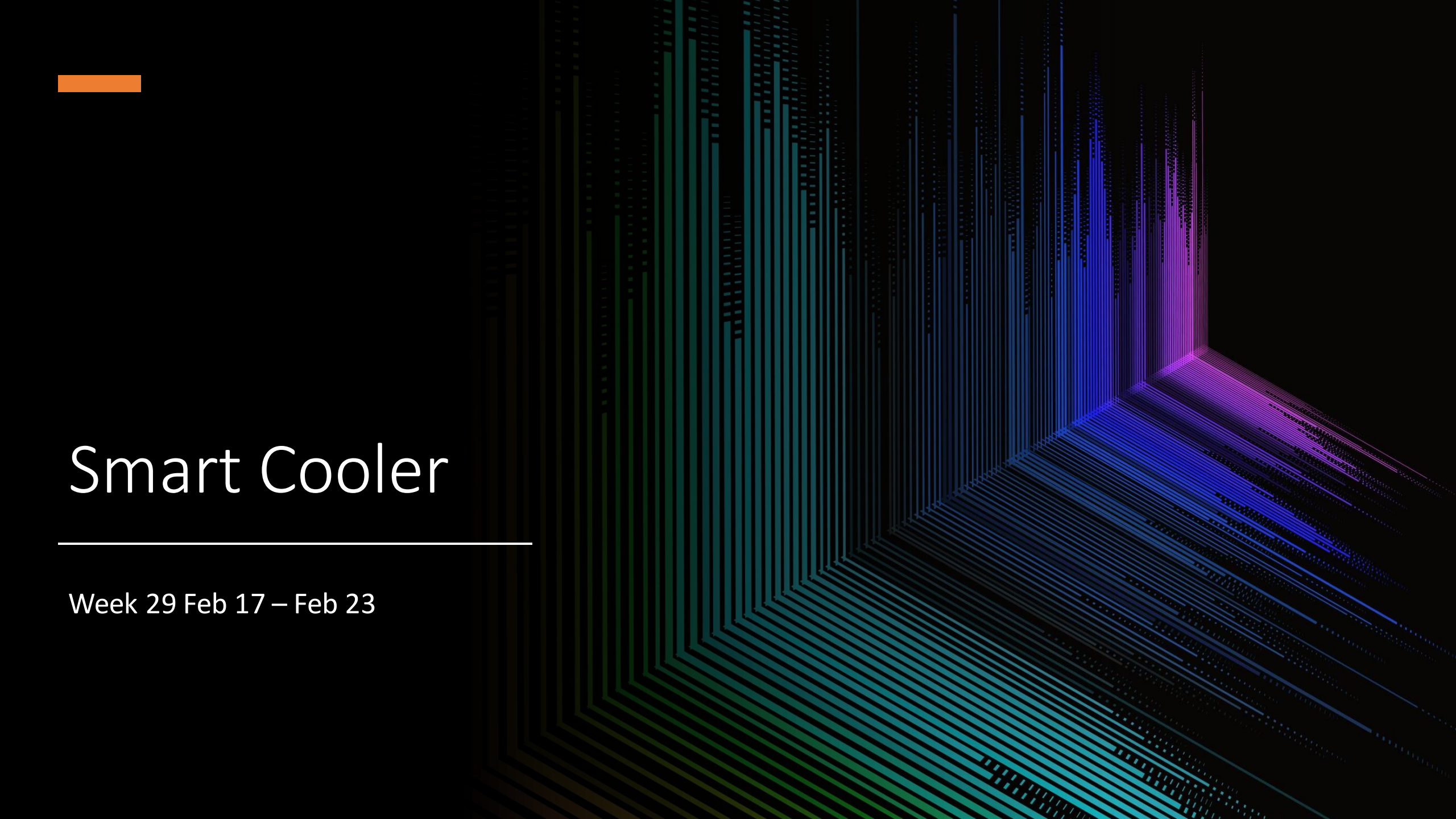
Smart Cooler

Week 29 Feb 17 – Feb 23

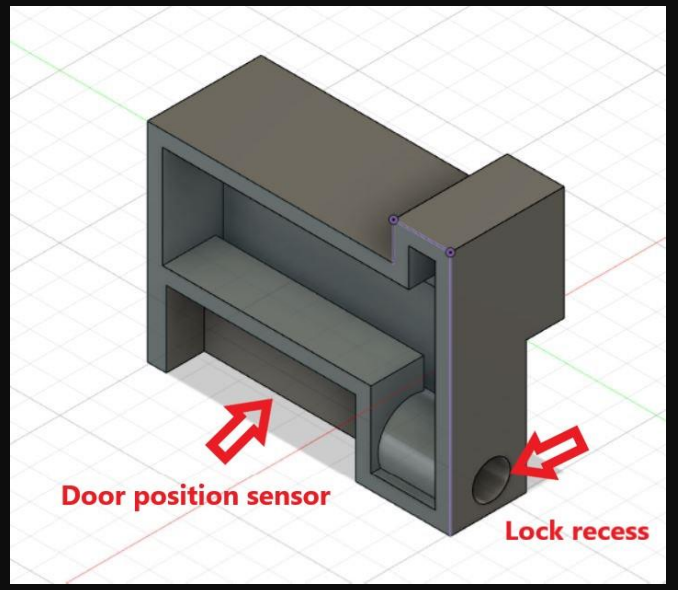


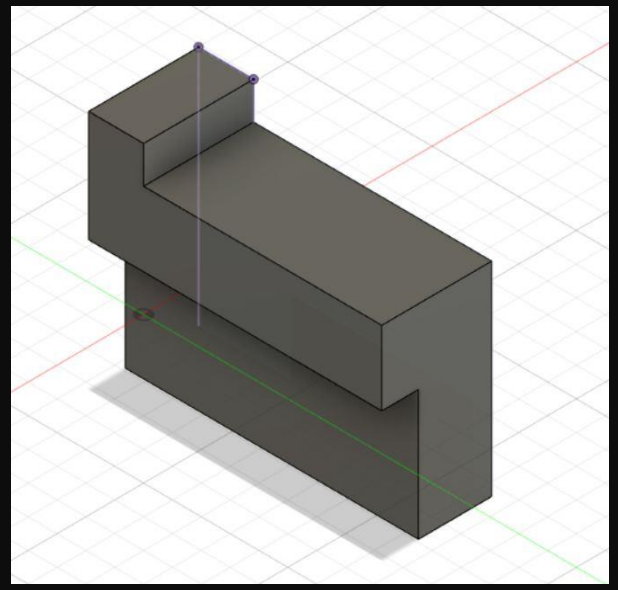
Progress made

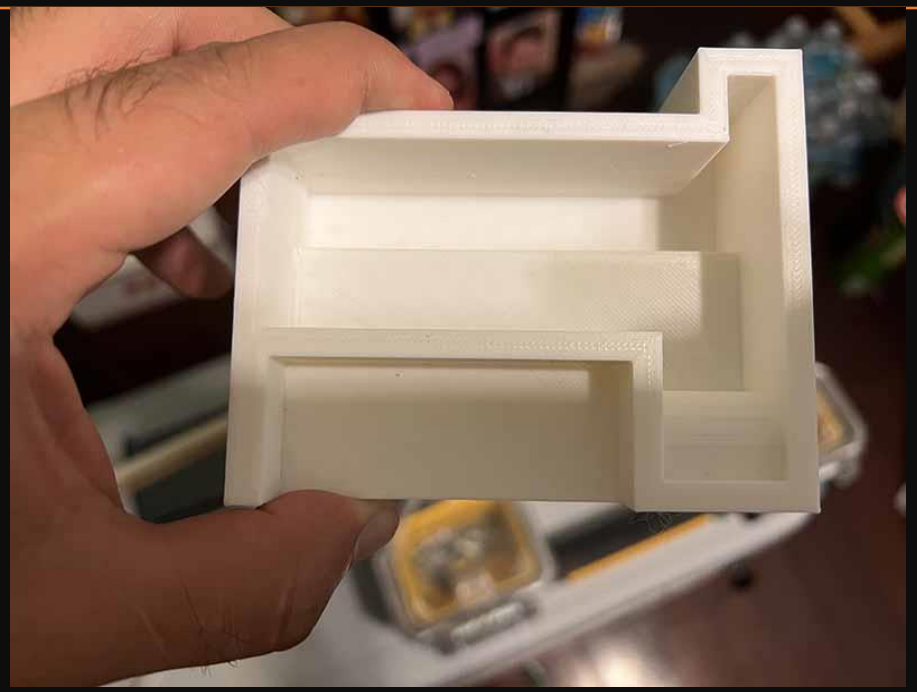
- Exterior 3D Printed parts Dry fitted and installed
- Lock function tested
- Inner wall closed and secured
- Dividers secured
- Compartment Leak Testing
- Ice melt control established

Lid Locking Bracket

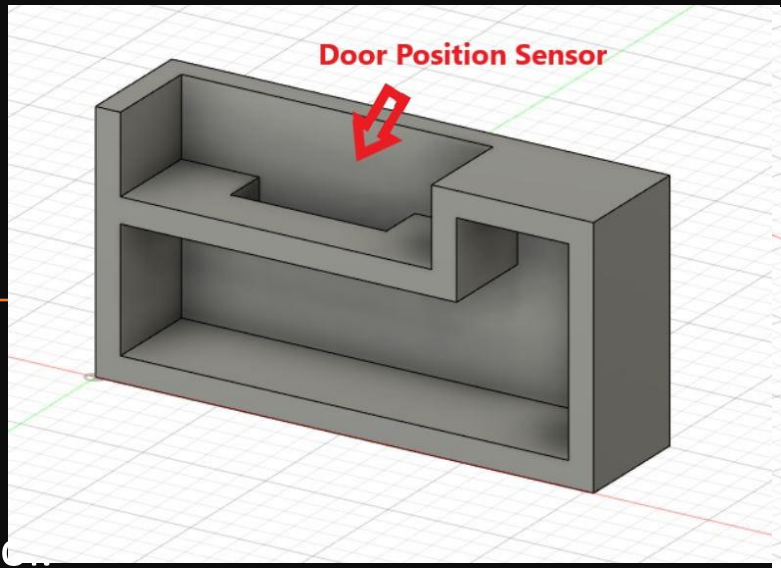
- Contains recessed hole for sliding lock
- Slot for door position sensor to be placed
- Dimensions are 4" long by 3.25" high by 1.5" wide.
- Took approximately 11.5 hours to print.

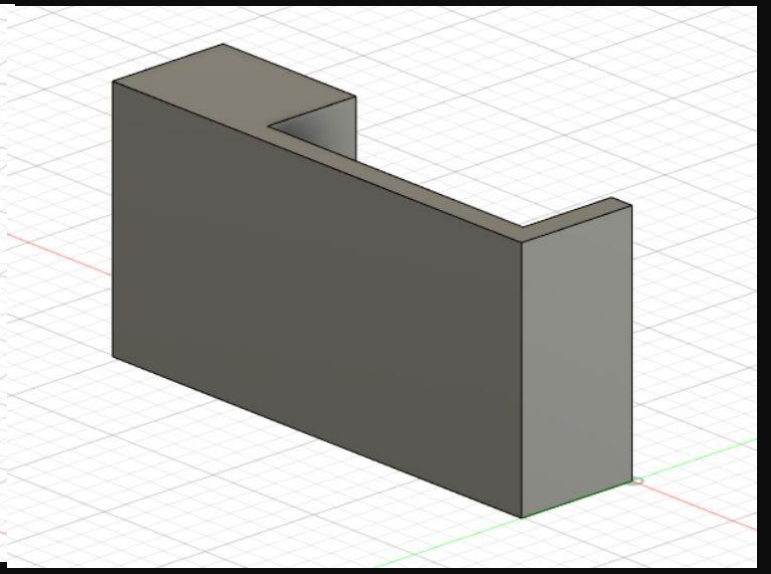






Door Position Sensor Bracket

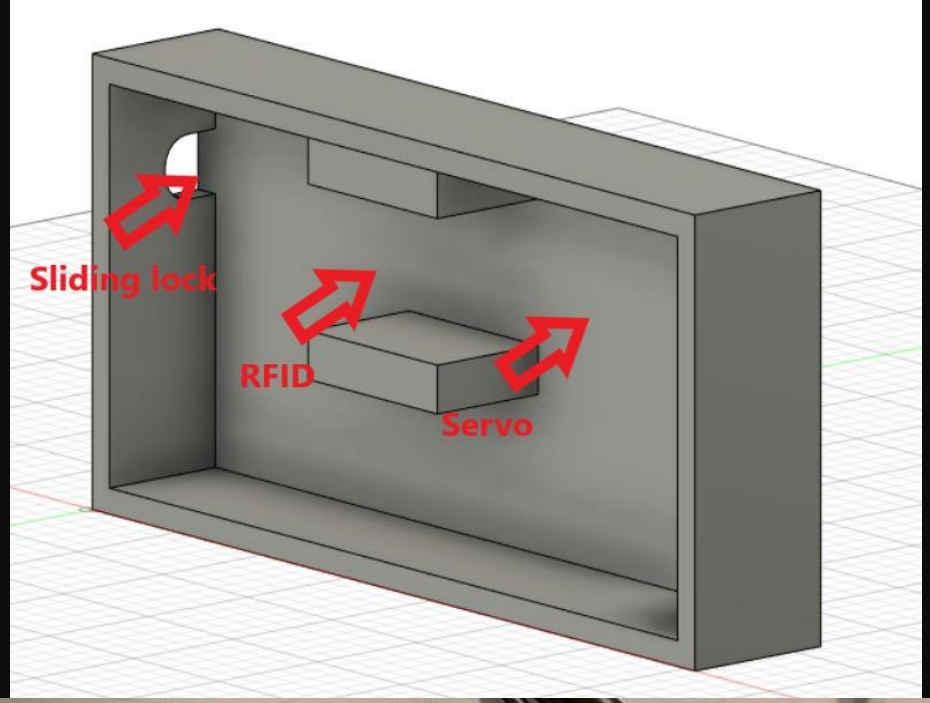


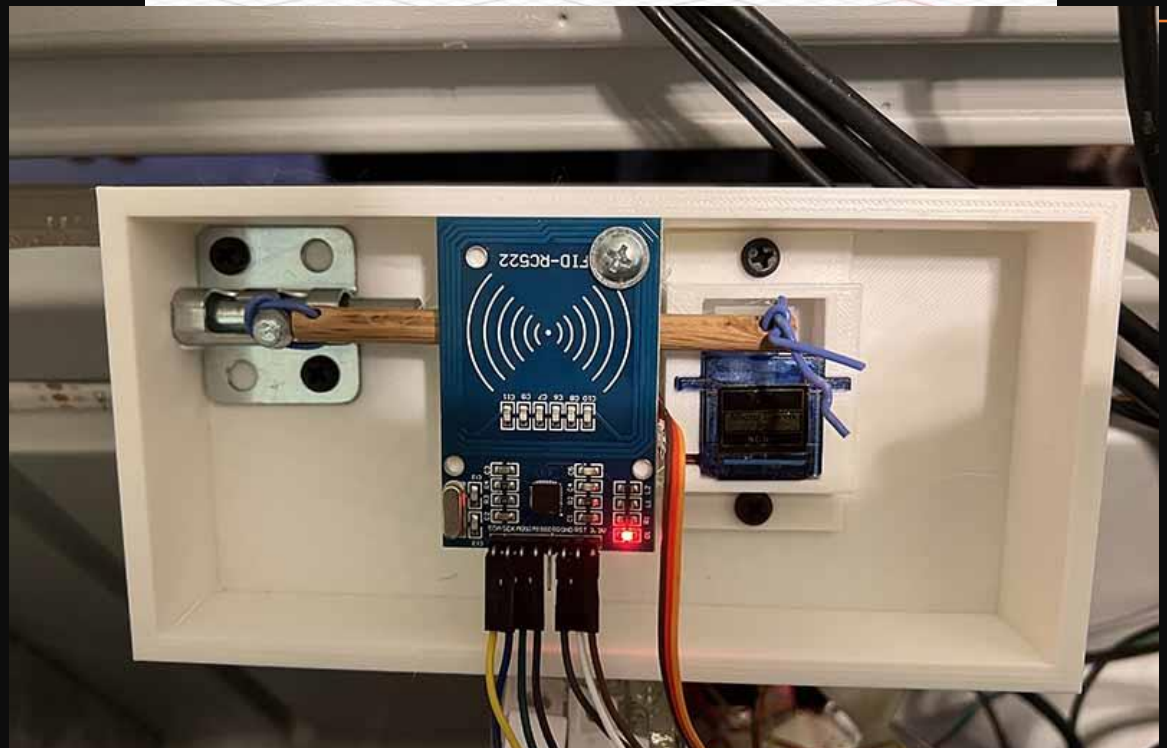


- Will be placed on body of cooler.
- Wires will run to door position sens...
- Created hollow to allow for wires and screwing to cooler.
- Dimensions are 4" long by 2" high by 1" wide.
- Took 5.5 hours to print

Locking Mechanism Mount

- Houses the sliding lock, RFID, and servo.
- Mount printed for the RFID, so that it is in front of the part.
- Dimensions are 7" long by 3.5" high by 1.25" wide.
- Took approximately 14.5 hours to print.





Sliding Lock Test

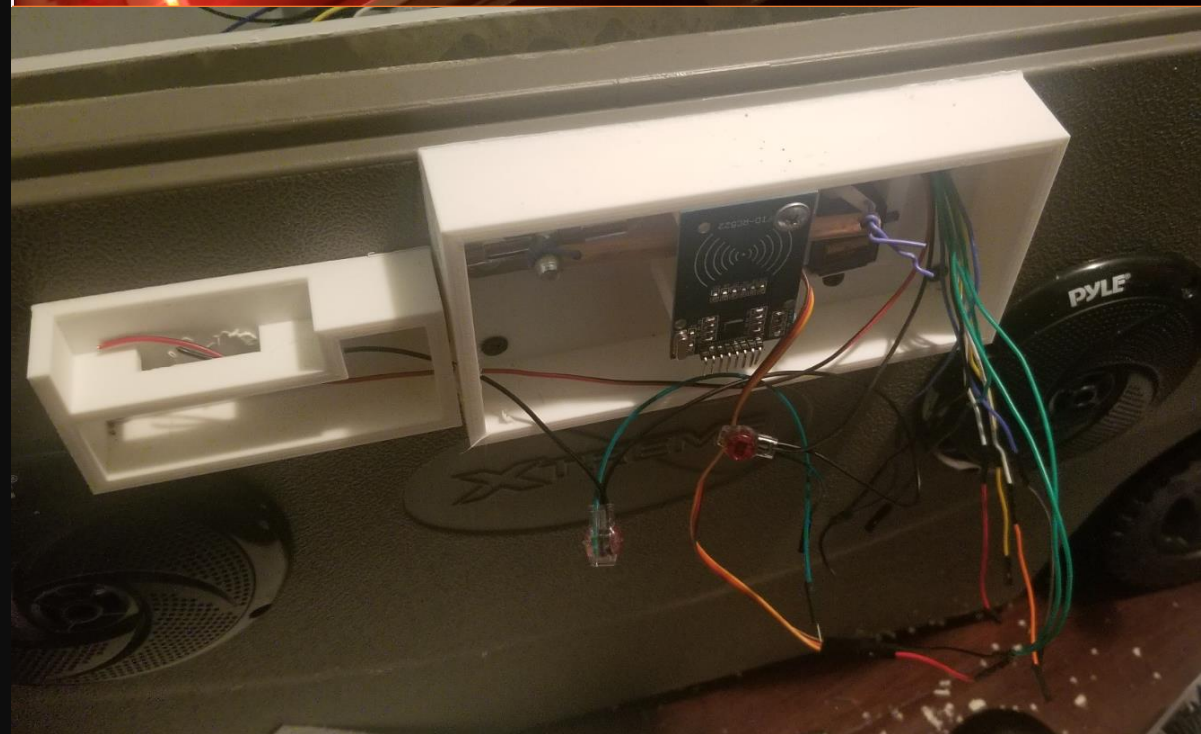
- Video shows the RFID being tagged with an RFID keychain, which then activates the servo and moves the sliding lock into the lock and unlock positions.

Part Assembly

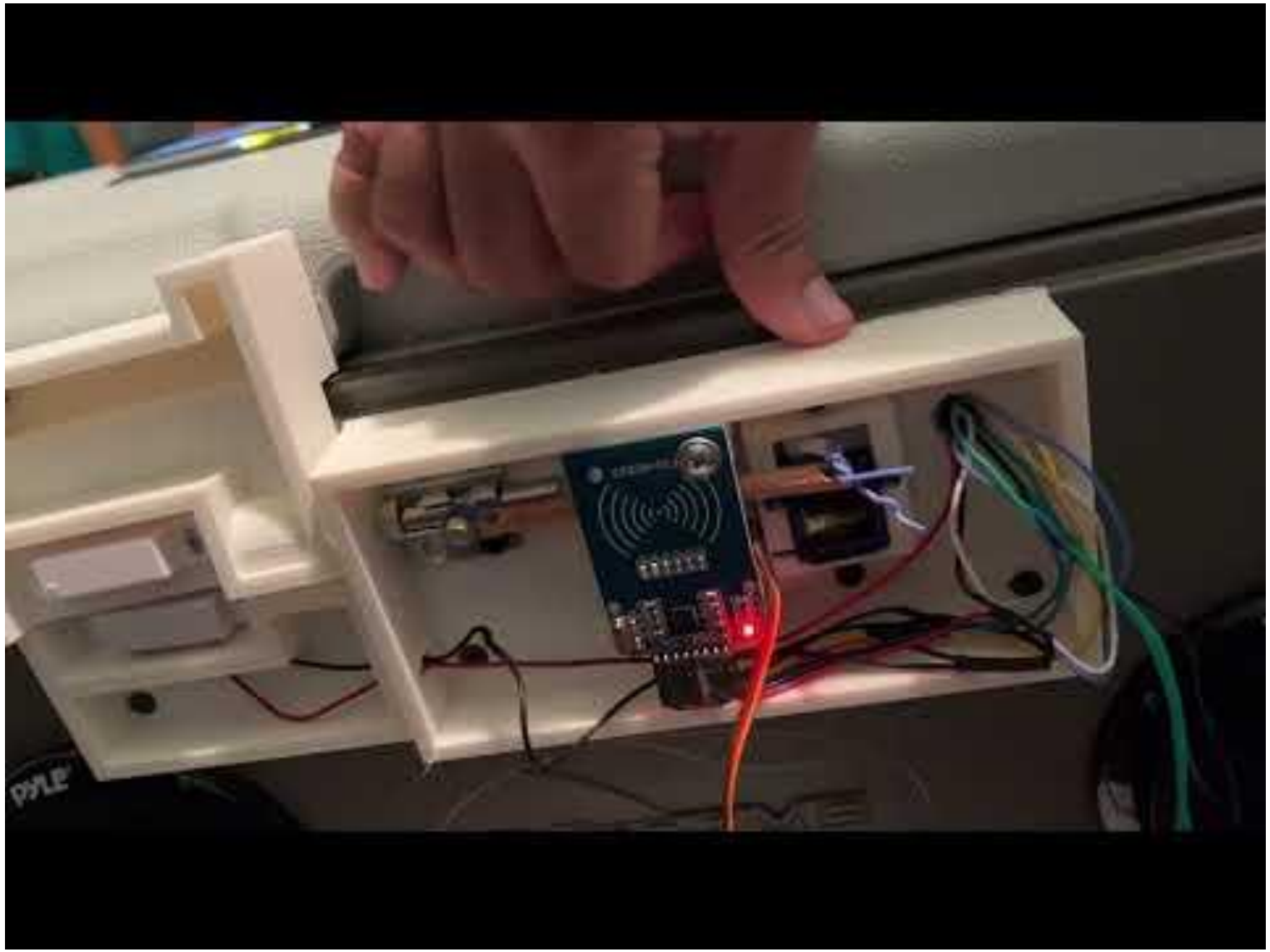
- 3D Printed parts were dry-fitted and placed
- Wires were shortened to proper length

Lock Testing & Tuning

- Lock was tested
- Quick connectors caused problems and were replaced with soldered junctions
- Full system tested
- Lock mechanism fouled several times

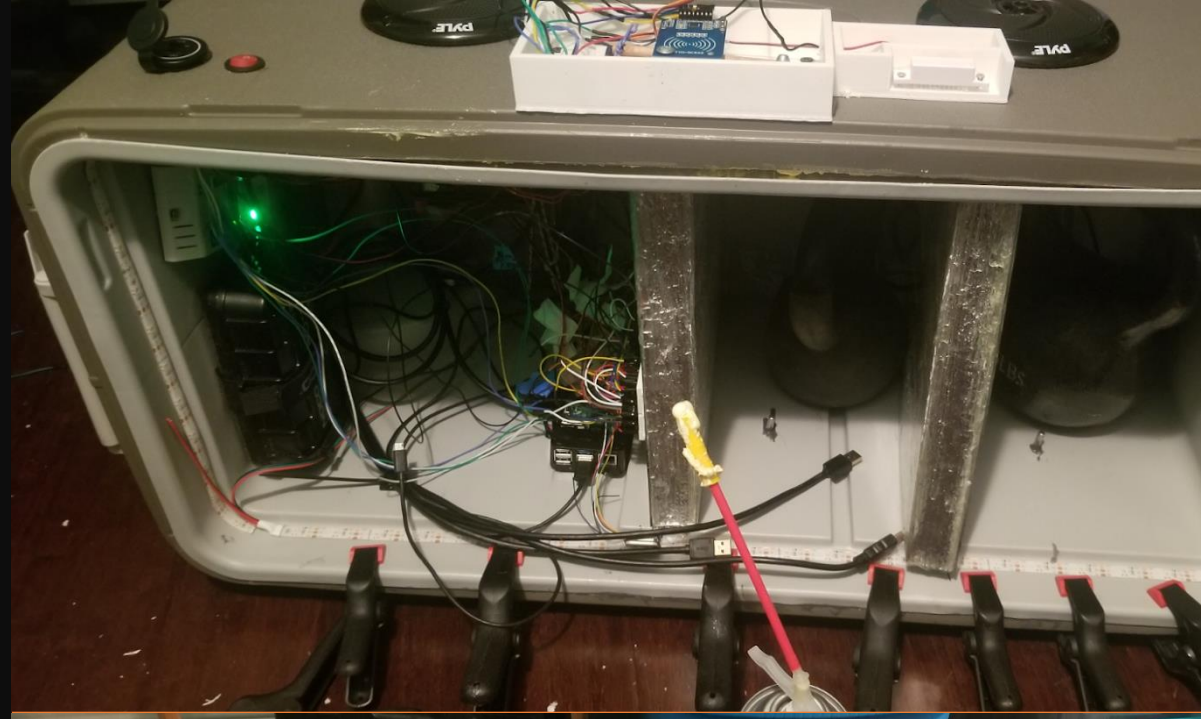


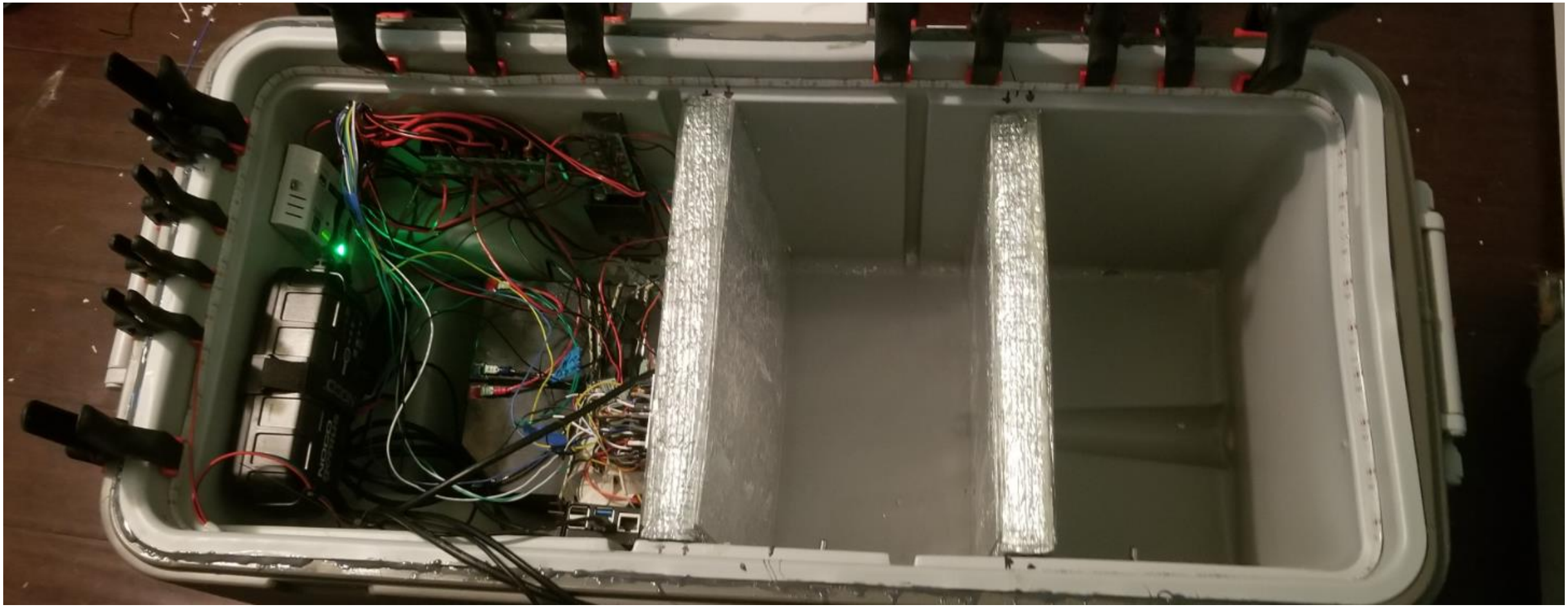
Lock Tested



Inner Wall Closure

- The inner walls were filled in with an insulating foam
- A two-part waterproof epoxy was used to glue and seal the sides of the shells back together





Sealing the Top Rim

Securing Dividers

- Both Dividers were places and secured
- Waterproof silicon was applied to all of the joints to ensure there are no leaks

Testing

- To water added to test for leaks
- No leaks found in either compartment
- Ice added to first compartment

Ice Retention Control

- Added roughly 5 lbs of Ice to furthest compartment
- After 6 hours divider and silicon seal held
- Significant amount of ice remained
- Temperature in compartment noticeably cooler than neighboring compartment

Goals For Next Meeting

- Complete Compartment Lids
- Assemble and dry fit printed parts
- Design parts for 3d Printing
- Continue work on Project Report
- Continue work on mobile app