

Capstone II

Home Re:Stock Final Presentation

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(Group 16)

Who are We?

Group 16 members:

- Brandon Russell
- Cody Sturgeon
- Alex Kalmes
- Daniel Rowett
- Sam Hudson
- Jackson Carlton

Champion:

- Nauman Malik (Home Re:Stock)



Home Re:Stock™



What is Home Re:Stock?

- A network of *smart* sensors* that allow a user to monitor the levels of any consumable product(s) they wish
- Works in conjunction with a user interface so you can monitor a product's current levels or track its usage over time
- An expandable platform that can utilize sensor data to increase a user's convenience

The “Why”

Purpose for the project:

- Help Home Re:Stock move from a concept to a working platform
- Provide a convenient form of online shopping

What did we improve upon:

- Hardware: Made the device thinner and measure more reliably
- Firmware: Built from the ground up
- Backend: Built from the ground up
- User interface: Used provided mockups and built to match, some screens where completely custom.

Contributions to Home Re:Stock

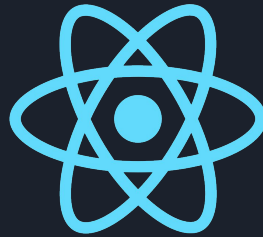
Semester goals:

- Redesign scale prototype to increase quality and affordability
- Ensure a sensor is able to monitor a consumable product and communicate data
- Build out a scalable backend data store with relevant API for the Mobile App
- Provide a robust Mobile App that gives the user the ability to easily:
 - Create a Home Re:Stock Account
 - Register sensors to their account
 - Modify user and sensor preferences
 - Monitor usage of products associated with their sensors.

Long term goals:

- Increase user convenience by enabling automatic reordering of a product
- Integrate with company APIs to look for best prices or alternatives

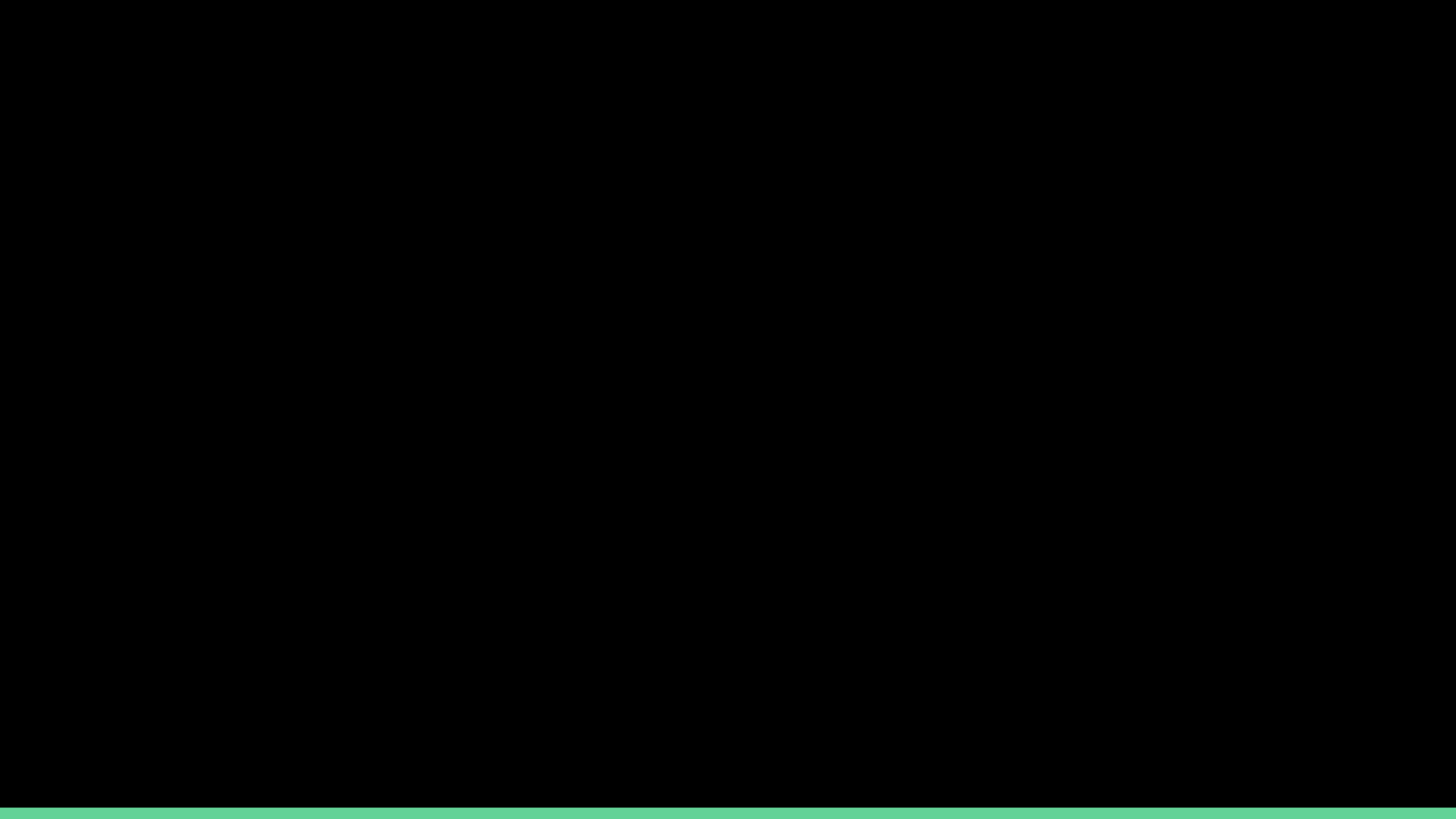
Technologies Used



User Interface Demonstrations







Sensor CAD Models

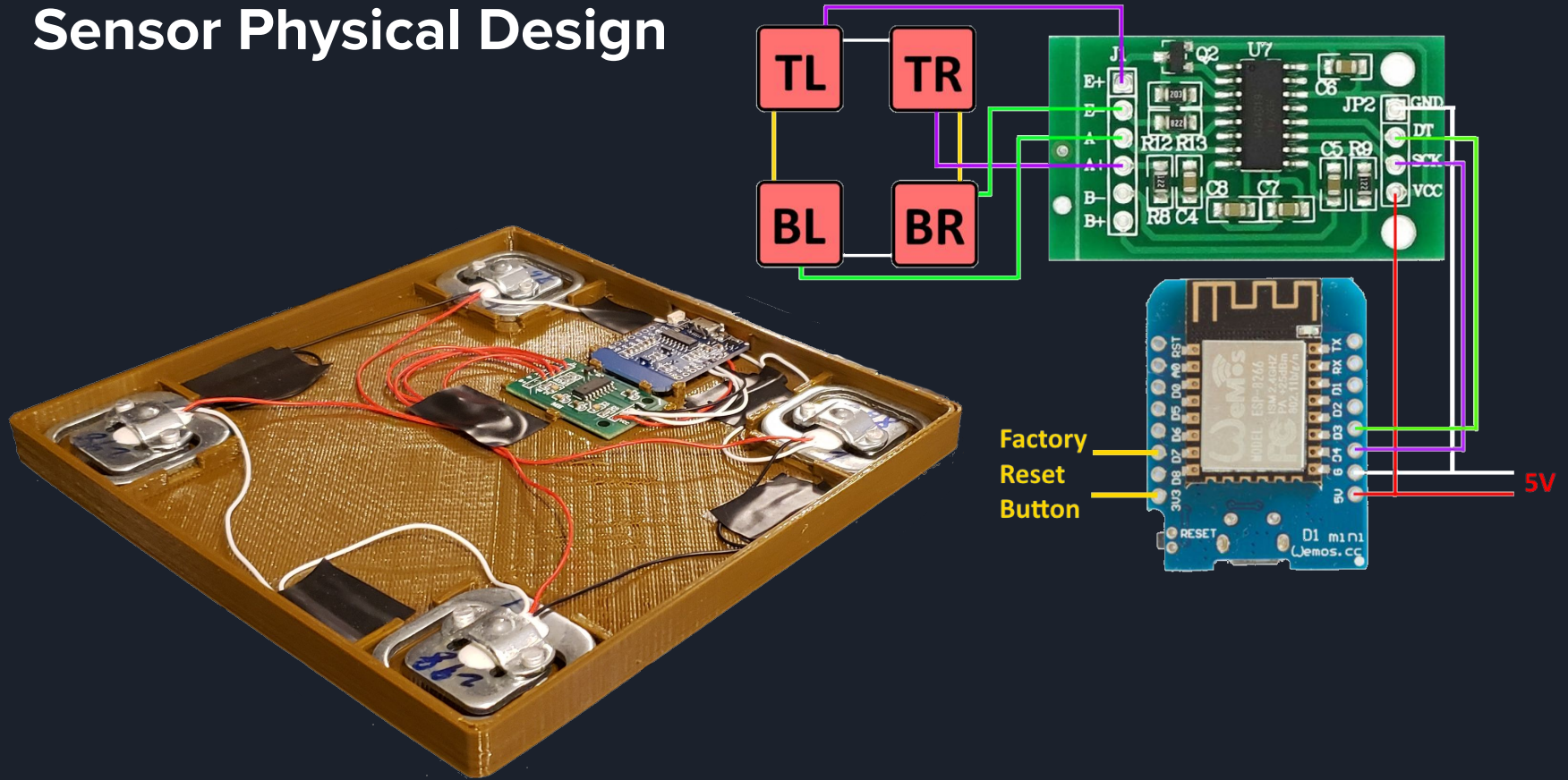


Small Sensor (10cm x 10cm)

Medium Sensor (15cm x 15cm)

- 1: HX711 Load Cell Amp
- 2: Wemos D1 Mini
- 3: Load Cell(s) (1 - 4)
- 4: Lid clips (x4)
- 5: Room for future batteries

Sensor Physical Design



This sensor housing was printed before lid clips were incorporated so we could develop firmware on a physical unit

The Future of Home Re:Stock

We have provided Home Re:Stock the ability to deliver users:

- A Mobile Application
- A quality and affordable sensor
- A backend that is tested and scalable

Roadmap for Home Re:Stock (Developer's perspective):

1. Register various developer keys with retailer APIs so the user can price compare and replenish their goods from various retailers (Walmart, Amazon)
2. Testing the Mobile Application with automated testing libraries (Unit, Integration Testing)
3. Continued Optimization of design and cost of Smart Sensor
4. Deploy the app to both the Android and iOS App Stores

Thank you for your time!

