Smart Cooler

Week 1 Jan 13- Jan 19

Progress Made

Software

- Battery level indicator
- LED auto feature
- LED color configuration
- Locking mechanism auto
- Temperature conversion
- Program bootup
- Power button

Fabrication

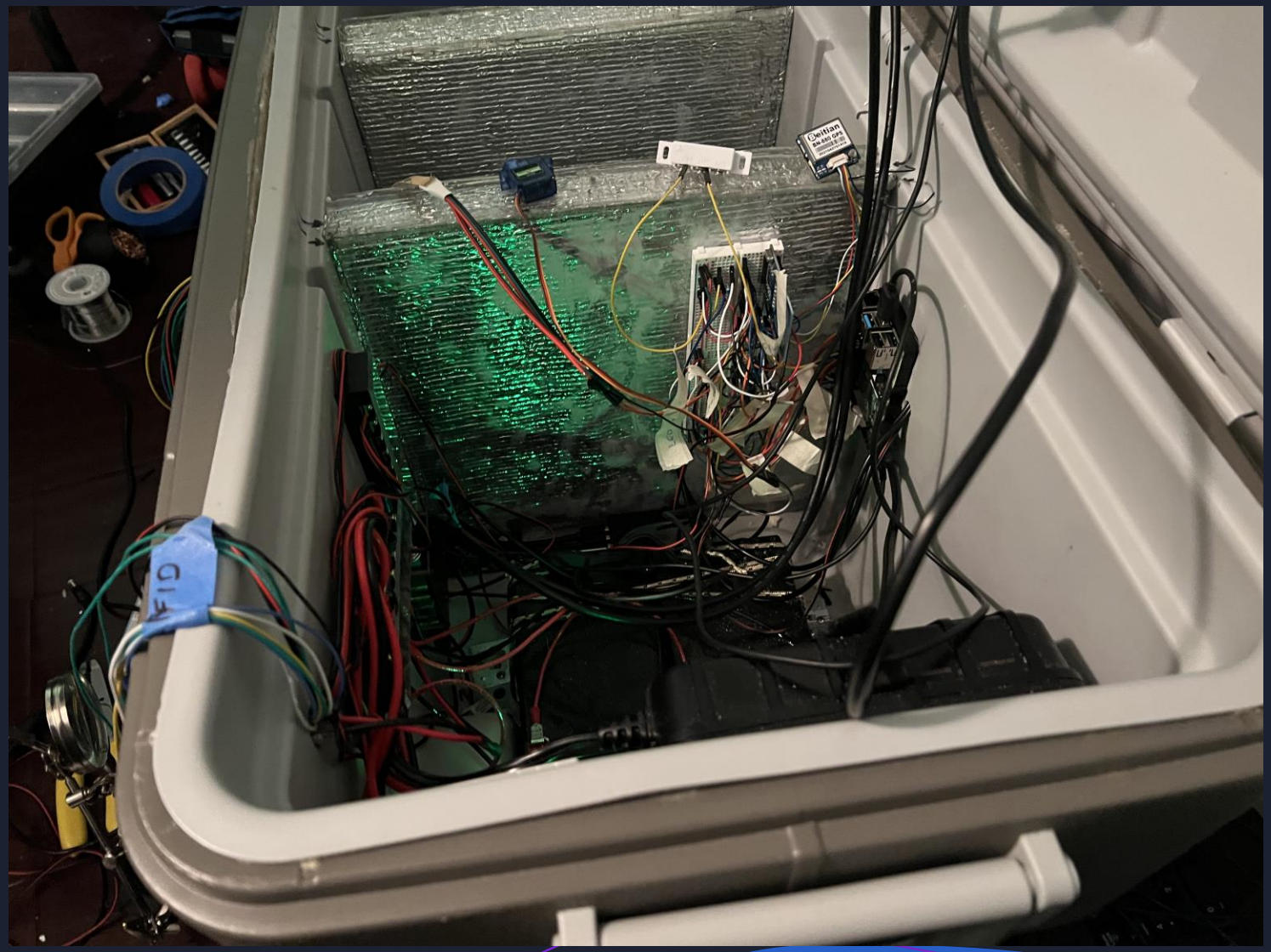
- Finished Dividers
- Mounted Monitor, Breadboard, and Raspberry Pi

Testing

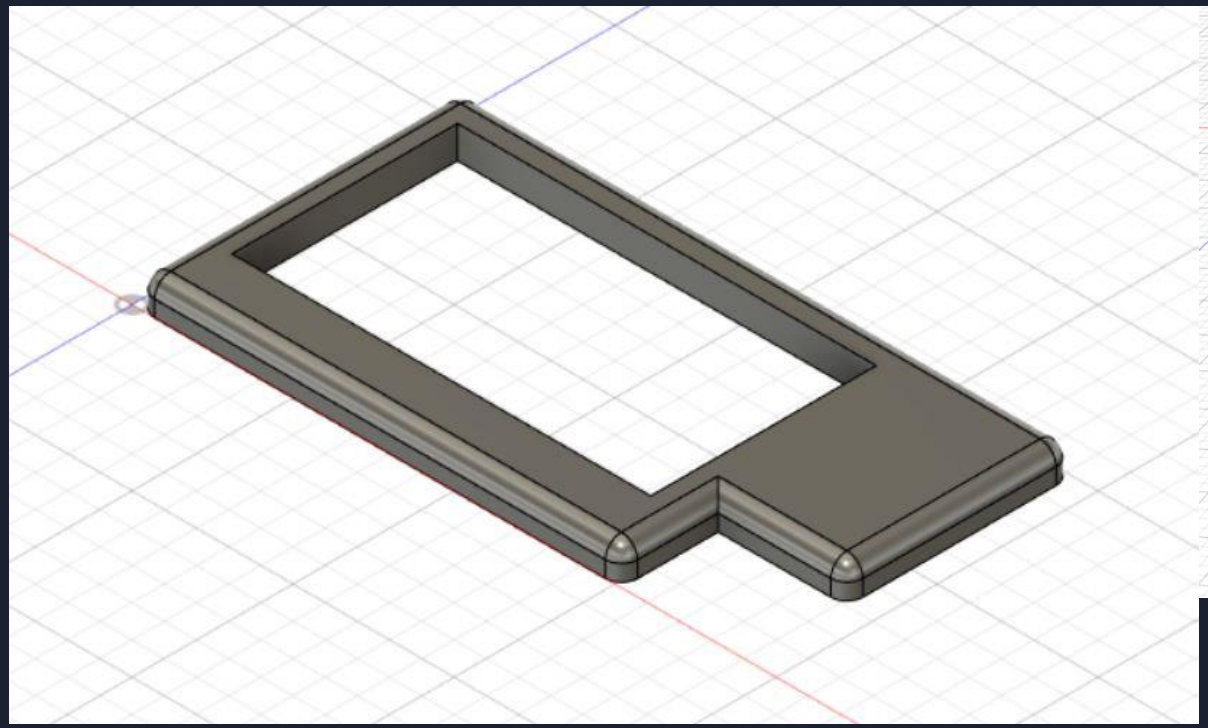
- Confirmed all features software implementations work
- Confirmed that Sensors are operational
- Confirmed operation of system through touch screen

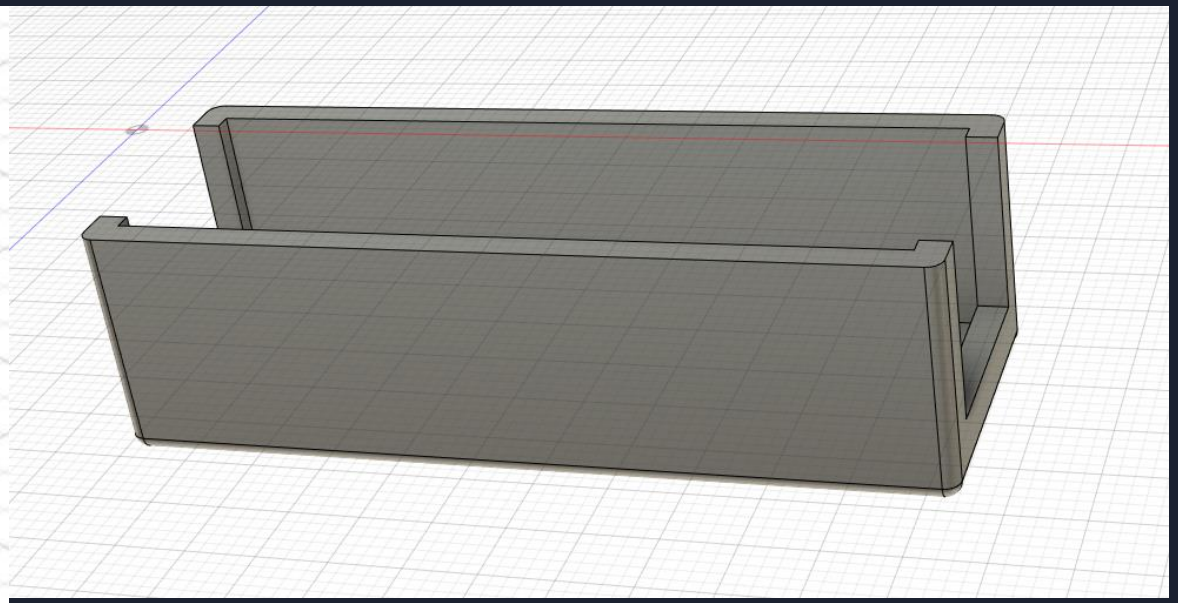
Fabrication

- The dividers were completed
- The Raspberry Pi was mounted
- Mounted Breadboard
- Installed second Buck Converter



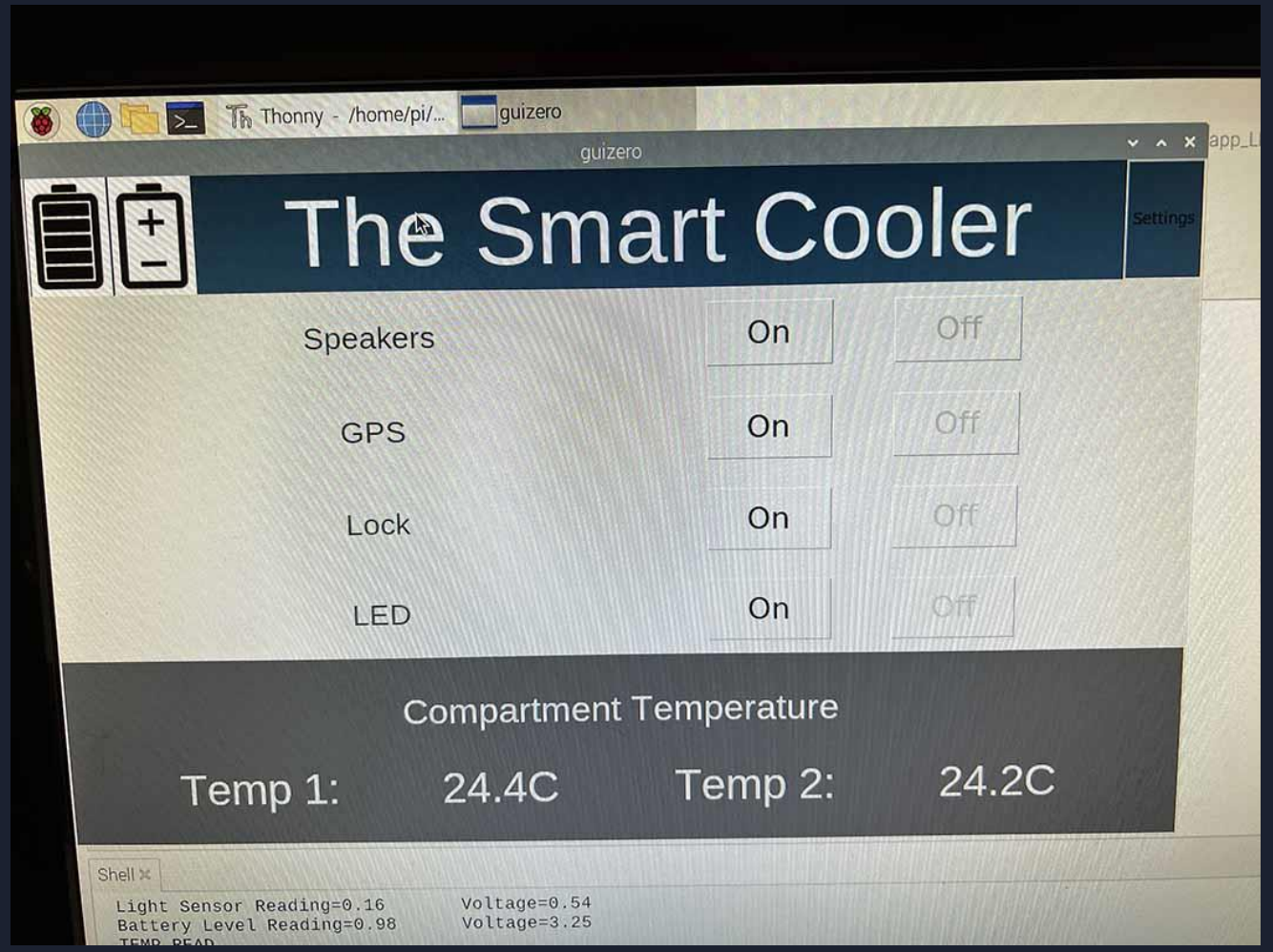
3D Modelling



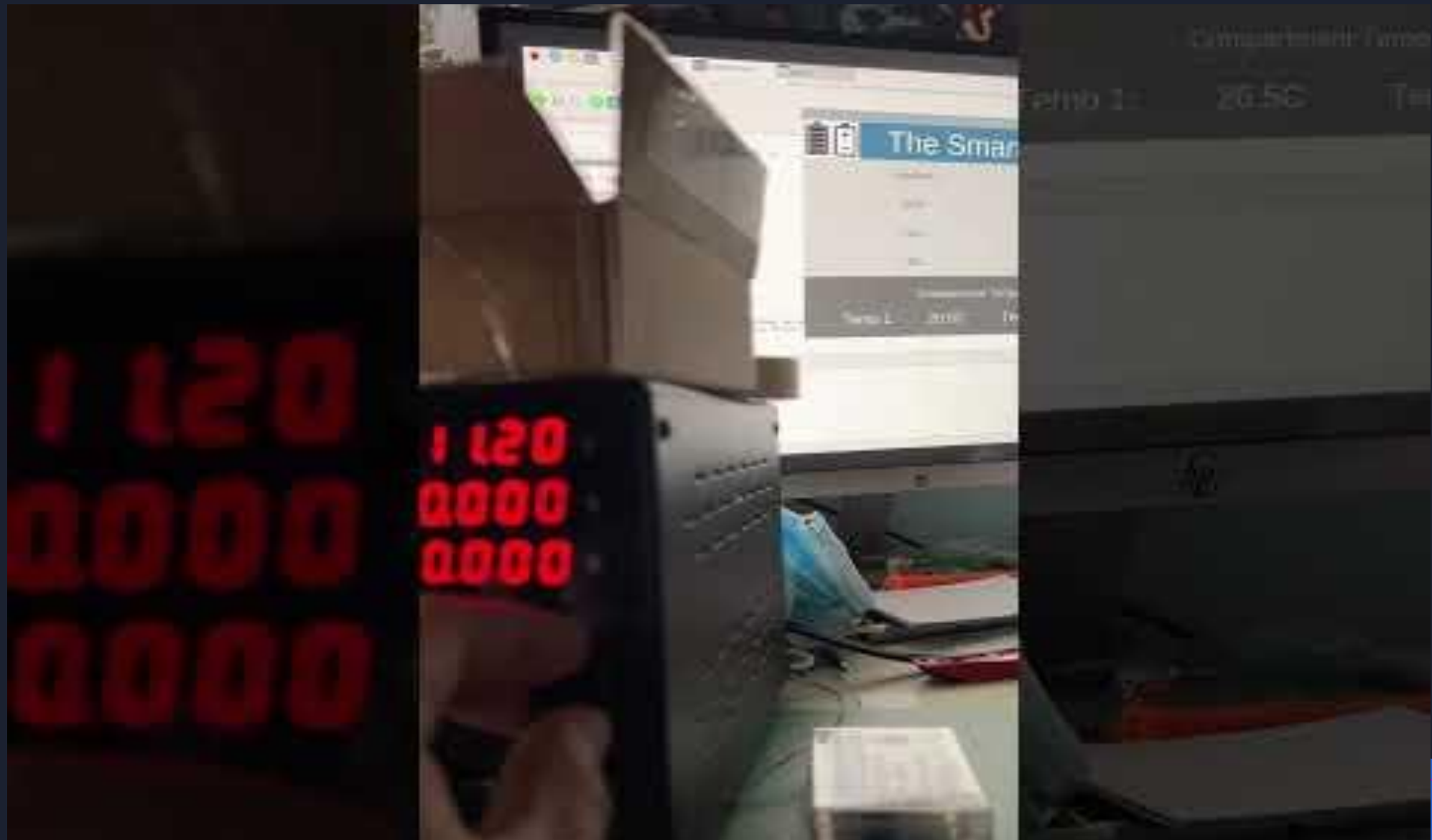


Software

- Battery level indicator added to raspberry pi GUI and mobile app.
- The following video shows the battery level change as the voltage goes from 0V to 12V.



Battery Level Indicator



Software

- Can change colors of LED light strip
- Can set light strip to auto or manual mode
  - Auto uses light sensor to detect if it is dark outside and turns on light
- Locking mechanism (RFID, servo, and reed switch) programmed to work together.
  - Auto feature automatically locks servo when door is closed

Testing

- Program loads on bootup
- Power button added
- The Raspberry Pi and breadboard was fitted into the cooler.
- The Raspberry Pi was powered by a 12V-5V buck converter, while the LED light strips, GPS, and servo were powered by a separate 12V-5V buck converter.

Testing

- In the following video:
  - The touchscreen bootup the program
  - The LED light strip auto feature was being tested by covering the light sensor.
  - The LED strip colors were also changed.
  - The temperature was configured from Celsius to Fahrenheit
  - The power button shutdown the Raspberry Pi

Testing

Testing

- The following video shows:
  - The Raspberry Pi is powered by showing the touchscreen on
  - The wireless charging is powered
  - The speakers are also being powered.

Testing

Goals For Next Meeting

- Place LED strip
- Trim top covers to accommodate LED Strip
- Implement App speaker cut off control
- Trim excess bread board wiring
- Continue work on mobile app