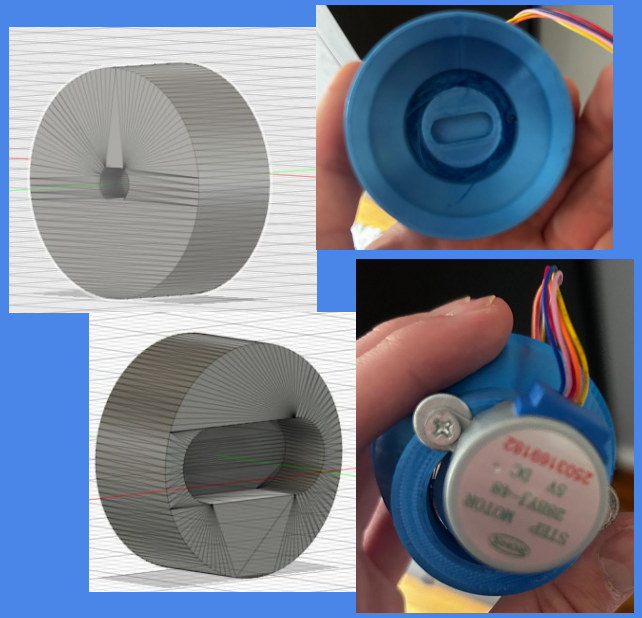
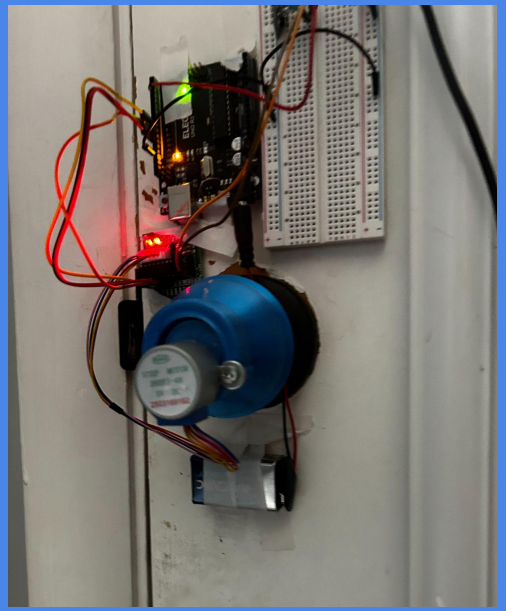
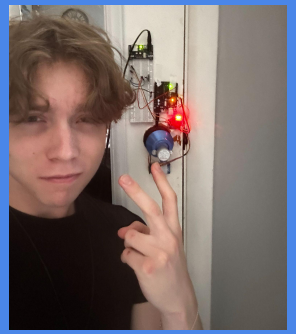
Maker Home Repair

1. Door Lock: my door knob wasn't installed properly, and locking my door is a pain.

I decided to design an automatic door lock. I iterated on it twice. I made this project a long time ago, please excuse the relative quality. The design is based around electronic parts that came in an Arduino Uno Kit. I connected it up on breadboards, used an RF sensor which I coded just to recognize any RF signal at all (bad idea) as "change door state." used a stepper motor, which I broke and had to get more of. I designed a little door knob attachment piece with an inne rotator for the door lock, and a 3D Printed stepper to door lock transfer piece.

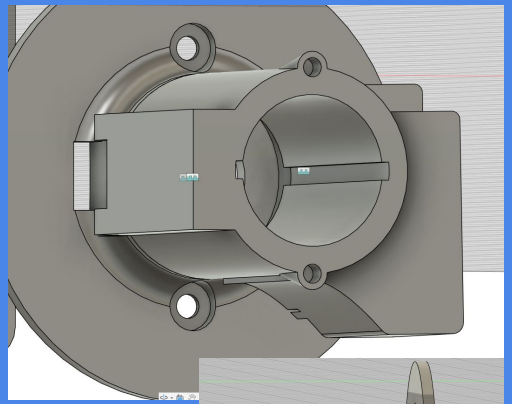


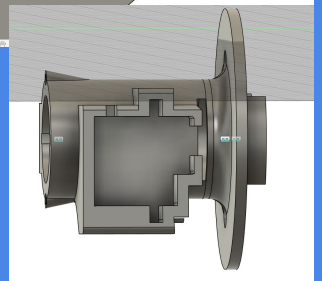


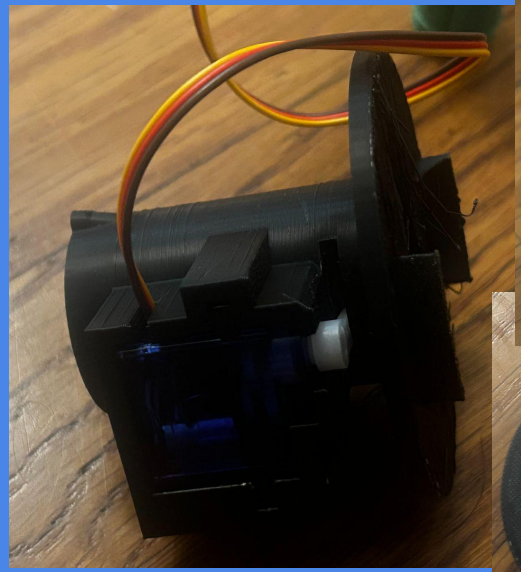


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2. Door Lock Iteration 2: I iterated on my door lock, because it wasn't up to my standards and was in fact quite useless. My next version I designed based on an off the shelf wheel chair handle I'd bought, mixed with a Fingerprint sensor. I used the fingerprint sensor to sense my thumb on the handle. That was the general idea I came in with. In the design process I decided to have the locking feature be a servo arm which blocks an inner tube connected to the handle from going further into a casing piece, in which it cannot rotate. Most of the parts are 3D printed, with additional usage of pen springs in the inner casing to make sure the handle stays extended. An inside piece like a turnstile connects to the doorknob on the other side, and the electronics feed through to an electronics box there too.

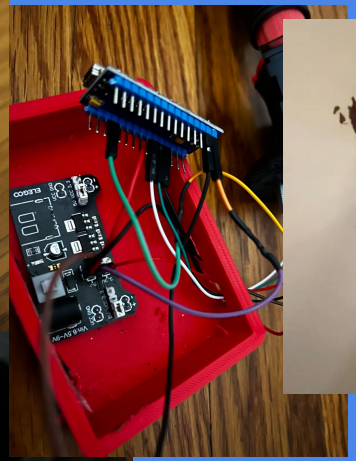












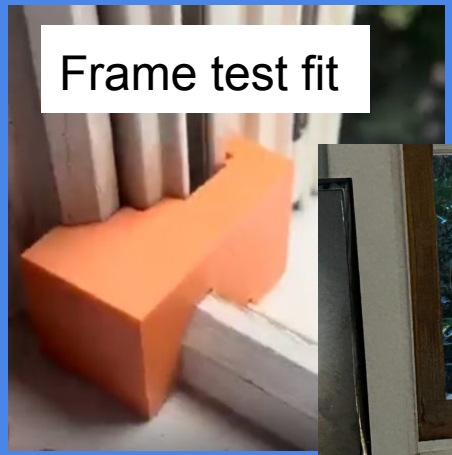


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A couple of times I've designed 3D-Printed solutions to issues in the very old Brewer Maine home I've been living in.

3. Air Conditioning Unit: The house doesn't have air conditioning. I'm lucky to have a moveable GE air conditioner from my mom, but the window attachment to the AC tube was very broken. I used to tape it to my window and fill in the gaps with more tape, but I was losing AC. I modeled my entire window frame in Fusion 360, and because I was a novice at this time I had to keep designing press fits to get a good window seal. I think I made like 13 total, little sliders I fit into my window jam. The final version I 3D Printed in parts that dovetail together with threaded holes for M3 bolts tha fit into my AC tube.









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4. Muntins: Thats the little cross pieces that go in the window. They broke on one of my living room windows. I couldn't find anywhere that sold them, and getting them made custom was insanely expensive. I tried to rebuild them out of wood, but I wasn't a good enough wood worker to get it quite right, so I 3D Printed new ones. I designed them in Fusion 360 and 3D printed them as multiple parts with little pins to connect. I glued them and painted it white to match better

