

# Engineering Presentation

By Sagar Garg

# Courses

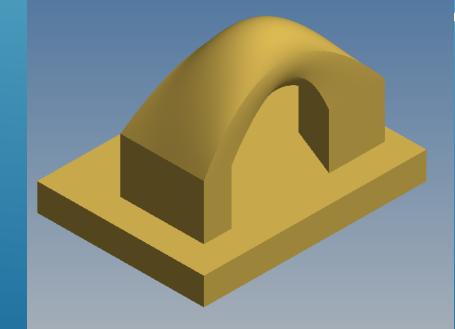
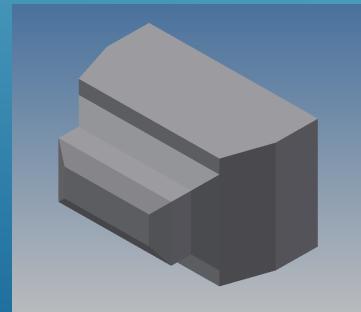
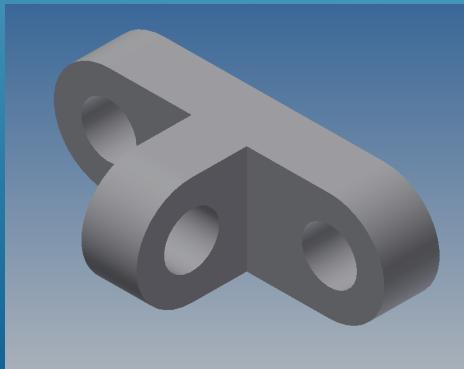
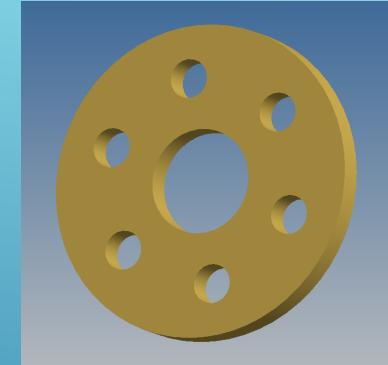
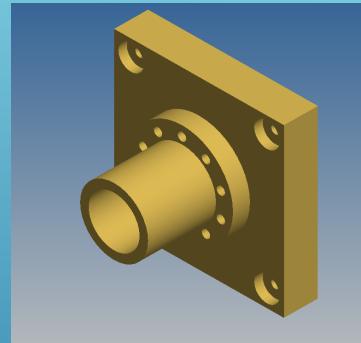
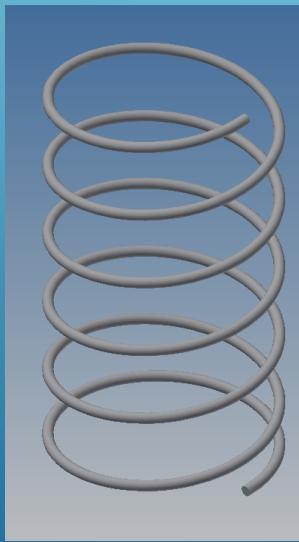
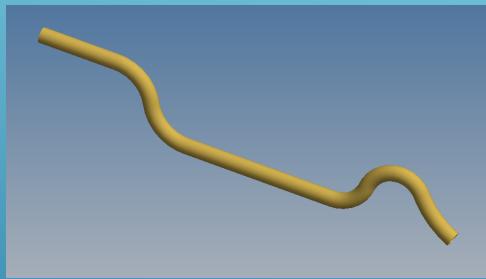
- Introduction to Engineering Design I
- Digital Electronics
- Engineering Technology
- Introduction to Engineering Design II
- Principles of Engineering
- Manufacture Process CIM
- Intermediate Electrical Engineering

# Introduction to Engineering Design I

- AutoDesk Inventor 2D skills
- AutoDesk Inventor 3D skills
- Designing Lego Figures
- Final Year Project

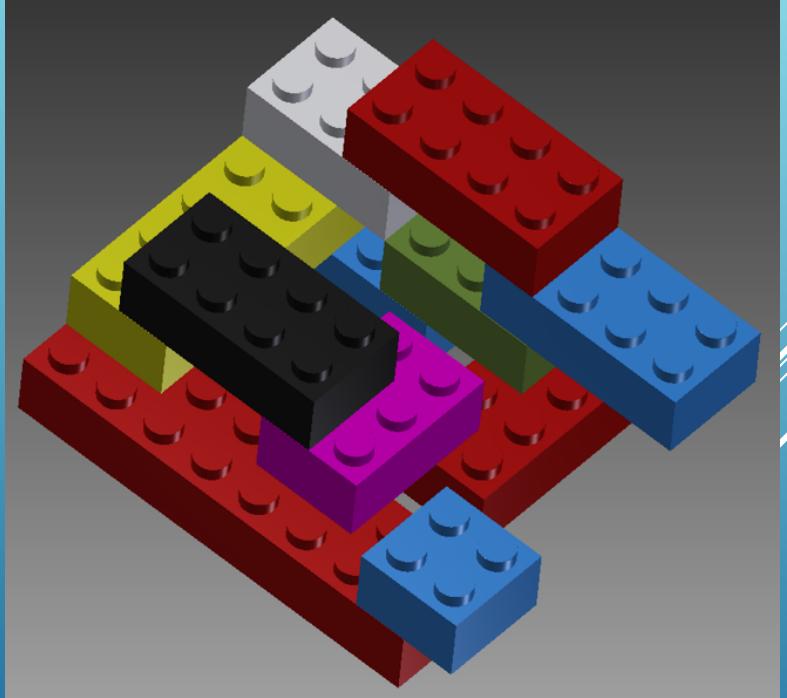


# AutoDesk Inventor 2D and 3D skills



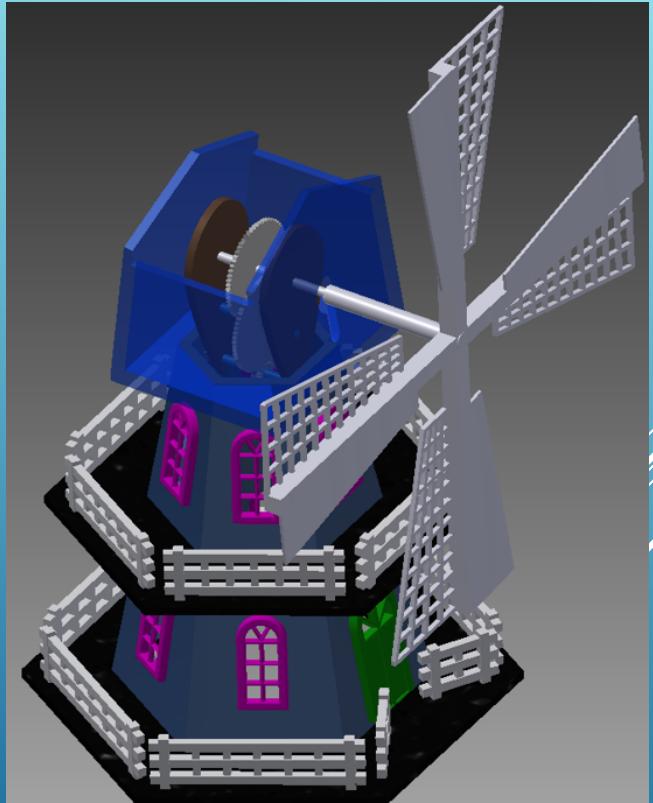
# Lego Design

- Learned how to create 3D designs
- Learned how to constrain parts
- Created an assembly and animation



# Final Year Project

- Design a windmill
- Created an Assembly and Animation



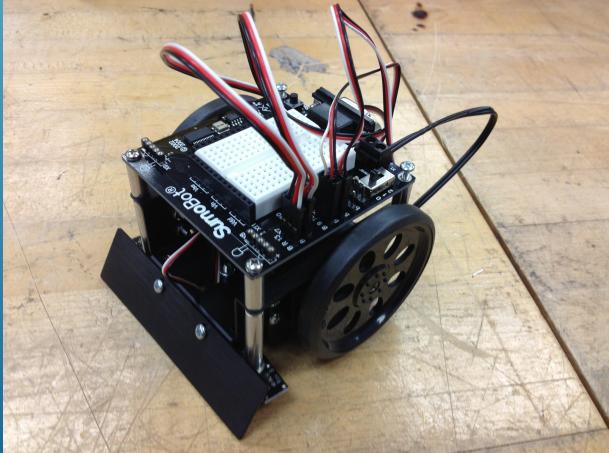
# Digital Electronics

- Learned basic electronics
- Breadboard circuitry
- Soldering
- Christmas Tree Project



# Digital Electronics

- Christmas tree project - Learned to Solder on a circuit board
- Breadboard arduino servo project



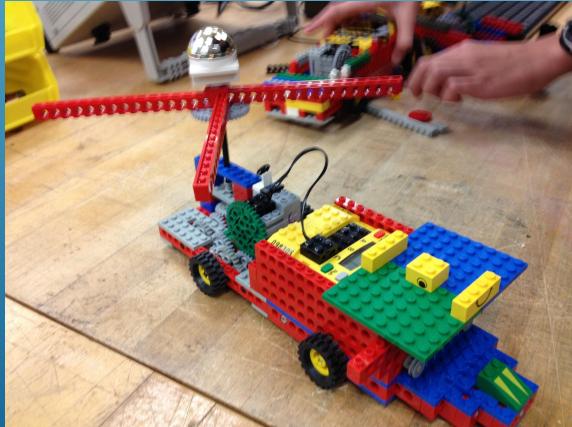
# Engineering Technology

- History of Computers
- Various parts of a computer
- Networking
- Engineering Safety
- Laser Printing
- Robotics Engineering Project



# Engineering Technology

- Deconstructed computer to identify different parts
- Constructed a remote control robot similar

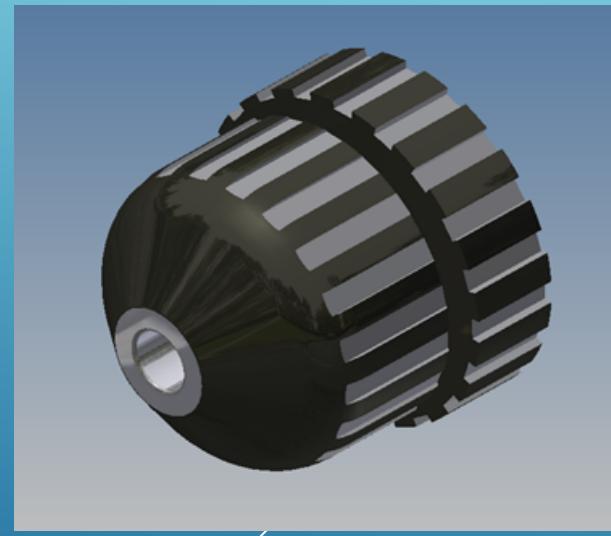
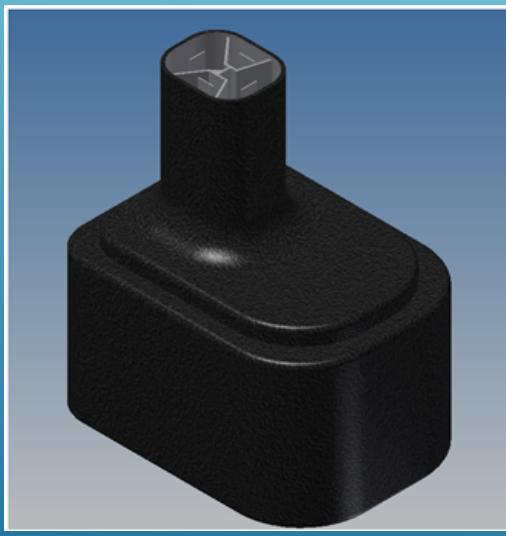
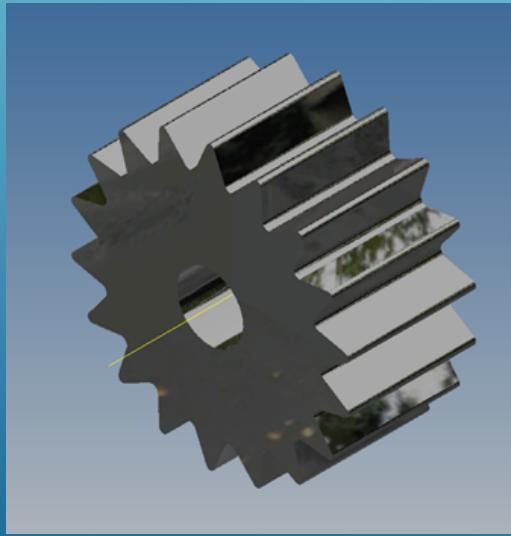


# Introduction to Engineering Design II

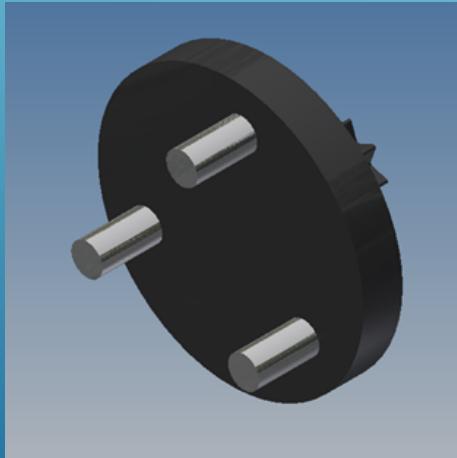
- Reverse Engineering Project
- Electric Drill



# Major Parts



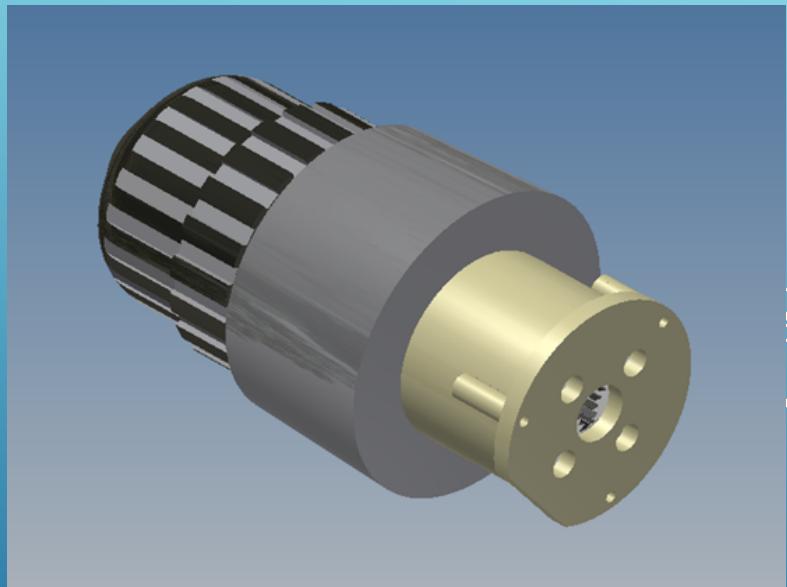
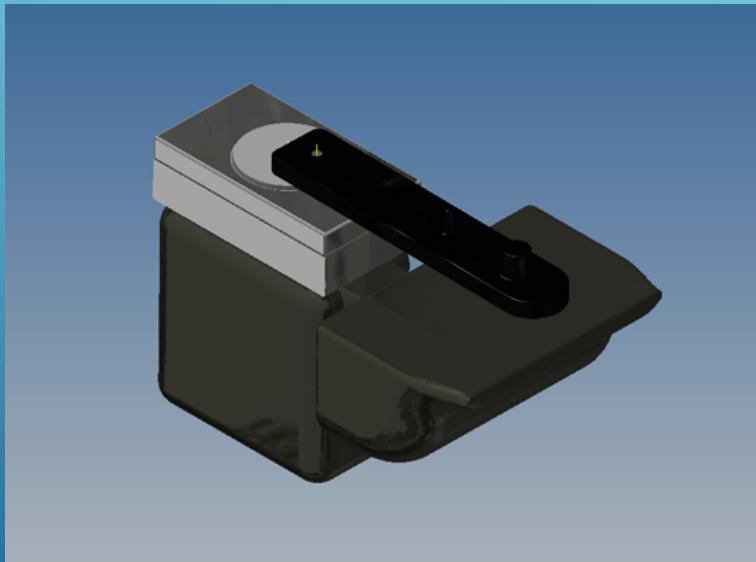
# Major Parts



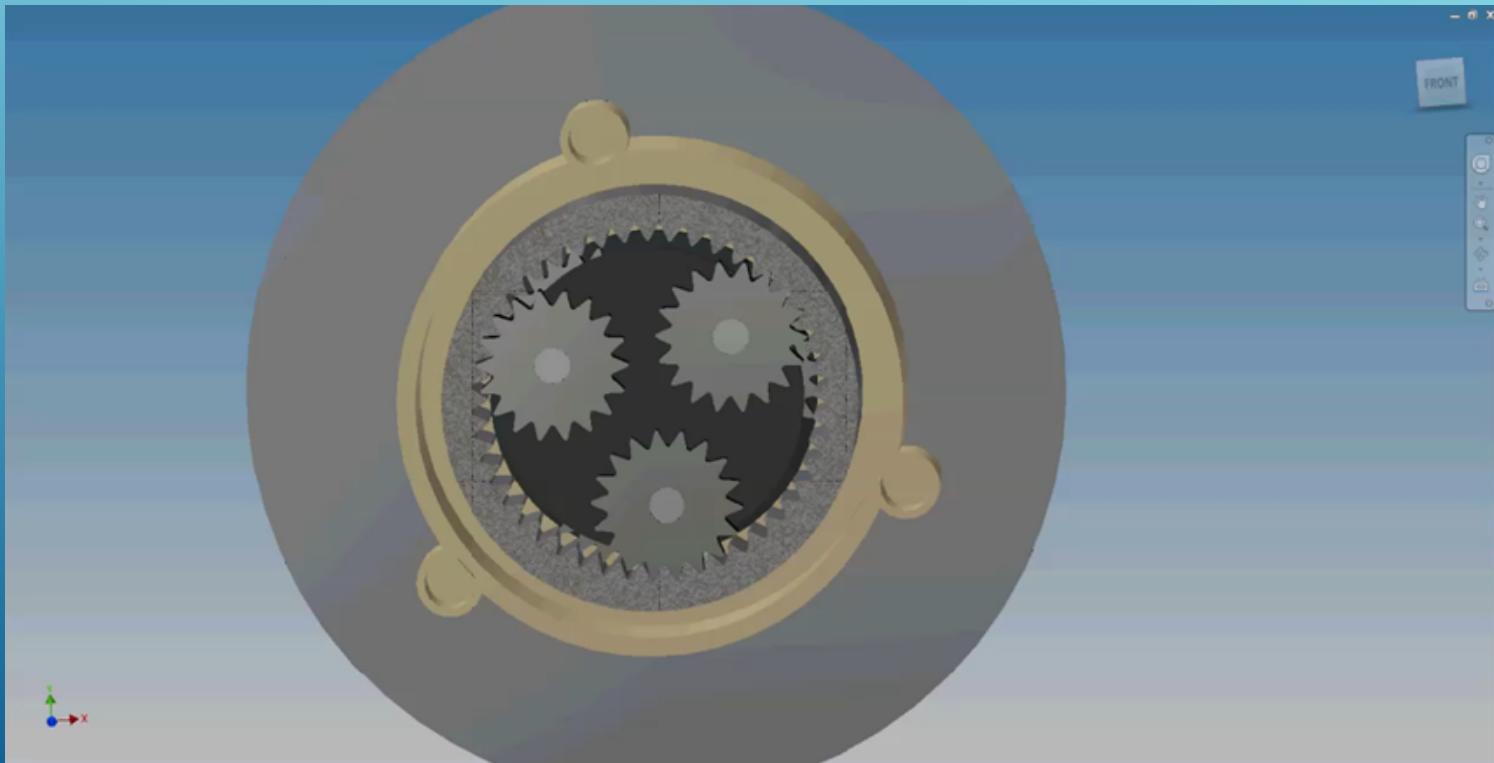
# Major Parts



# Assemblies



# Gear Assembly



# Final Project



# Principle of Engineering

- Bridge Truss Problems
- Stress and Strain
- Bridge Project
- Tensile Strength Project
- Started Arduino Programming



# Principle of Engineering

- Bridge Truss
- Tensile Strength

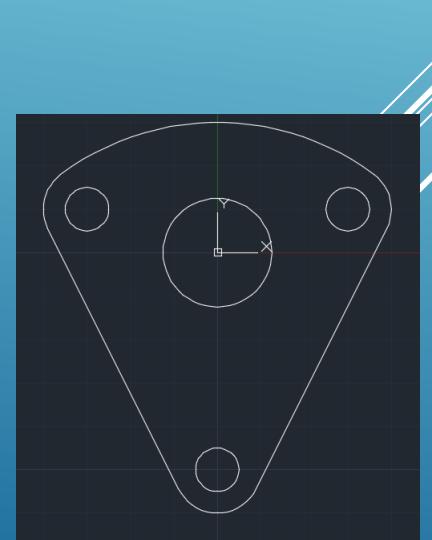
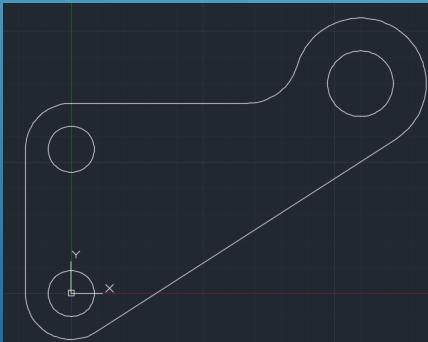
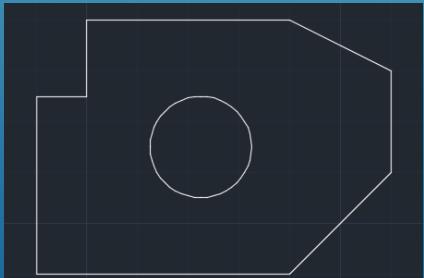
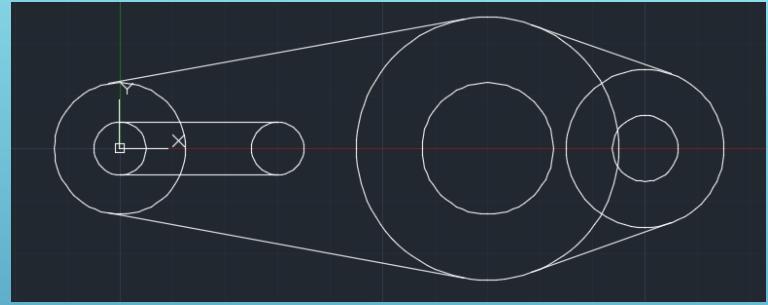
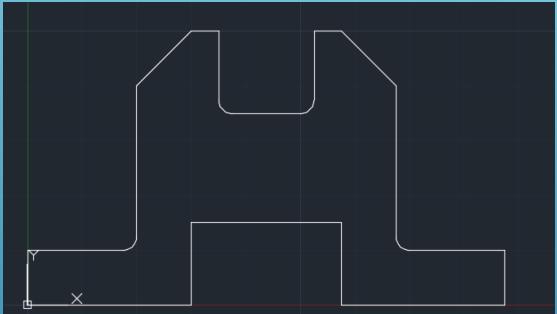
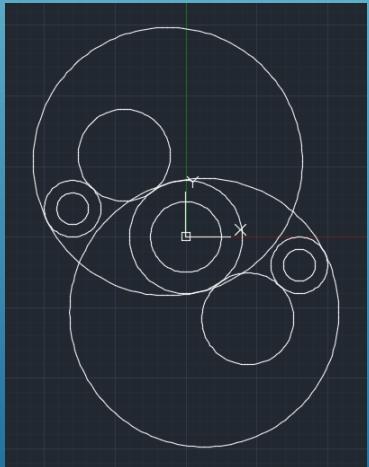


# Manufacturing Process CIM

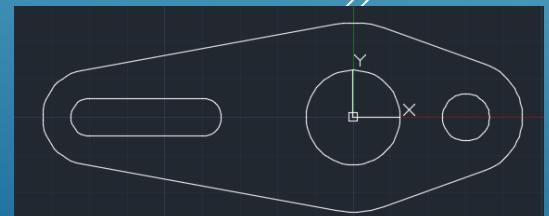
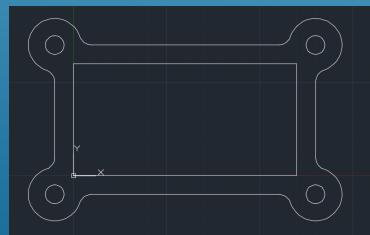
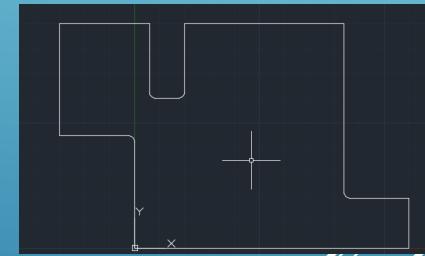
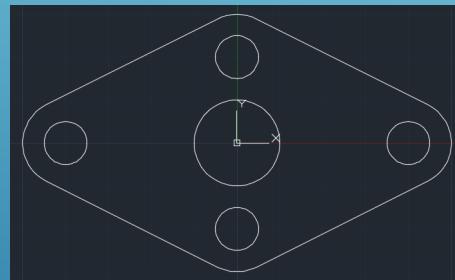
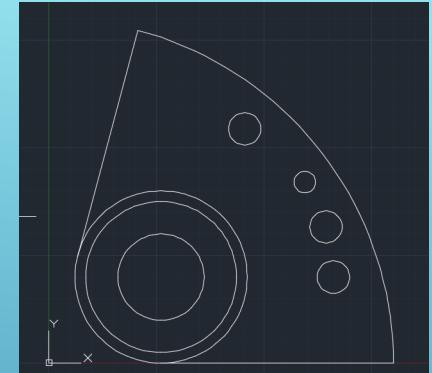
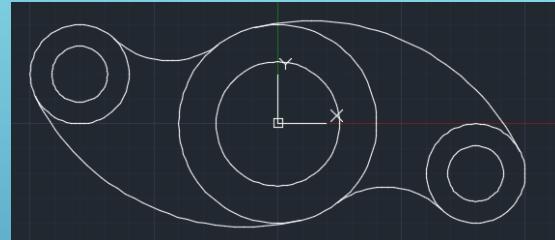
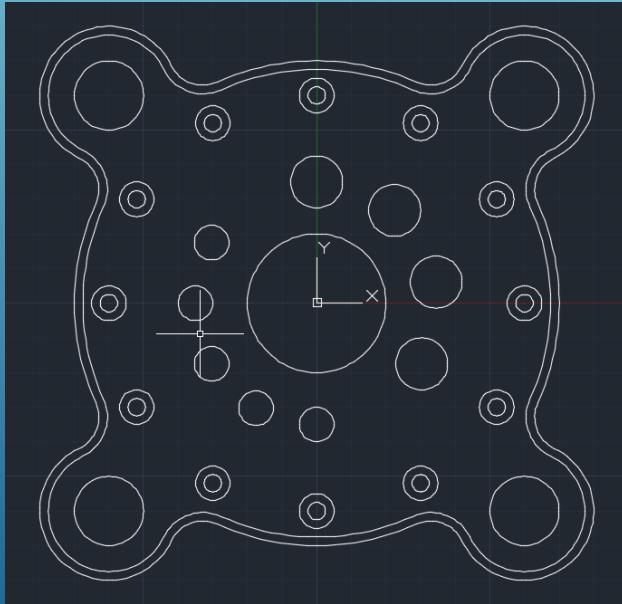
- AutoCad
- CNC
- Extreme Redesign
- Water Jet



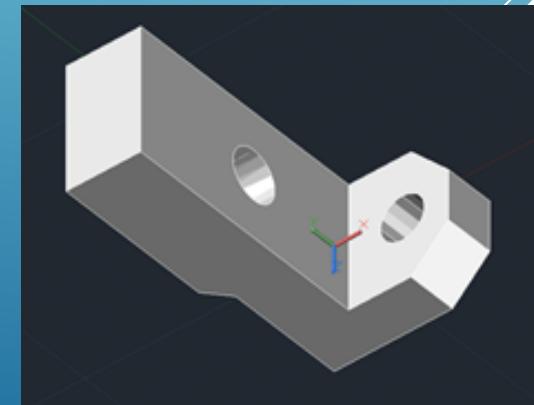
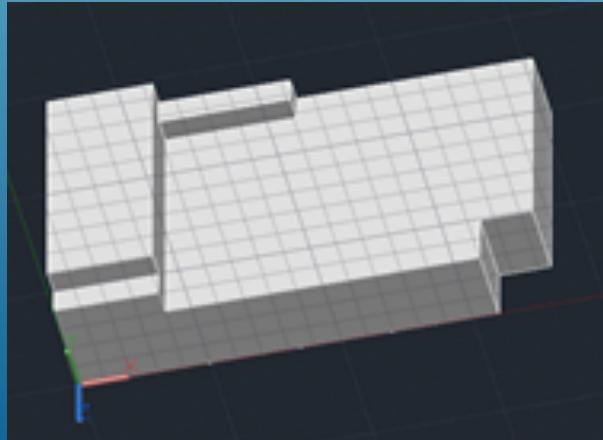
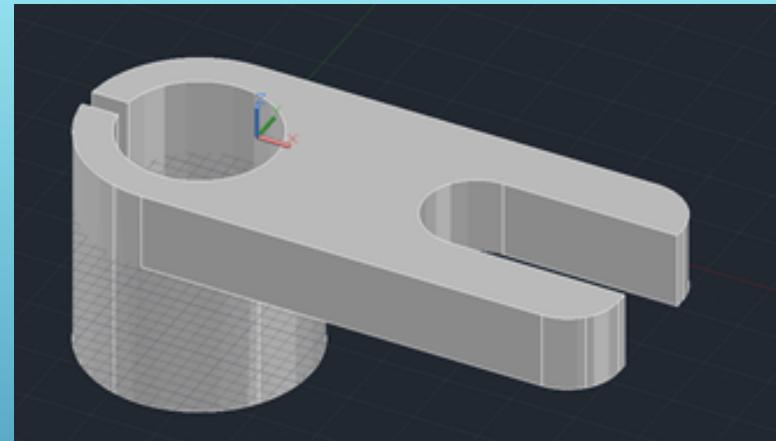
# 2D AutoCad



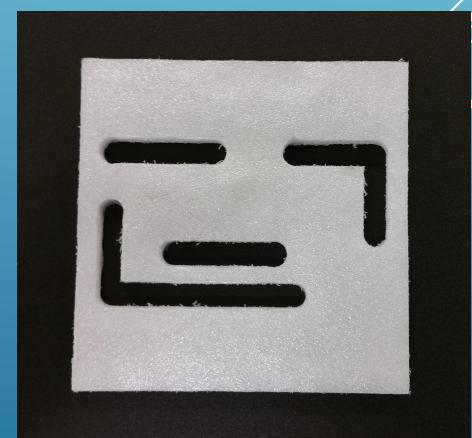
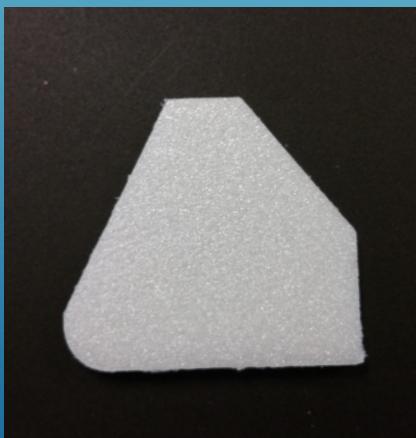
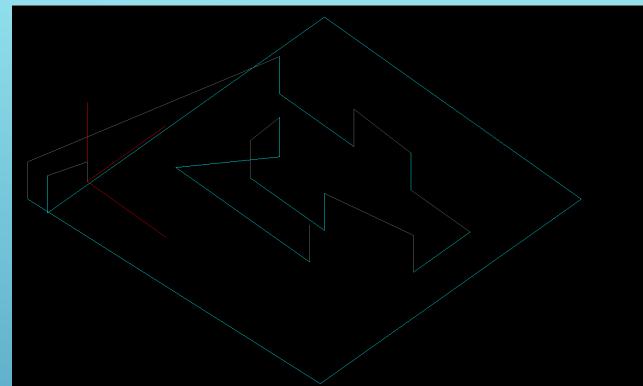
# 2D AutoCad



# 3D AutoCad



# CNC Program

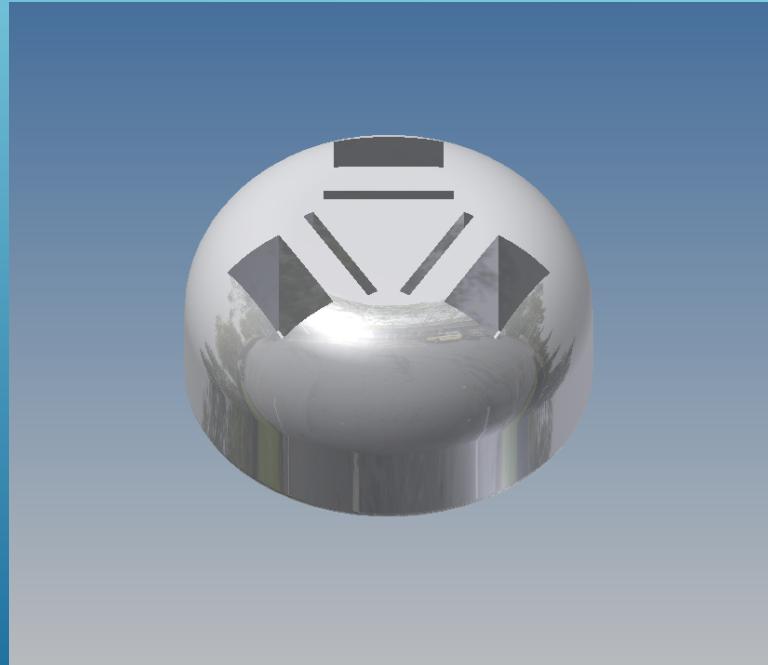


# Extreme Redesign

- Designed a USB and SD card holder
- Holds up to 3 USB drives and 3 SD cards
- Keeps USB's and SD's in a safe location



# USB and SD card holder

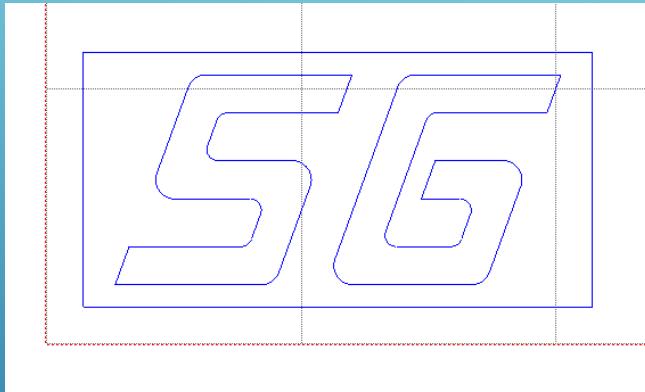


# Water Jet Cutter

- Learned how to use FlowCut
- Learned how to use FlowPath
- Learned how to use the water jet
- Designed my initials in AutoDesk Inventor



# Water Jet



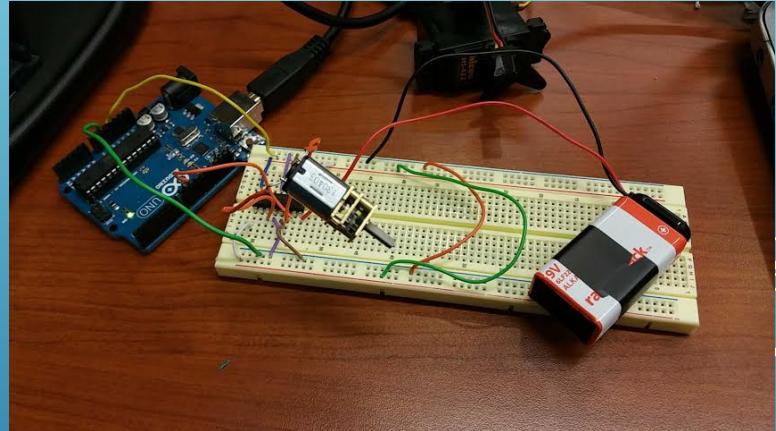
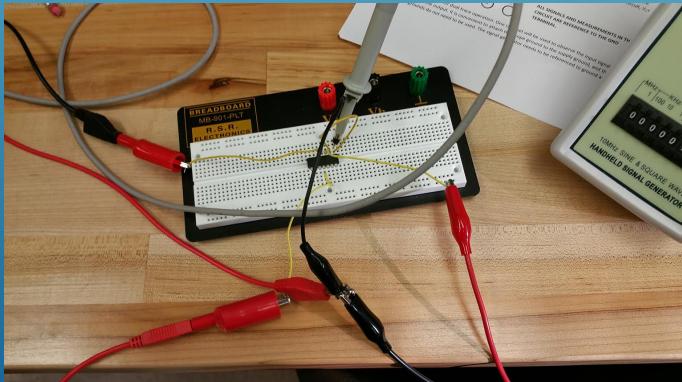
# Electrical Engineering

- Designed and built a variety of circuits
- Passive and Active Circuits
- Arduino code



# Electrical Engineering

- Servo Control by potentiometer
- Op Amp Temperature Sensor



# Extracurricular Project - BarBot

- Hardware project at PennApps Winter 2015
- Design and laser cut box
- Servo motor to open lid
- Arduino and Android
- BarBot automatically lifts its cover using sonar data

