The Smart Cooler

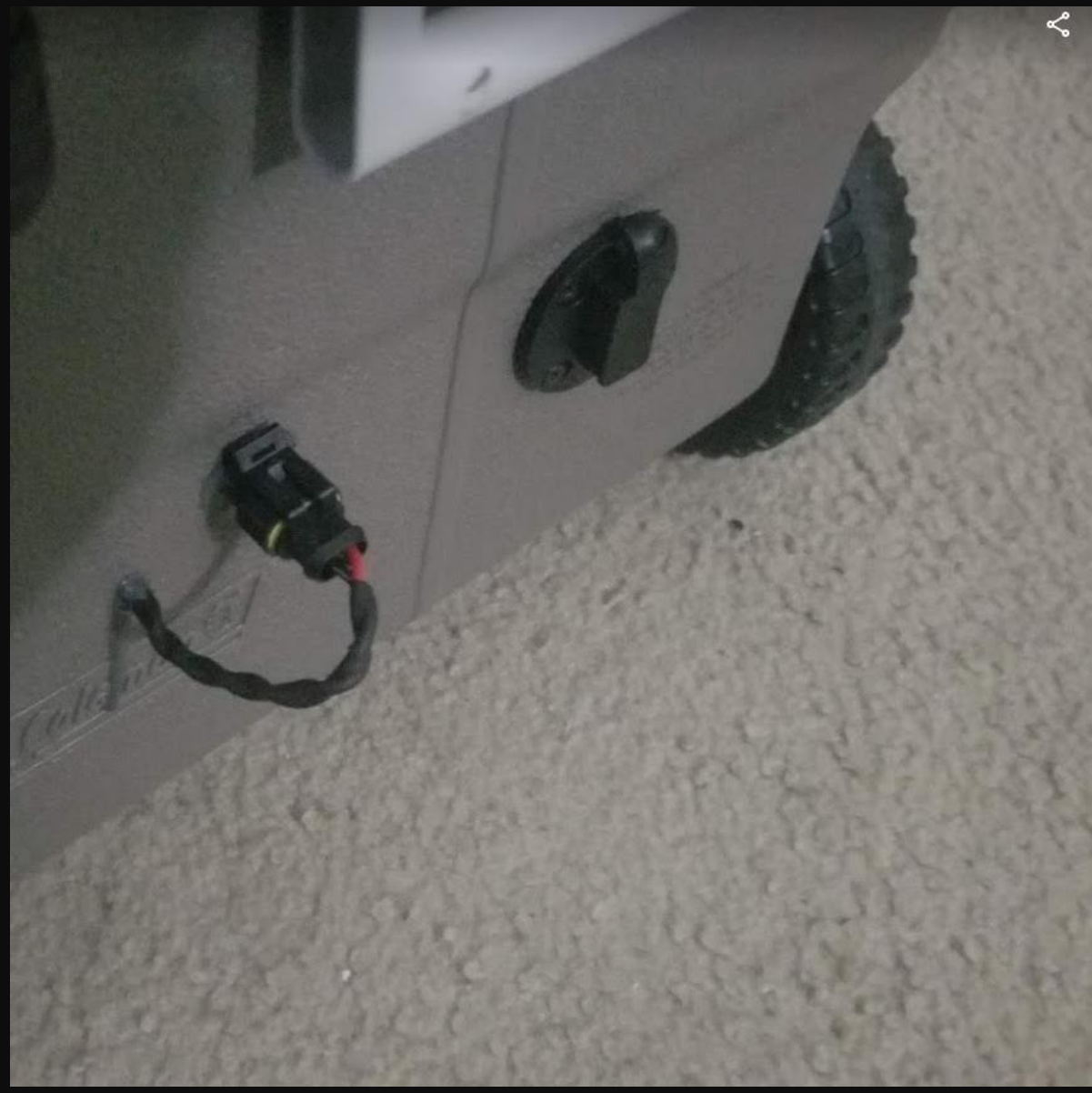
Week 35 Mar 25 – Apr 7

Progress Made

- Locking System Testing
- Final fit and Finish work
- Battery Testing
- Outdoor testing
- Unit Weighed

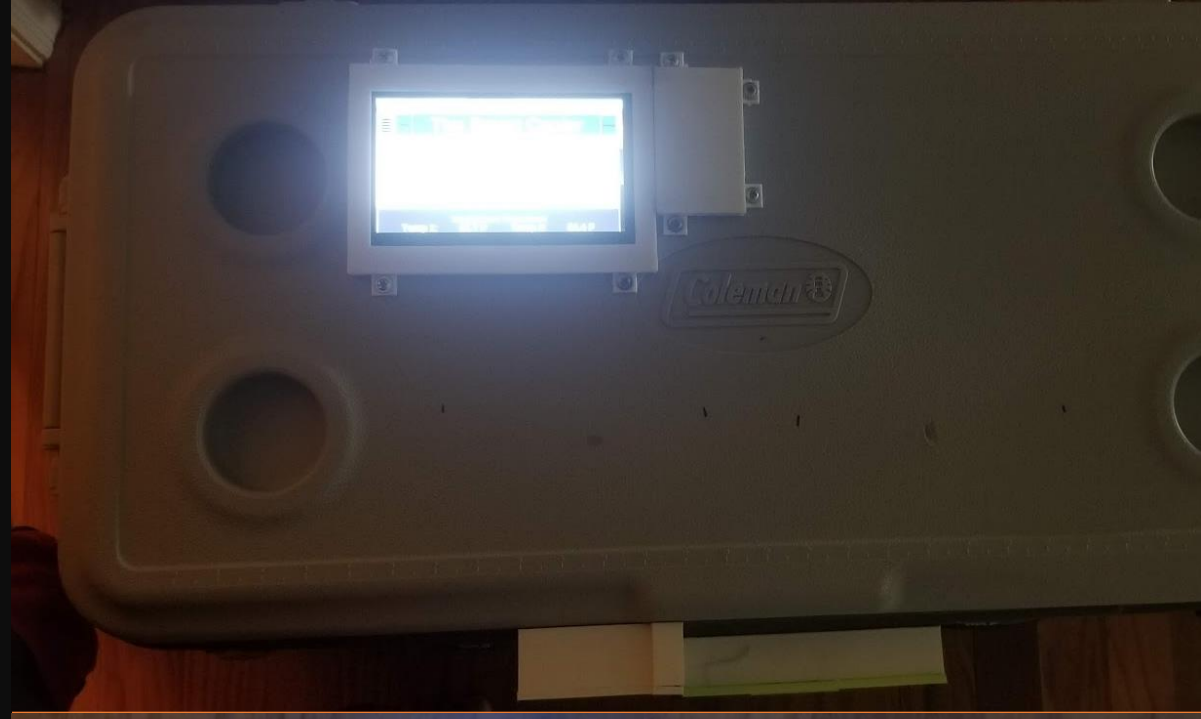
120 AC Connection Plug

- To make sure that the plug doesn’t get accidently exposed to elements or get shorted a plug is required
- The plug was made from an extra connection plug and secured to cooler using the 2-part waterproof epoxy



Unit Weight

- The unit was weighted and found to be 43lbs while empty
- This does overshoot our goal of 40lbs



Locking mechanism Testing

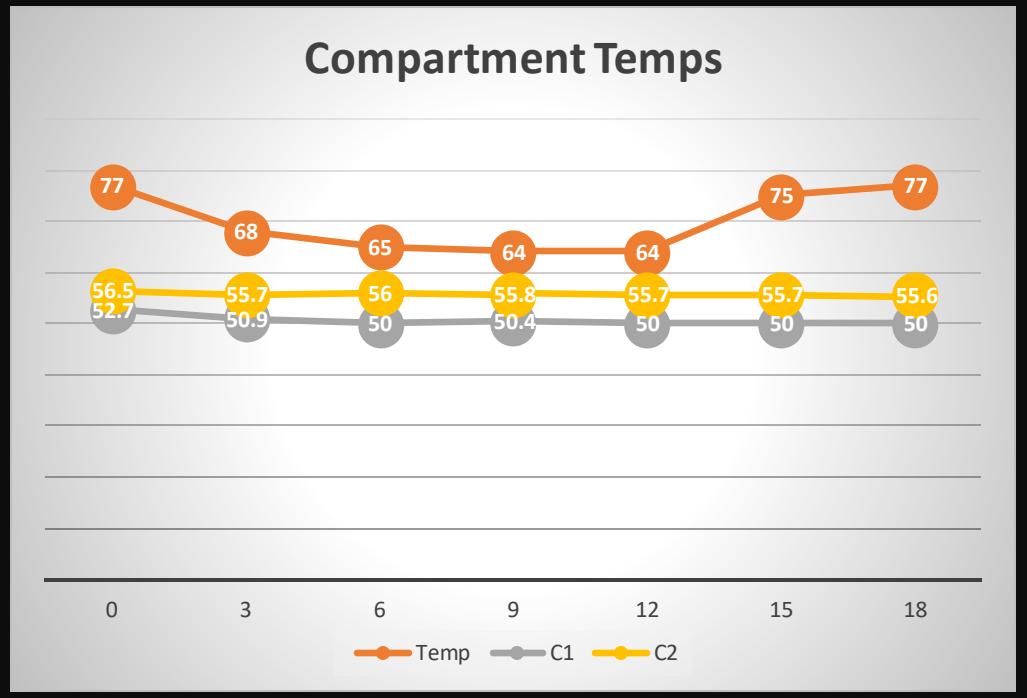
- The procedure for testing the lock is shown in the video
- The cooler was locked, confirmed the status was shown on the Touchscreen, attempt made to open the cooler, cooler is unlocked, status is confirmed on the Touchscreen, and finally the cooler is opened
- This tests, the RFID reader, and the locking mechanism
- This test was run 50 times without an error or mechanical failure

OutDoor Battery Testing

- The cooler was powered on and left outside
- The test started at 4 PM on Sunday March 27,2022 and ended at 1 PM Monday, March 28, 2022
- All systems were on and running during this test

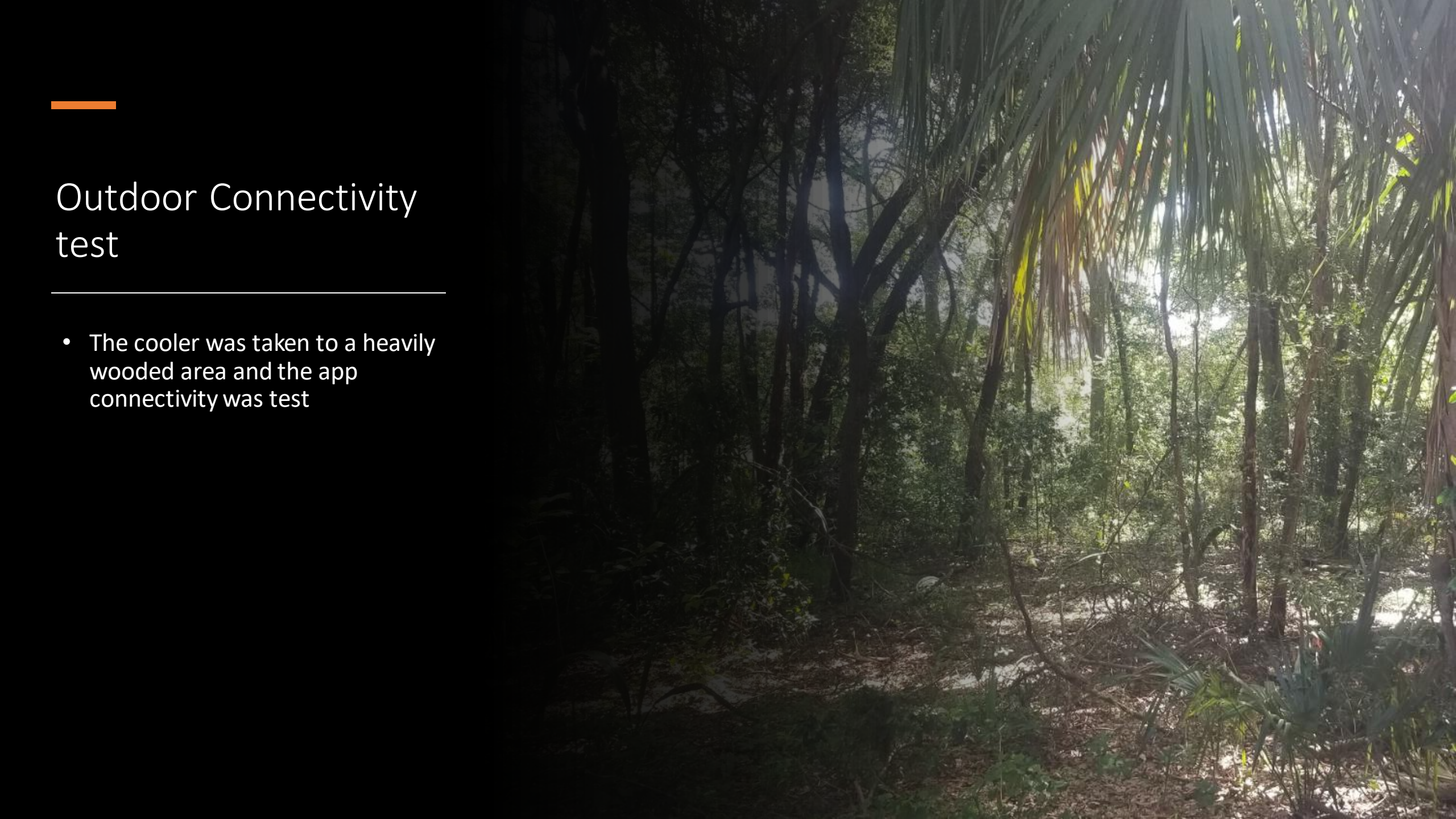
Testing Results

- The Temps in the Compartments as compared to the average Temp in Orlando at the time
- The Compartments were checked every 3 hours
- Local temps from https://www.timeanddate.com/weather/usa/orlando/historic



Outdoor Connectivity test

- The cooler was taken to a heavily wooded area and the app connectivity was test

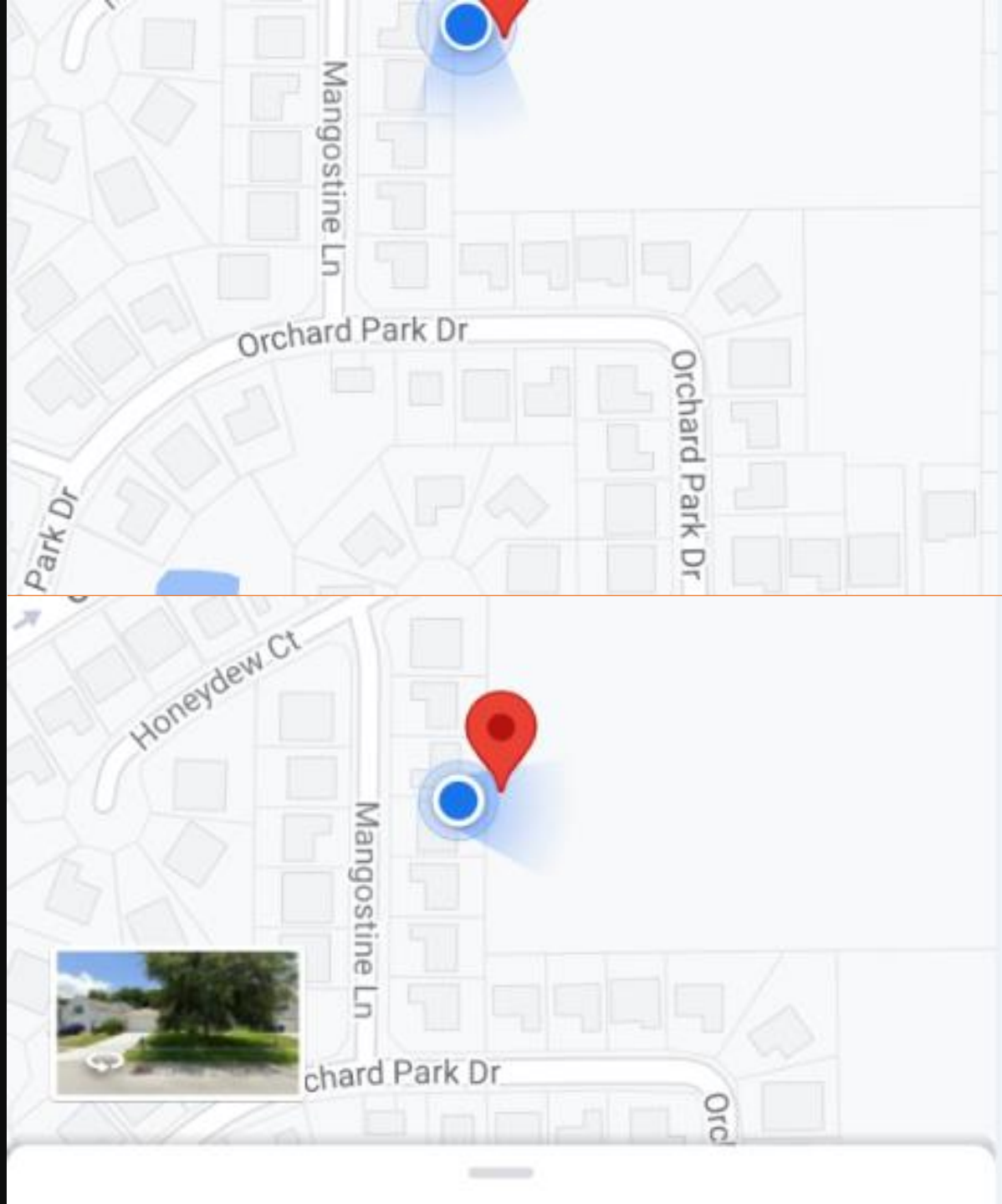


Outdoor test Results

- Connectivity was tested by observing the maximum distance that the App could properly control the functions of the cooler
- The Mobile app was able to properly control the Cooler at a maximum range of 25 meters, or 75 feet

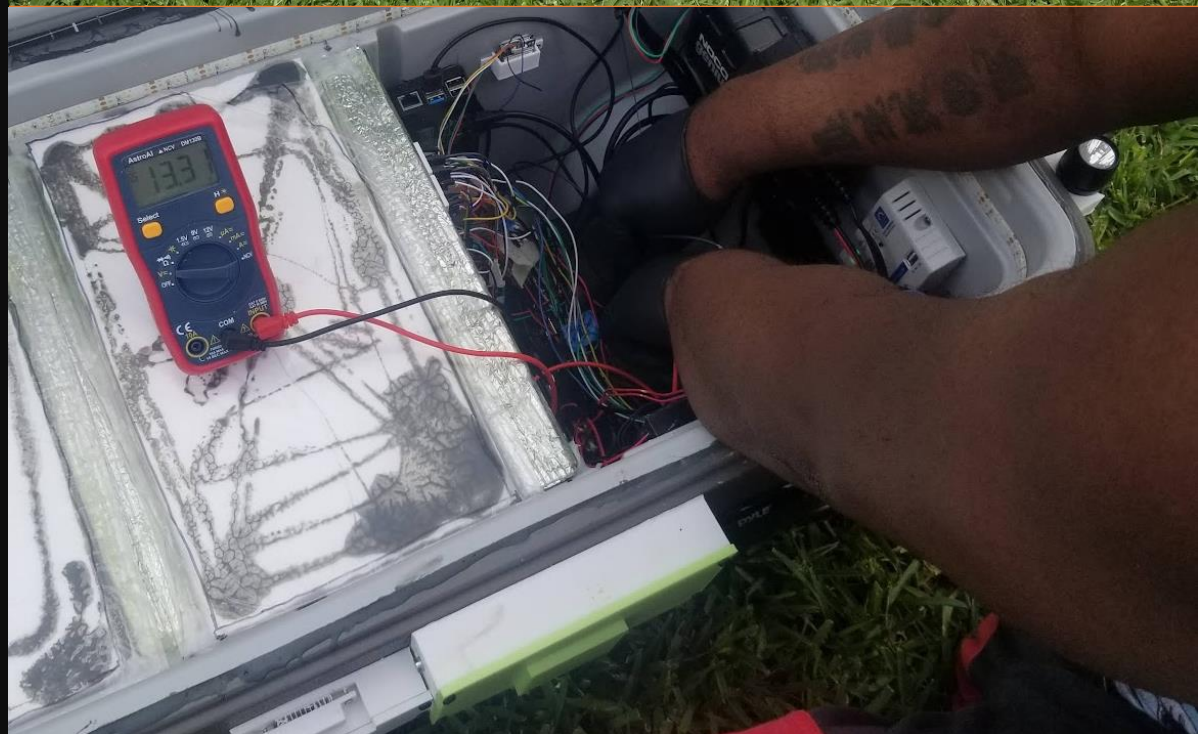
GPS Testing

- While in the wooded area the GPS was powered on and operation was confirmed and unaffected by the trees and brush
- The app was able to connect with google servers to provide directions to the location



Solar Panel Testing

- Solar panel function was tested in actual operation
- The Cooler was placed in direct light with no obstructions
- The voltage seen on the battery was seen to be 13.31 Volts
- The voltage generated by the solar panel was recorded to be 12.5 Volts
- The circuit was broken at the batteries and directly after behind the charging distribution box to record current generated by the solar panel
- Neither gave a recordable current value, but we do not have time to pursue this any further



Goals for Next week

- Wire management on Tech Side of Cooler
- Final Fit and Finish
- Work on Report Paper
- Submit Rough Draft