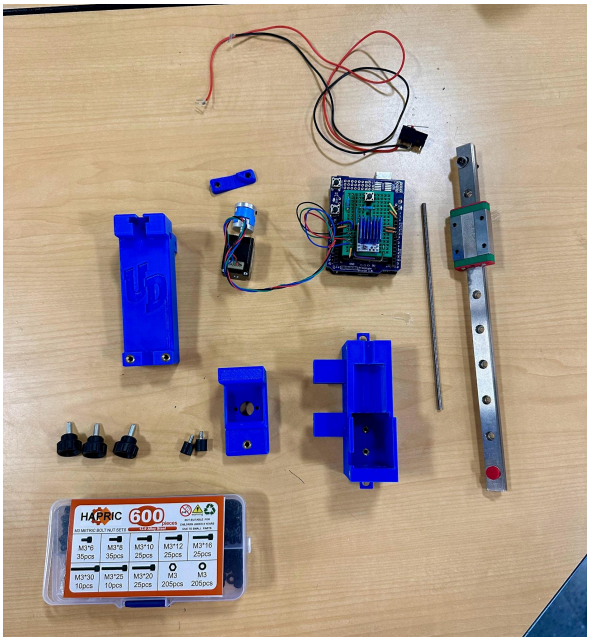
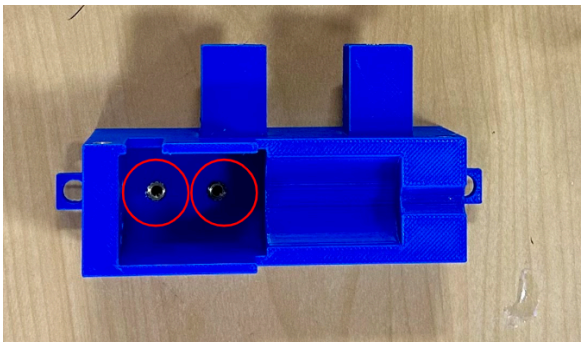
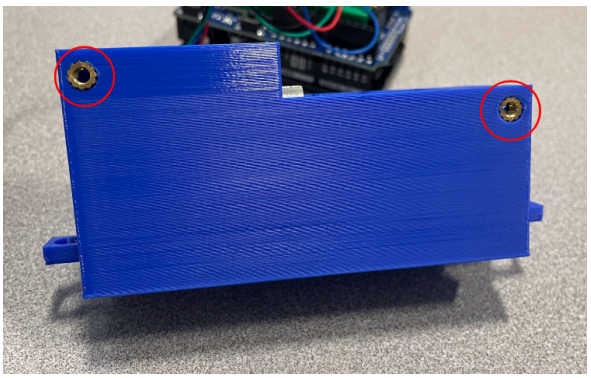
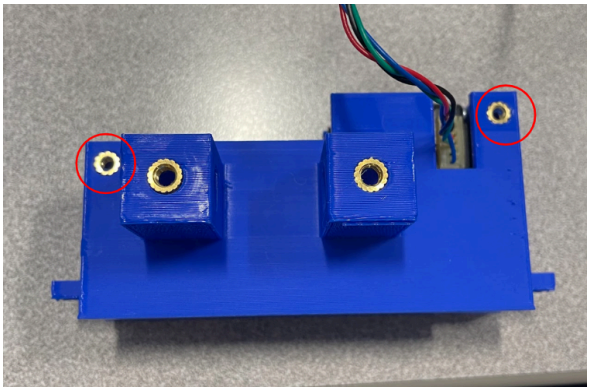
Automated Injector Assembly Procedure:

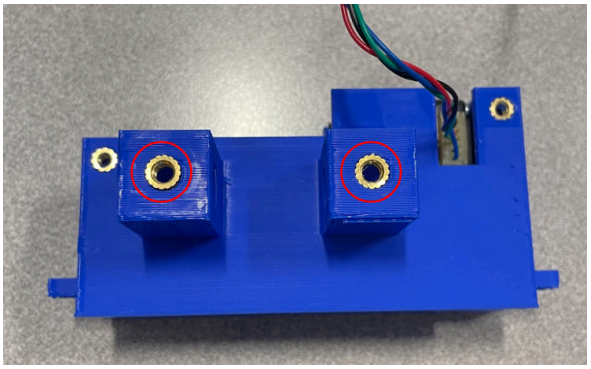
Parts List: All four 3D printed parts, motor, guide rail, 2 - M3 * 8mm screws, 10 - M3 * 10mm screws, 2 - M3 * 20mm screws, 6 - M3 Threaded Inserts, 4 - M4 Threaded Inserts, Flange nut, Lead screw, 1/8in - 4mm coupler with coupling set screws, addition parts if applicable, 3 M4 thumb screws, 2 - M3 Vibration Dampeners, 2 - M3 nuts, 2 - M4 washers, 2 - M4 lock washers

	***Step 1:*** Layout all parts out on a clean surface
	***Step 2:*** Heat set 6 - M3 Threaded Inserts into various holes (see images for precise locations)





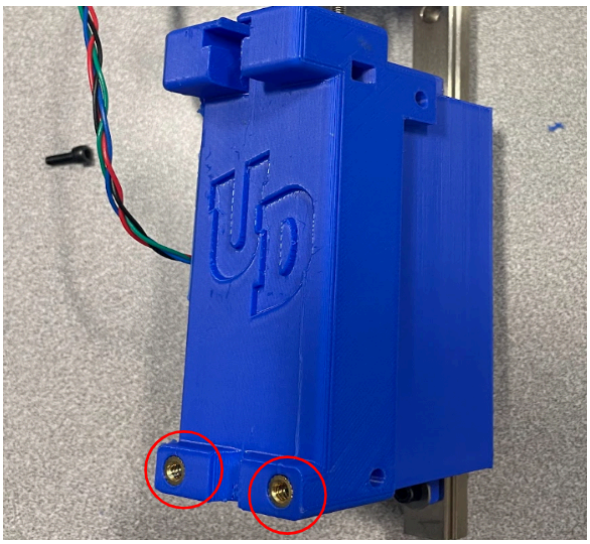
(Part Shown - Motor Housing)



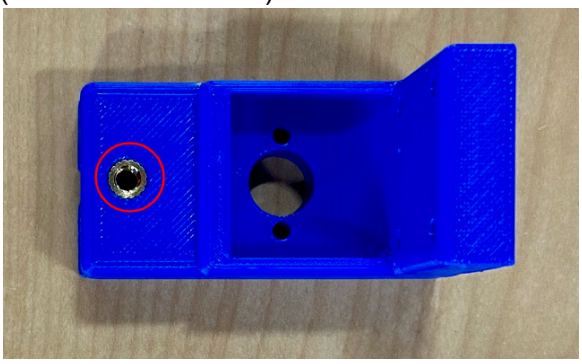
(Part Shown - Motor Housing)

Step 3:

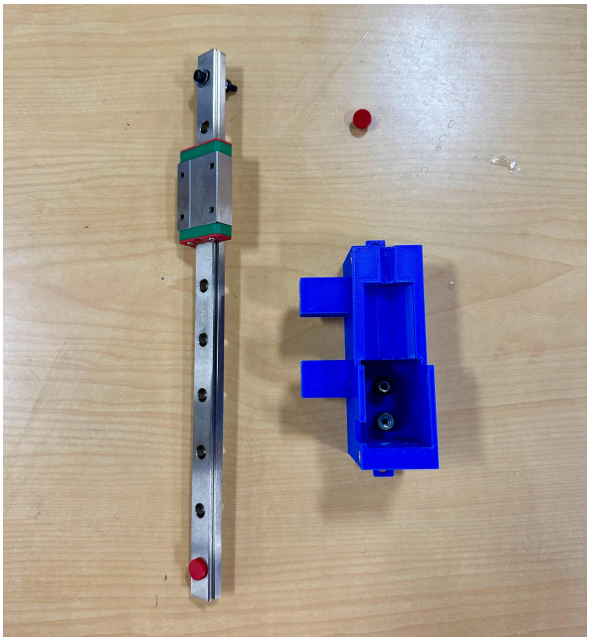
Heat set 5 - M4 Threaded Inserts into various holes (see images for precise locations)



(Part Shown - Cover)

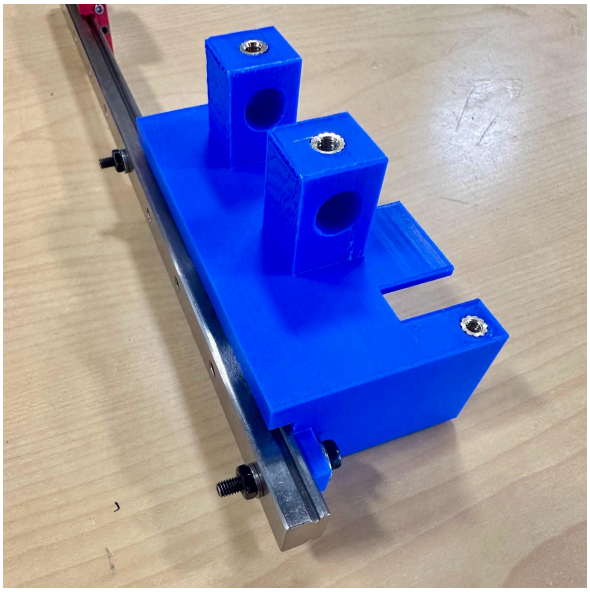
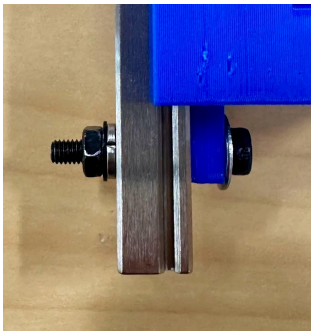
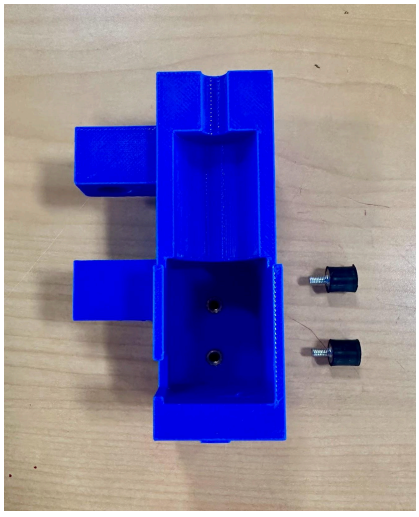


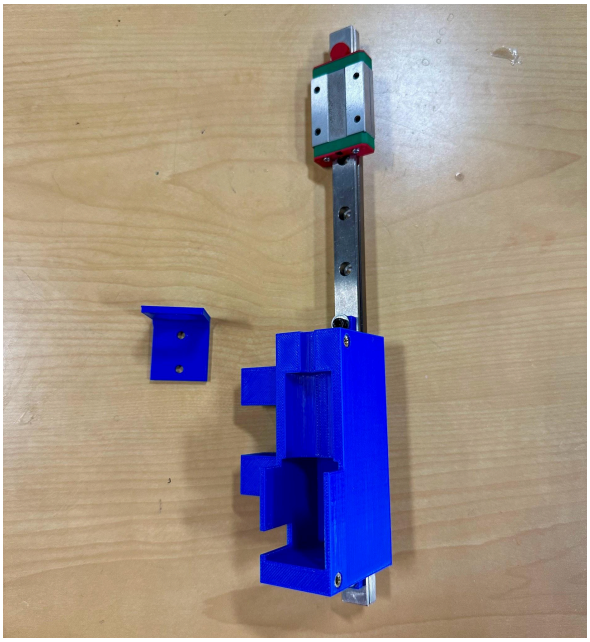
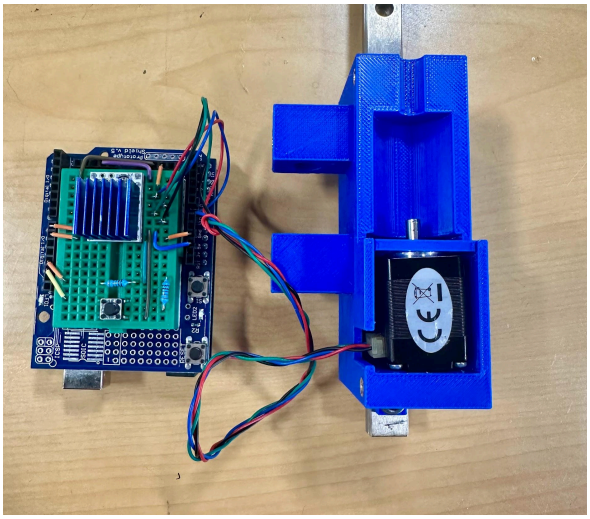
(Part Shown - Plunger Depresser)

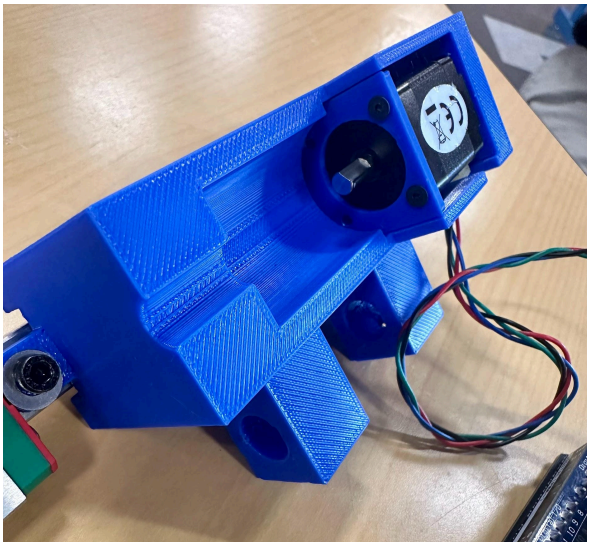


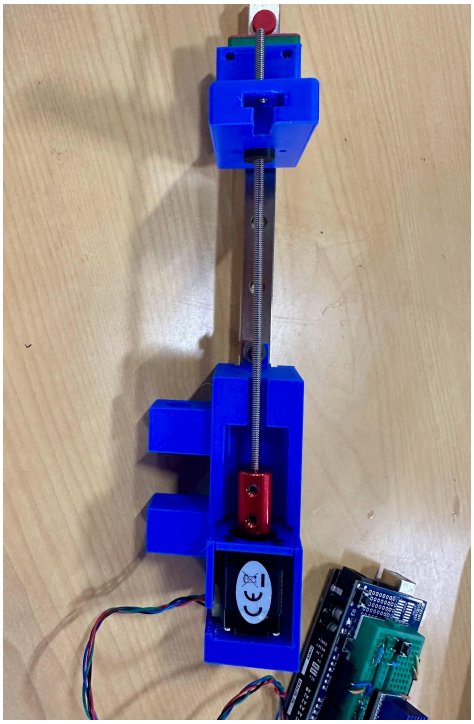
Step 4:
Locate the linear guide rail and the 3D printed motor housing

Step 5:
Remove **one** red rubber stop off linear guide rail (either one can be removed just **DO NOT take off both**)

	***Step 6:*** Attach motor housing to guide rail (labeled MH in part description above) ***Step 7:*** Secure housing by using **2 M3*20mm** screws, a washer, and nut for each screw *Note:* Larger washer needed **(M4)** to secure to guide rail. The M4 washer will go on top of the motor housing connection. On the opposite side, set a lock washer, followed by another M3 washer and finally a M3 nut to secure the motor housing to the linear rail.
	***Step 8:*** Repeat step above to secure other side
	***Step 9:*** Insert vibration dampeners into heat set holes. Ensure you don't screw them down too tight to allow vibration to dissipate during surgery

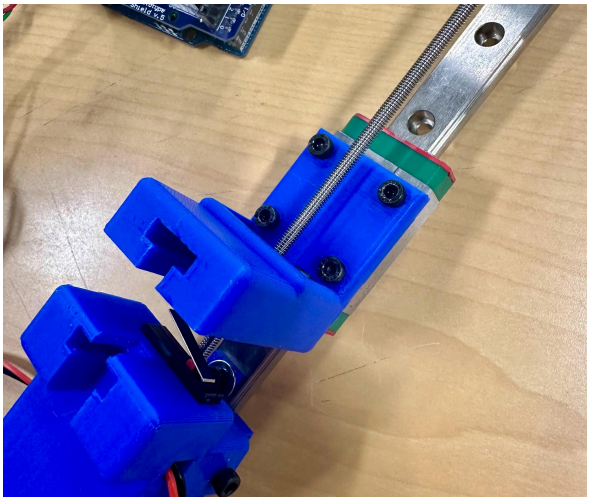
	***Step 10:*** Place the NEMA 8 mount to the top of the vibration dampeners, align, and screw into place using **2 - M3 * 6mm screws**
	***Step 11:*** Place motor into motor housing

	***Step 12:*** Screw motor to NEMA 8 mount using **4 - M2 * 5mm screws**
	***Step 13:*** Screw flange nut onto threaded rod ***Step 14:*** Attach flange nut to plunger driver using **2 m3*10mm** screws.



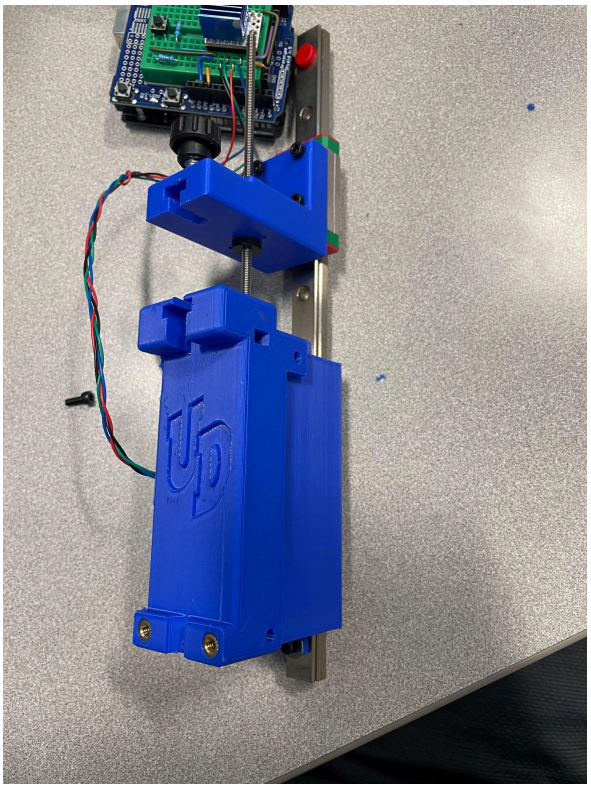
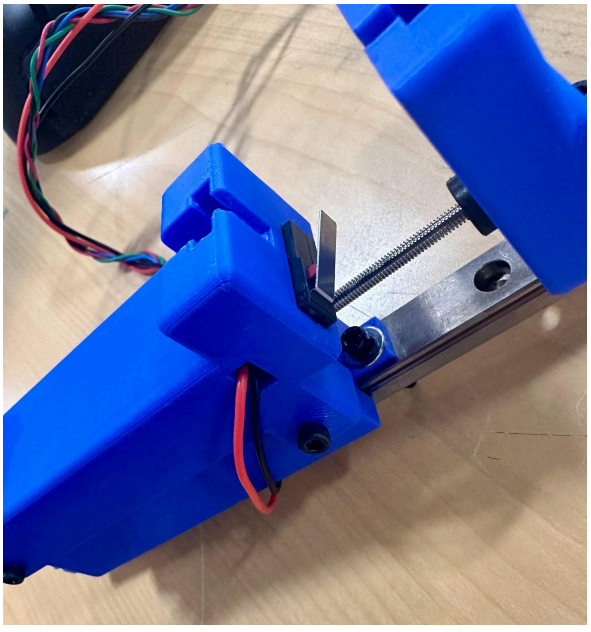
Step 15:
Couple the threaded rod (now connected to the plunger driver) to the Nema 8 stepper motor. Make sure to leave **~ 1/32”** in between the motor face and coupling to avoid friction during operation.

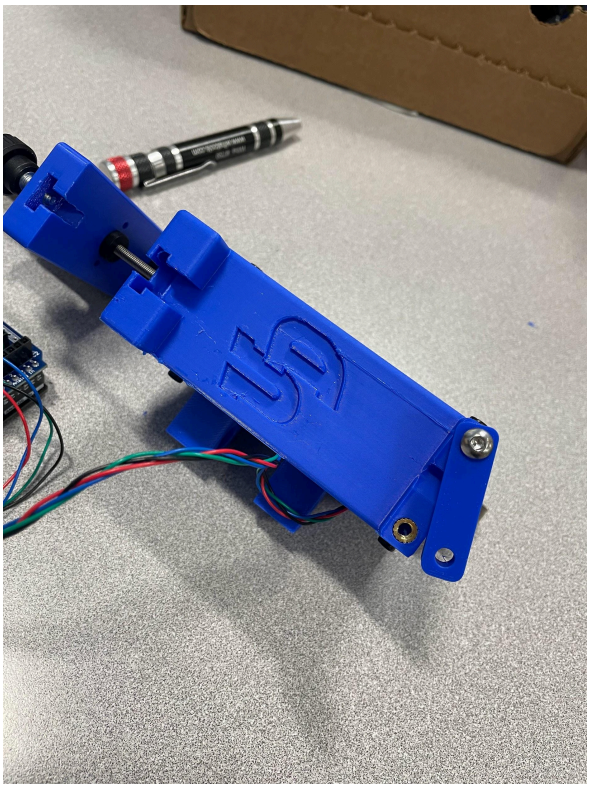
Note: the couplings we received were not machined to exactly ⅛”. You may have to drill into the small end of the coupling using, a ⅛” drill bit



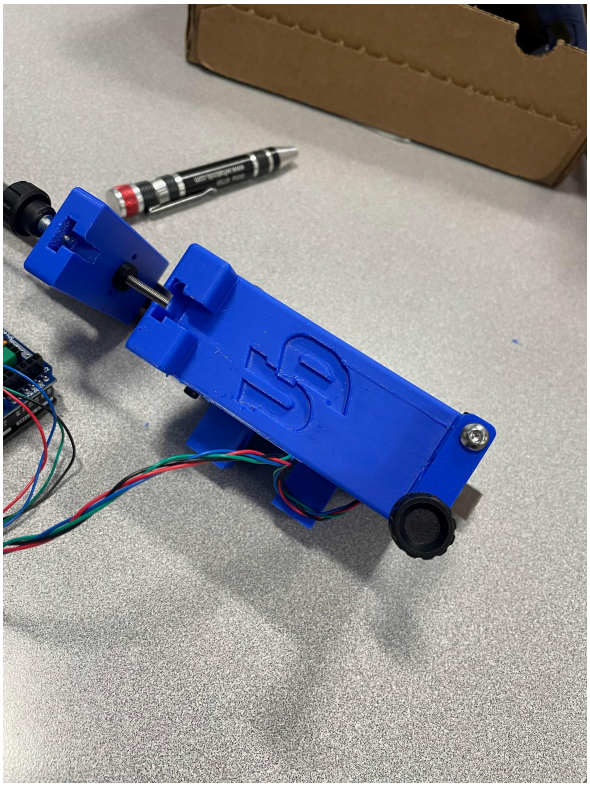
Step 16:
insert coupled motor and threaded rod into the motor housing. To secure it to the linear guide rail, use **4 M3*10mm** screws.

Note: for the threaded rod and stepper motor to fit into the assembly, the flange nut will have to be threaded **at least ½”** onto the threaded rod.

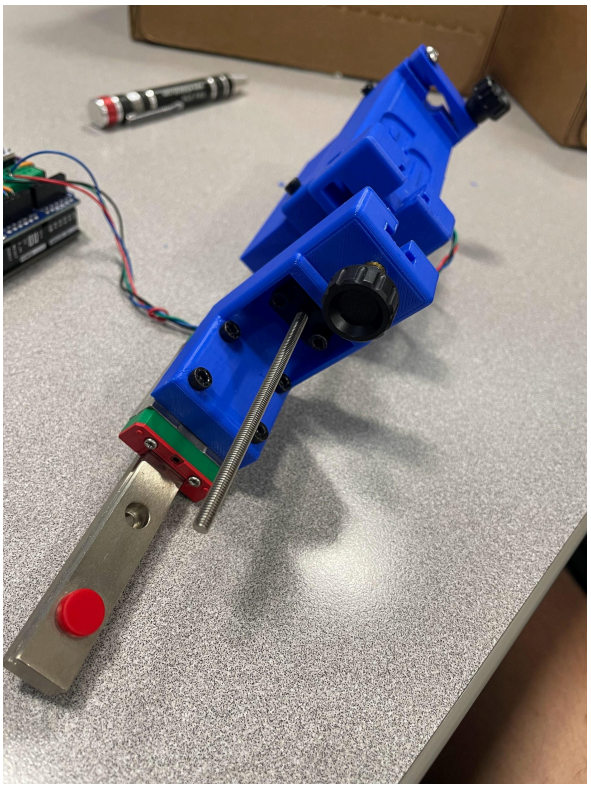
	***Step 17:*** Align cover to top of the motor housing , secure using **4 M3*10mm** screws. To attach the device to the stereotaxic arm, use **2 M4*8mm** screws as set screws.
	***Step 18:*** Insert limits switch and weave wires through wire terminal



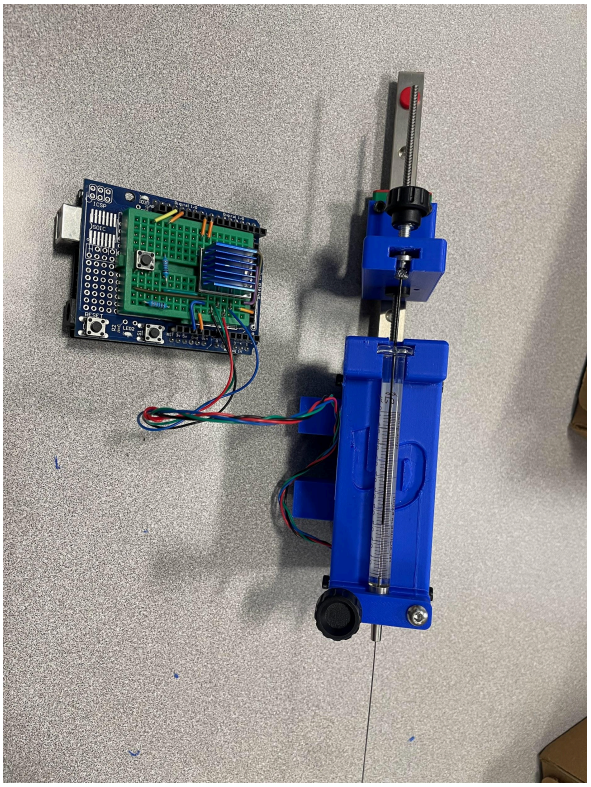
Step 19:
Attach the retention mechanism to cover using **1 - M4 * 8mm** screws. This screw will remain in place (on the right side) and used as a pivot point for the retention mechanism.



Step 20:
Insert M4 Thumb Screw into left hole to secure retention mechanism to the housing



Step 21:
Insert M4 Thumb screw on plunger driver to assist in securing syringe in place



Step 22:
Insert proper syringe for surgery, and secure in place using thumb screw on top of plunger driver. (Be sure not to screw in too tight as it may affect the zero position)

Congratulations! You have assembled your very own automated injector!!