

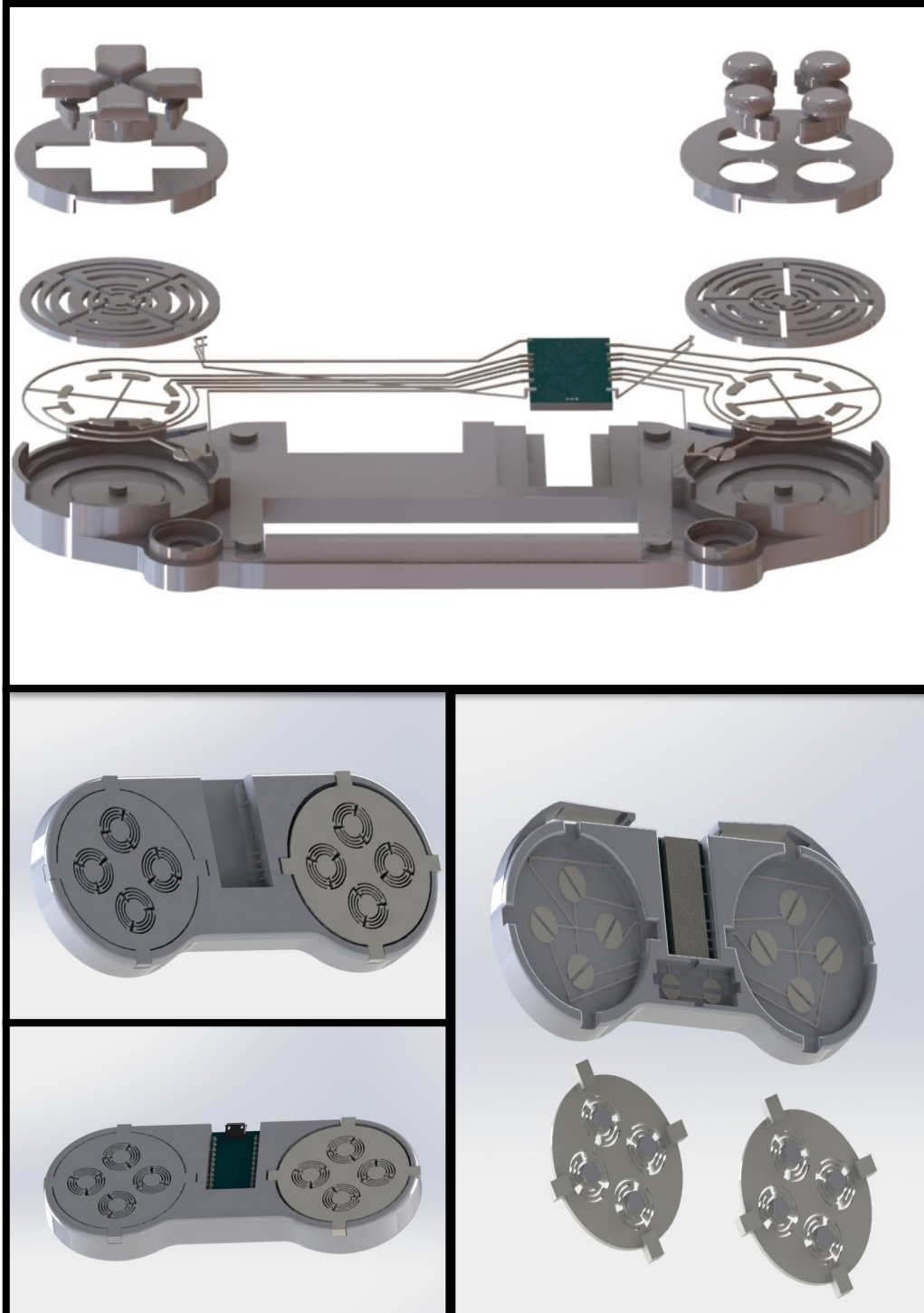
Portable Raspberry Pi gaming console

- Built with ABS and delrin, CAD and rendering in Solidworks
- 12 button Controls are programmed with Atmega32U4, Raspberry Pi running RetroPi
- TFT screen with 40 pin HDMI Decoder
- Anker 10mAH Battery Pack with desoldered BMS signal for battery life indicator
- DPDT switch to change power input/ use device while charging battery



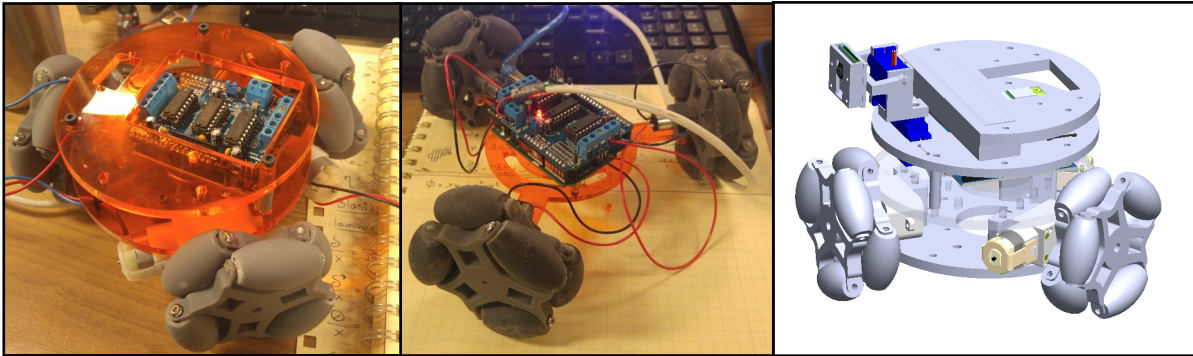
Modular Printed HID

- Modular 3D Printed HID that allows for custom methods of user input
- HID consists of Arduino Pro Micro, Button meshes with pads, conductive traces and body
- Button pads use Ortho-planar springs to deflect linearly and close silver switch
- Pro Micro USB transceiver allows for use as generic USB device
- Serves as proof of concept to display the ability to rapidly prototype custom HID's



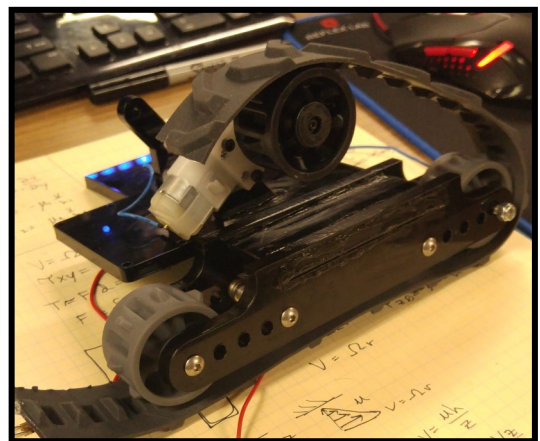
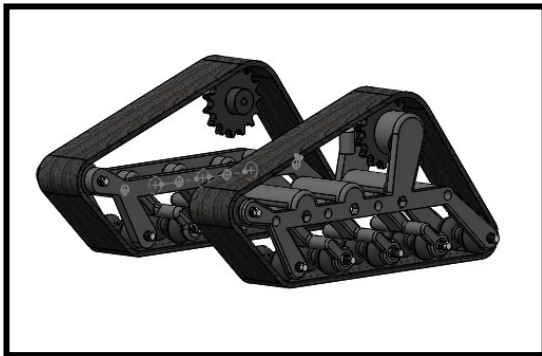
OmniWheel Robot Vehicle

- Vehicle can travel in any direction without turning by using three omni-directional wheels.



3D Printed modular tank

- Attempt at making a 3D printed modular tank using Formlabs resins. Elastic resin was used for the tread and durable resin was used for torsion bar suspension. The project failed due to elastic resin have a very low % elongation before failure.



6DOF fall detection belt

This project won my team \$350 each after being submitted to Hack The North 2016

Fall detection belt that uses a 6 DOF IMU to detect a fall and alert emergency care providers



Delta printer effector head, carriage and arms



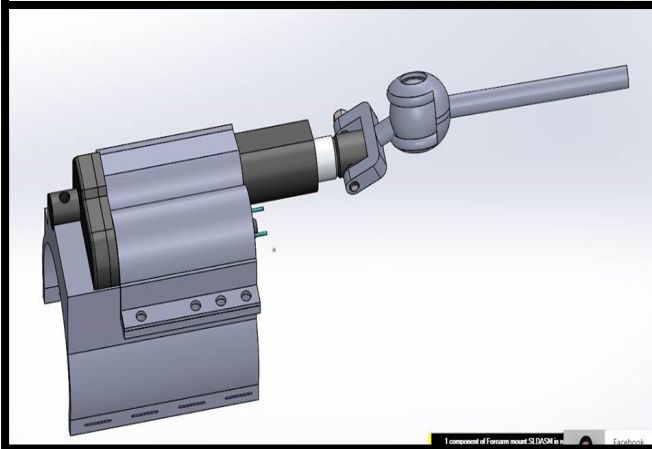
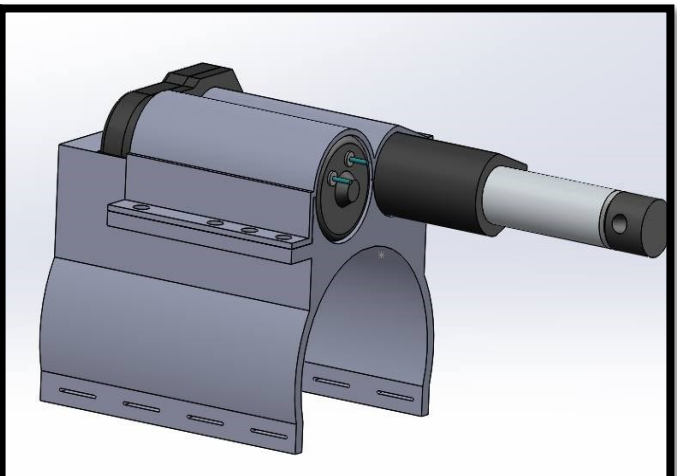
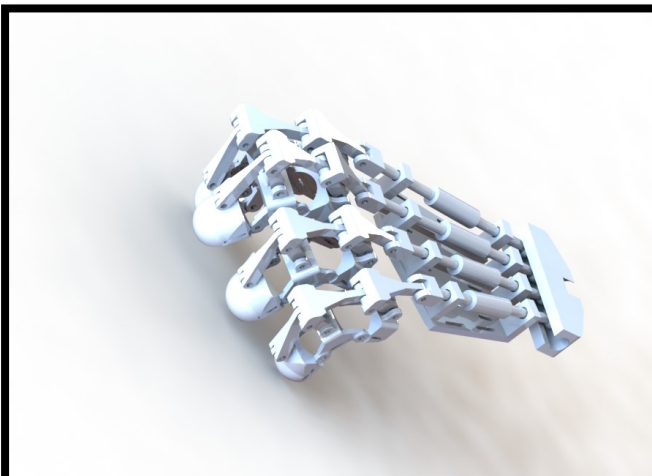
Designed for my modification of a Kossel Printer



3D SLA printed Arms, magnetic ball socket joints



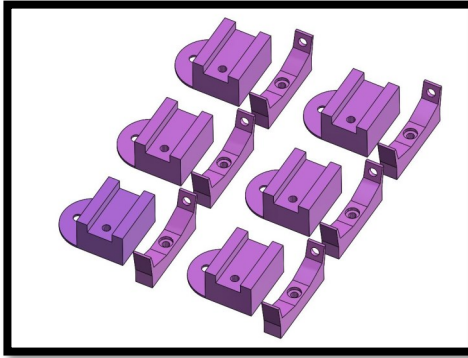
Carriage with self locking teeth and adjustable tension using bolt&washer



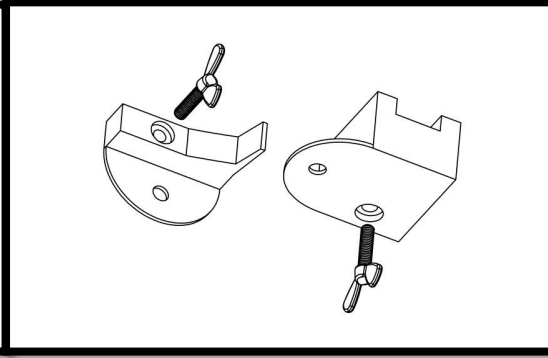
Exoskeleton Glove

- Designed Clevis to ball-joint coupling
- Designed forearm mount for Linear motor
- Helped design four bar linkage for fingers

Carriage locking fixture

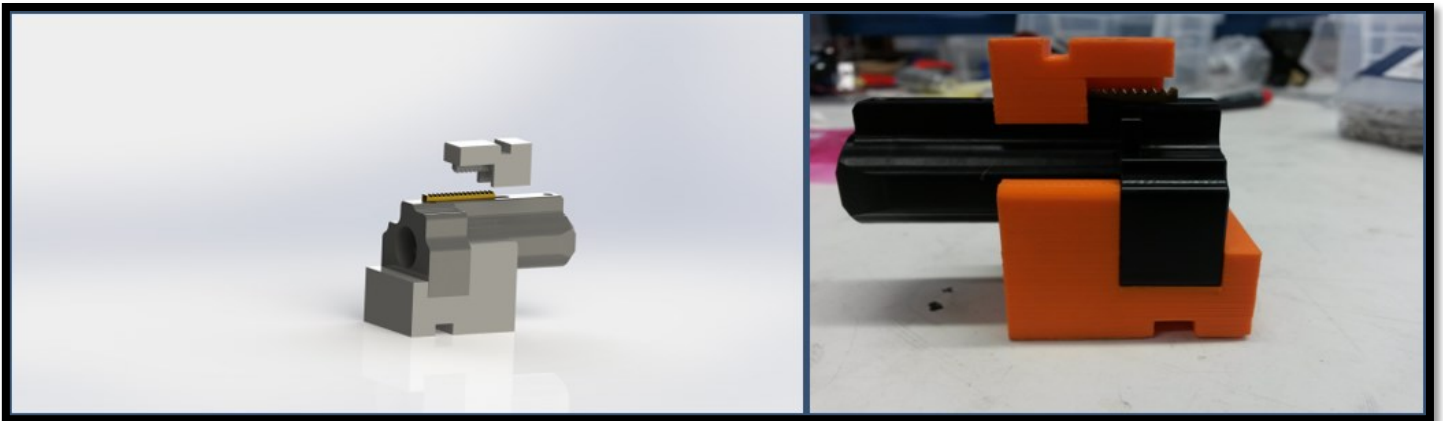


3D printed cartridge
locking fixture

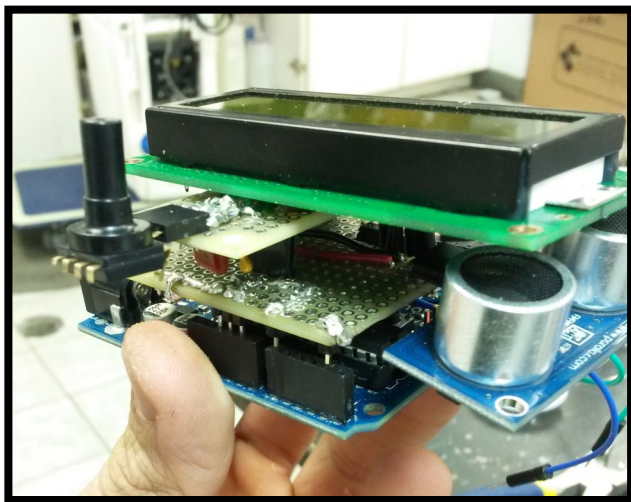


Locks onto misumi slid-
er with a M3 screw

Slider rack fixture

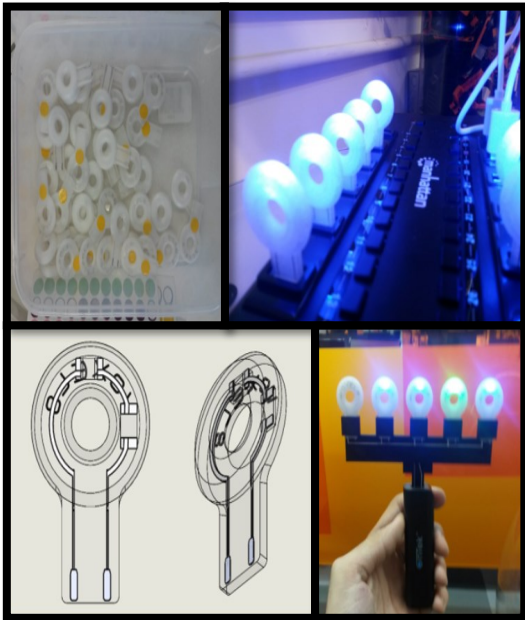


- 3D printed cartridge locking fixture
- Made of 2 3D printed parts
- Used to provide force while epoxy is curing

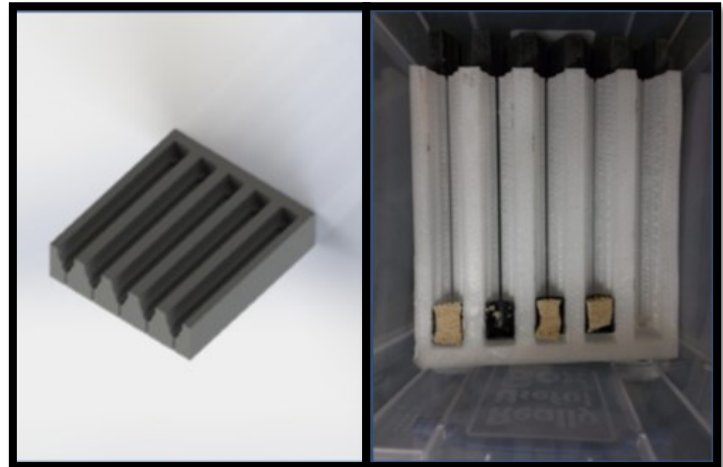


Water level sensor

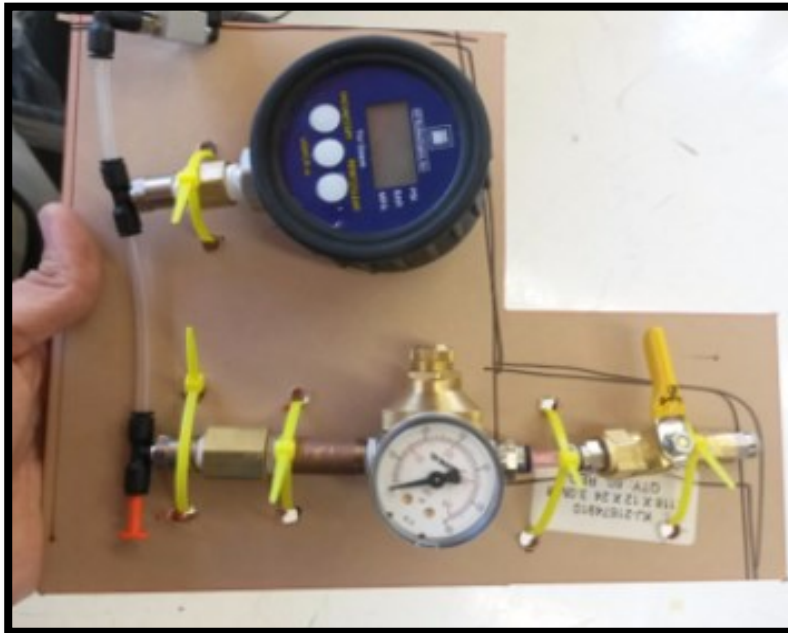
- Used to diagnose overflowing Bioreactors
- Uses PARALLAX PING ultrasonic sensor
- Displays water level to 7 segment LCD
- Also uses Piezo pressure sensor



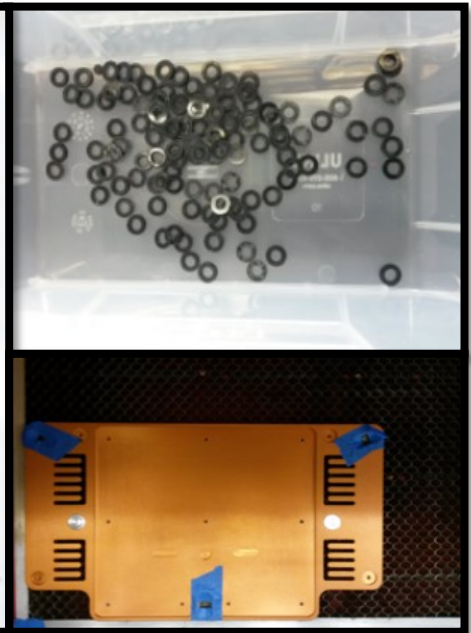
3D Printed USB sample piece.



Sponge cutting fixture to reduce manufacturing and assembly time

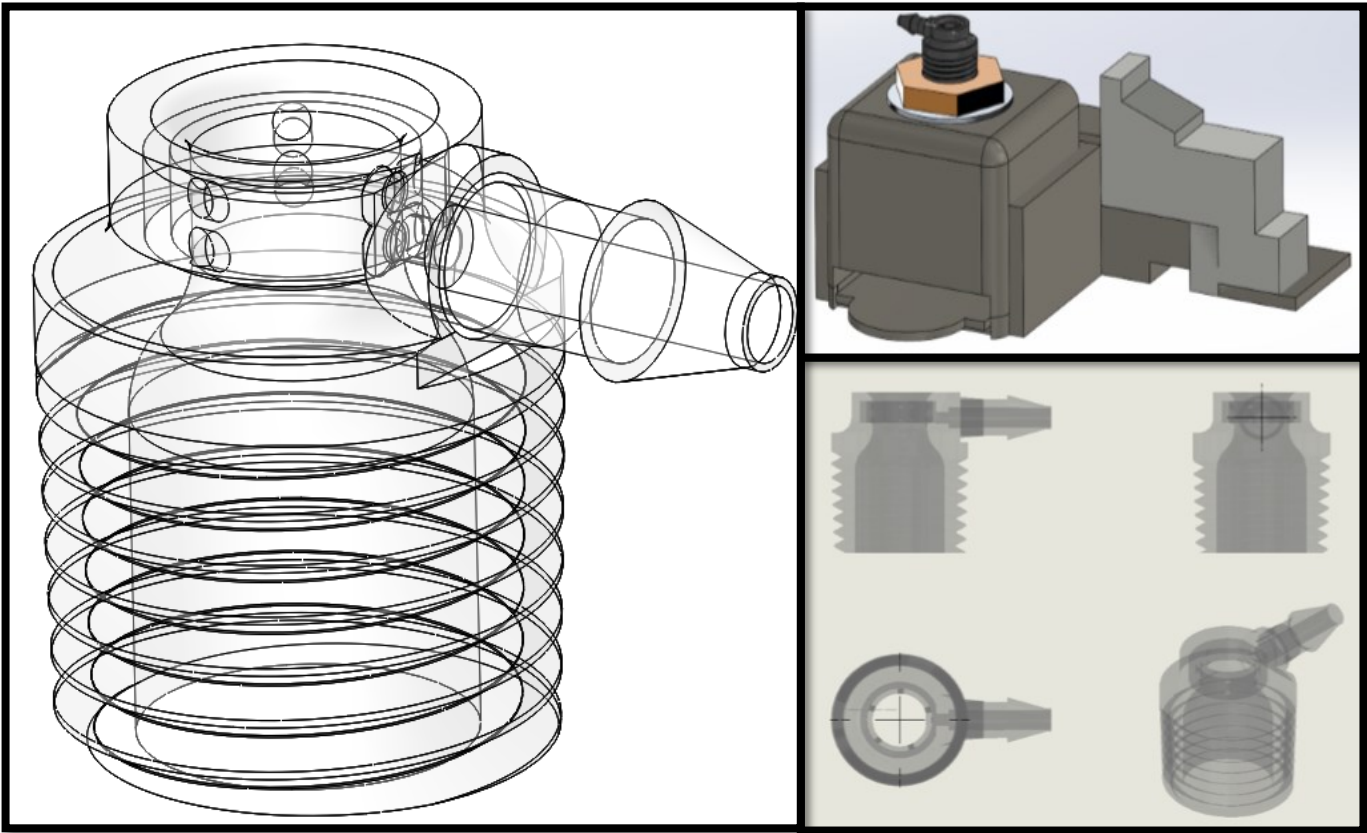


Solenoid valve testing fixture to validate low pressure drop of valves



Lasercutting 3d printing bed
Lasercut delrin washers to reduce play

SLA printed circular manifold



SLA printed circular manifold to pressure clean
Robocasting printing syringes

Uses a standard NPT thread to
screw into large nut.
Uses male barbed fitting to attach
to 6mm tubing

