom Vanity

Increasing compatibility for daily usage was an aspect kept in mind when working with this design. The idea is to hook a utility tub to a T-slot and protrude it from the curtain rail. This design provides customization and storage space along with non slip positioning



CAPSTONE



Flexible Tensegrity Wing Underwater Robot

As part of the 4th year Engineering Capstone project, I am honored to be in a global team with Tianjin University in China. With their Manufacturing expertise and our innovative approach, the team is taking on a challenging biomimetic robotics project.

This design includes 3 pairs of tensegrity beams driven by cams and servos to create sinusoidal motions of marine rays that are proven to be very effective methods in kinematic studies of marine animals. The robot has a potential to be used to carry underwater surveillance and recon tasks while being minimally invasive.

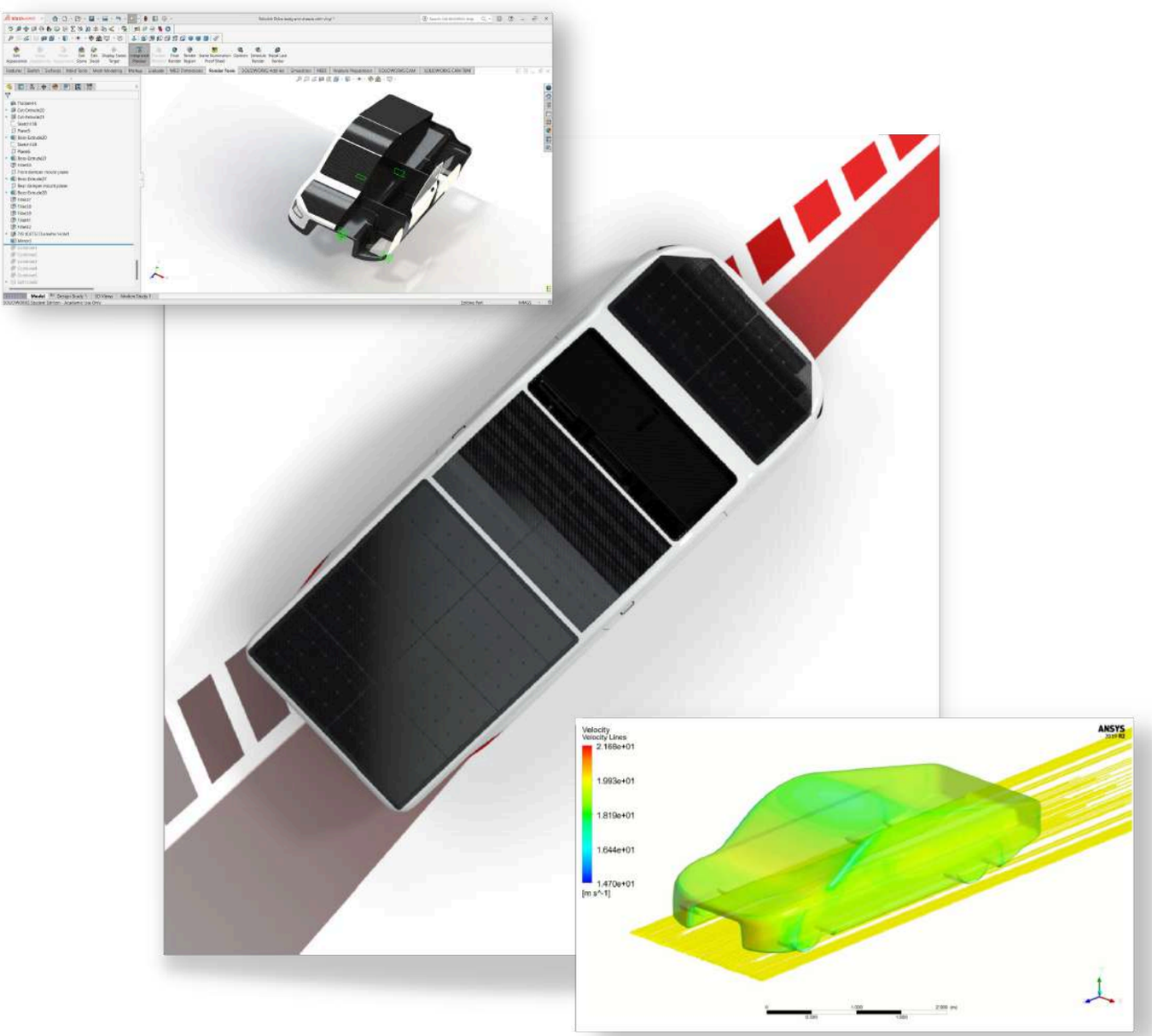
Project Website -Wix site created by me

ENGINEERING TEAMS

University of Calgary Solar Car

Working with the North America's best multi occupant solar car, an active hands on experience in advanced surface modelling with the use of boundary surfaces and 3D Sketches has been a key skill. Despite getting introduced to ANSYS software recently, it has been a huge learning curve to perform CFD analysis to conclude on streamlining.

Further, using SolidWorks Visualize rendering software, it has been possible to curate marketing images for sponsors and general audience.



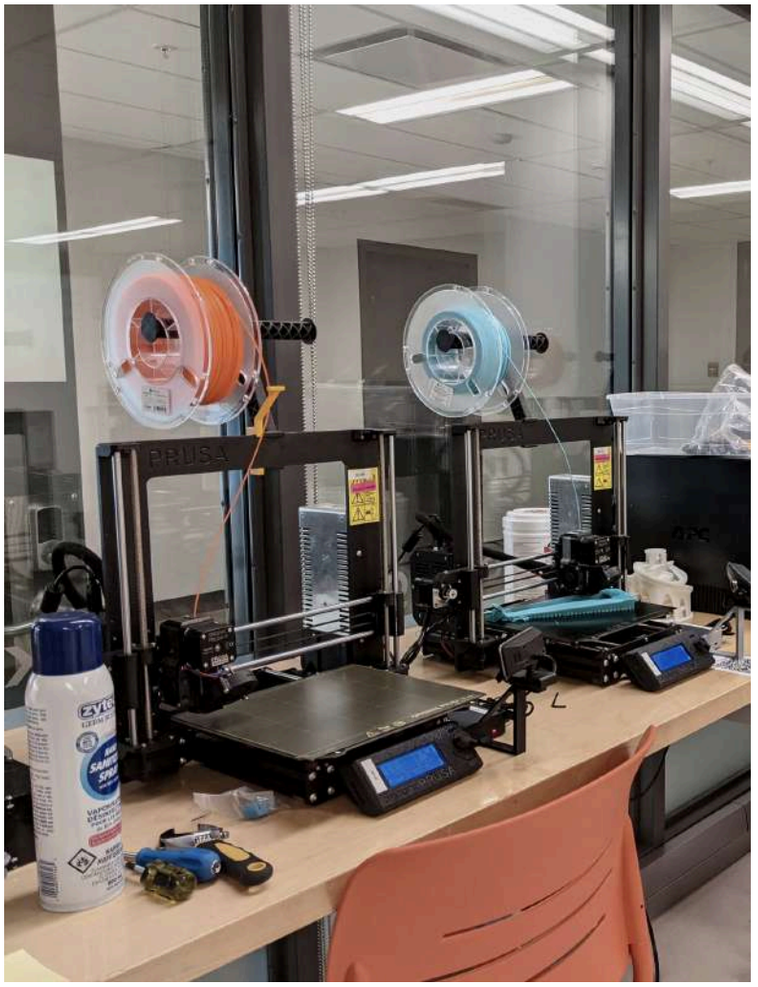
Kinova Gen 3

Taking the opportunity provided at the School of Engineering, using Kinova's arm robot to understand industrial usage of robotics has been a learning curve.

The process started with simply using an Xbox controller to perform simple tasks, followed by making a sequential function on the Kortex web app that can replace mundane human performances.

The next step is to learn programming sequential actions using Python, C++ and ROS

BASIC TRAINING



3D-Printing

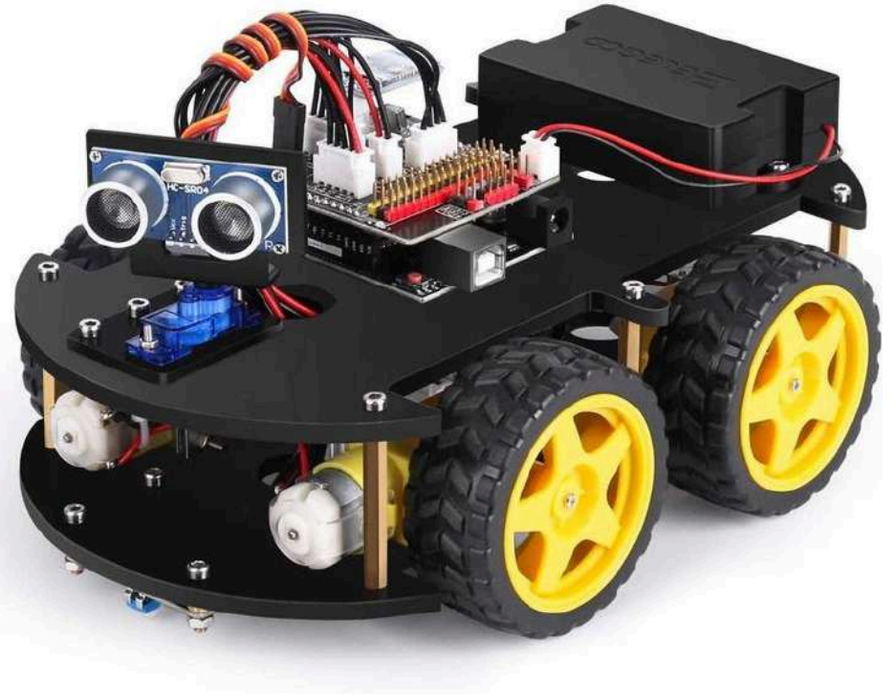
Basic heating bed and PLA filament diagnosis with knowledge in prusaslicer integration software to print .stl files

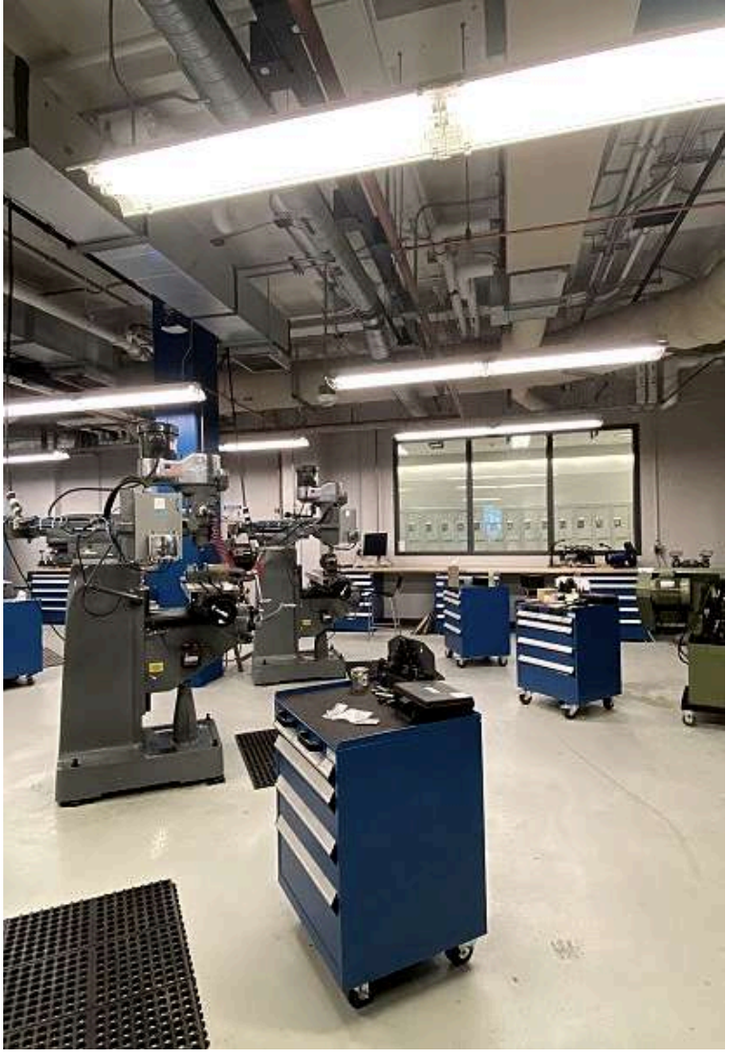
Use the Prusa i3 Mk3s to output designs in integration with the Cura/Astroprint cloud services. Further perform cleaning cycles and filament reloads for day to day usage..

Arduino Smart Car

Basic operations of loops and statics to declare analogue or digital pins to control sensors and motors to perform tasks such as obstacle detection and line tracking.

Further improve the project by adding various libraries for Bluetooth and IR remote integration.





Machine Shop

Manufacturing level course that includes Power Lathes and Mills. Designed a pen and holder from an aluminum block.

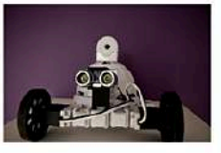
The training included usage of small hand tools such wrenches and hammers, Power tools including electric shears, grinders and drill presses, large industry tools like milling machines, lathe and water jets.

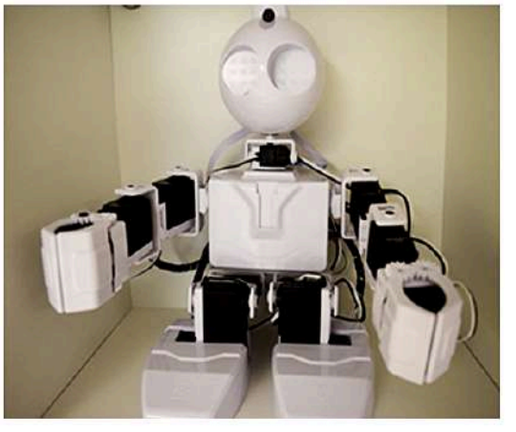
FUTURE TRAINING

Elev8 Quadcopter and EZ Robotics

Future workshop for basics in EZ robotics ARC software technology to learn dynamics mechatronic systems.

Advanced Electronic speed control and flight control modules to understand the motor functions for basic quadcopters





CERTIFICATIONS

In Progress/Longterm

INCOSE Associate Systems Engineering Professional (ASEP)

Working towards a certification from the International Council on Systems Engineering. Anticipated to take 5-7 months to be certified. This will help me better understand systems as a whole and how different technical aspects can work in conjunction as well as how to manage such systems.

SOLIDWORKS CAD Design Associate (CSWA)

Hoping to have this certificate for both my passion for mechanical designs and to enhance business outcomes. This program will ensure an expertise in drafting and manufacturing design needs in lots of mechanical engineering roles.

PMP Certification (Long term Goal)