OpenWheel: A One-Wheel Skateboard for All

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Introduction

The OpenWheel is our open-source answer to the popular OneWheel electric skateboard. We're starting from a prototype built over the summer. Over the next two quarters, we aim to turn this prototype into a finished product.

Future Goals

- A wider hub motor, similar to the actual OneWheel (Week 5)
- Weight-sensors to detect when the rider is on the board (Week 9)
- Warnings to notify the user of low battery or motor overload conditions (Winter Week 2)
- A cross platform app to tune rider preferences and display speed and sensor data (Winter Week 9)
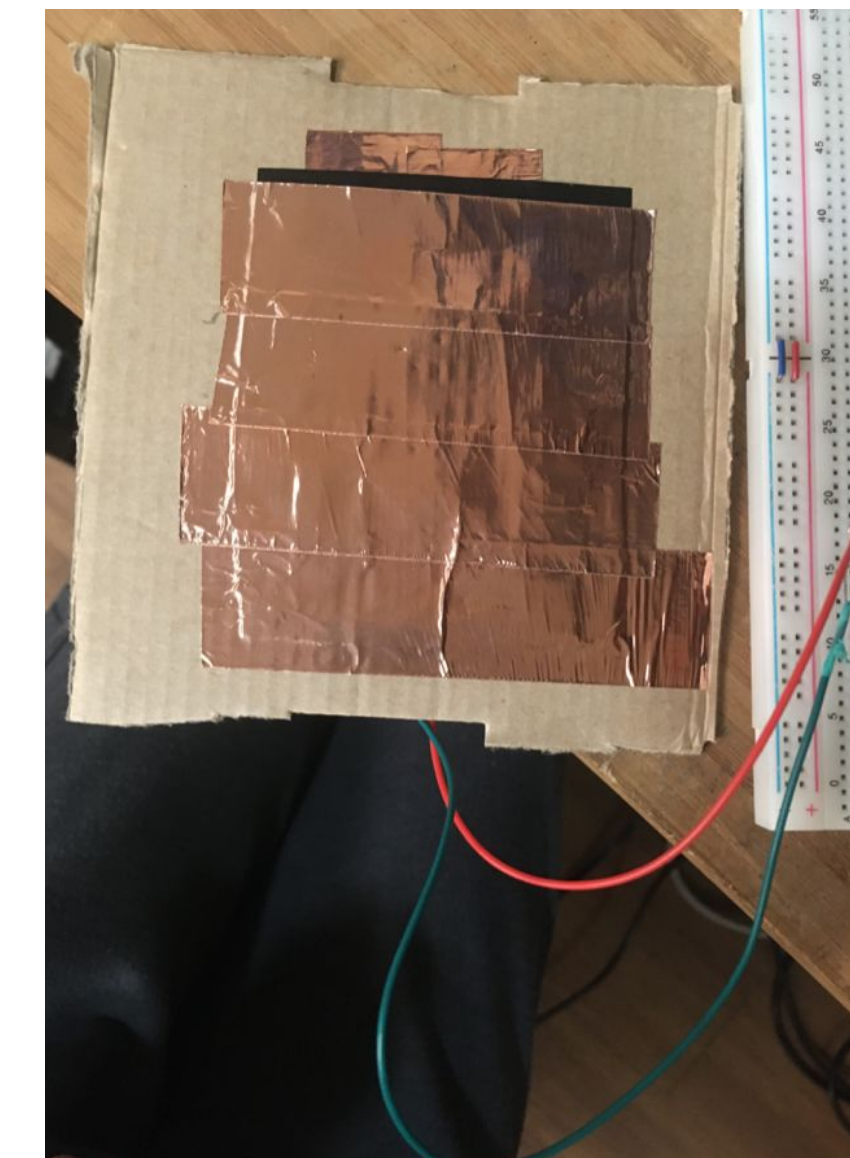
Progress

Hardware-Software Interface
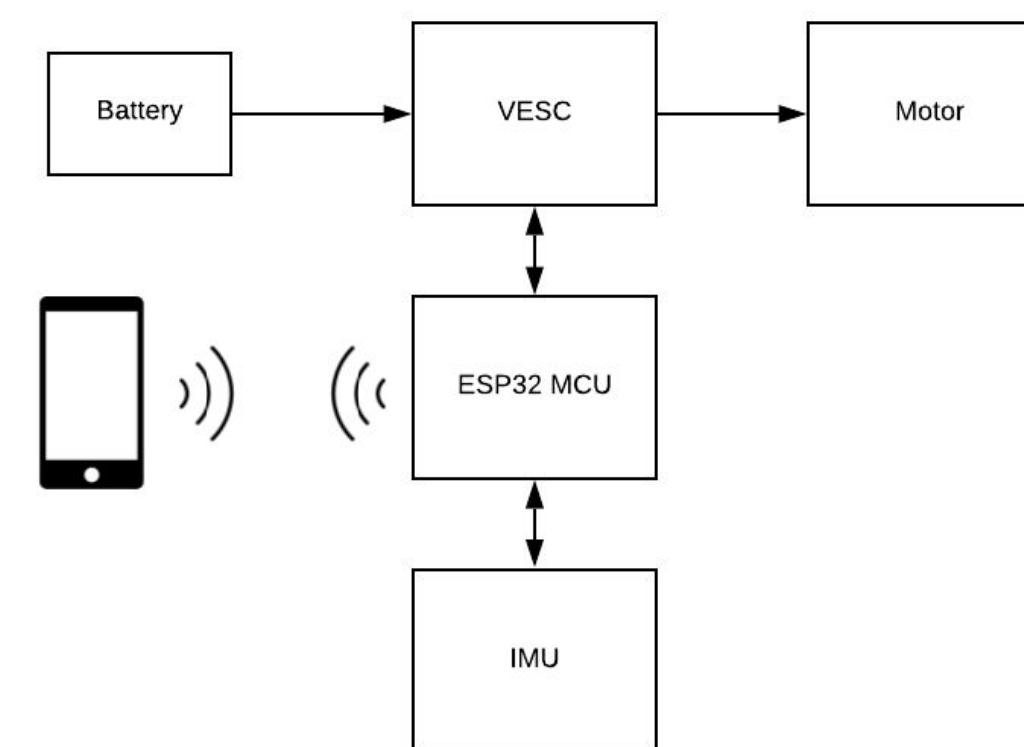
OpenWheel Prototype and First-Generation App
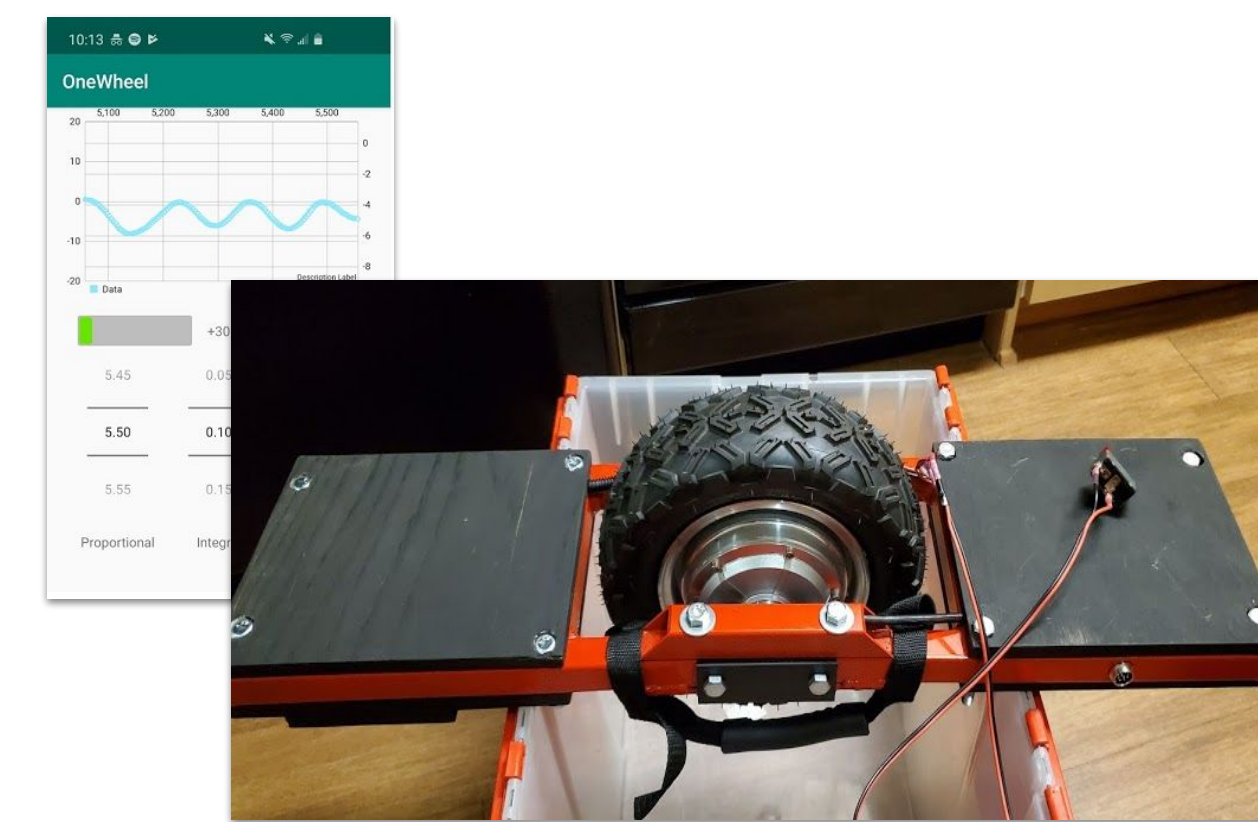
Upgraded Hub Motor

Weight Sensor Prototype

Materials

- ESP32
- Steel Frame
- 10 inch. Hub Motor
- MPU9250 IMU
- VESC
- 37V Lipo Battery Pack
- Velostat
- Copper tape

Accomplishments

- Installed new hub motor and modified software accordingly
- Began prototyping weight sensor

References

[1] Idnani, Akash. "Building My Own OneWheel." *Adventures with Electronics*, 18 Aug. 2019, akashidnani.com/2019/07/21/building-my-own-onewheel/.

[2] V Bharathi R Sarankumar and K Venkatesh "Singular axis self balancing system " International Journal of Technology And Engineering System Vol 2 pp. 45-48 Jan-March 2011.