



Project Overview

Problem Description

The granola kiosk is in phase 3 of its development. The goal for phase 3 is to refine the developments in some of the sub-systems presented in phase 2. The kiosk shall be capable of weighing, mixing, and dispensing to provide a custom granola mix with the use of a graphic user interface.

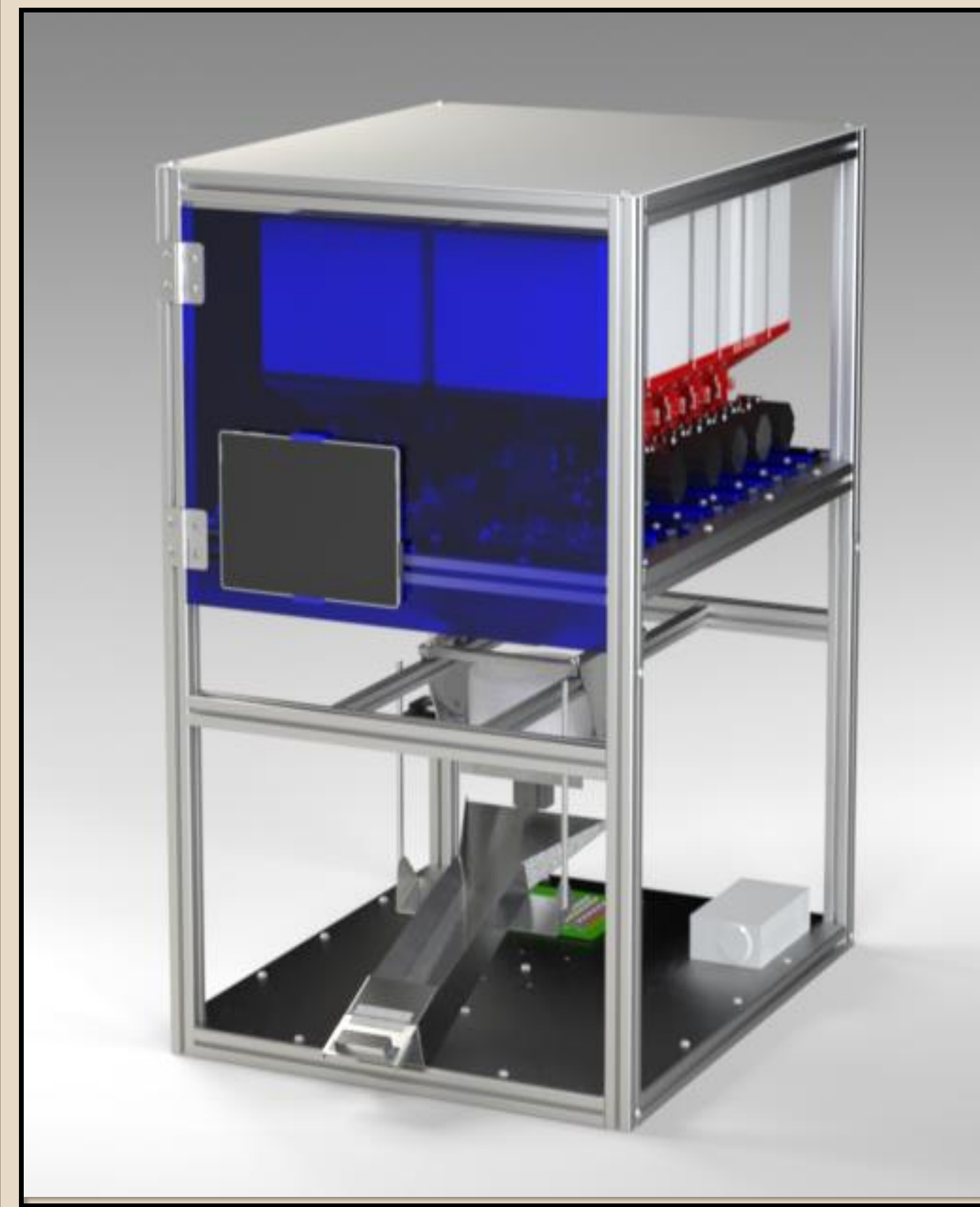
Accomplishments

- Revised the mixer and weight measuring mechanism to fix system accuracy issues
- Created and implemented a dispensing system that delivers granola from the kiosk to the customer
- Created a detailed layout of the bottom portion in the kiosk (Mixing bowl, Dispenser, Electronics)
- Implemented a new graphic user interface for the kiosk
- Redesigned the power distribution board, reducing its footprint
- Revised parts of the system improving overall modularity

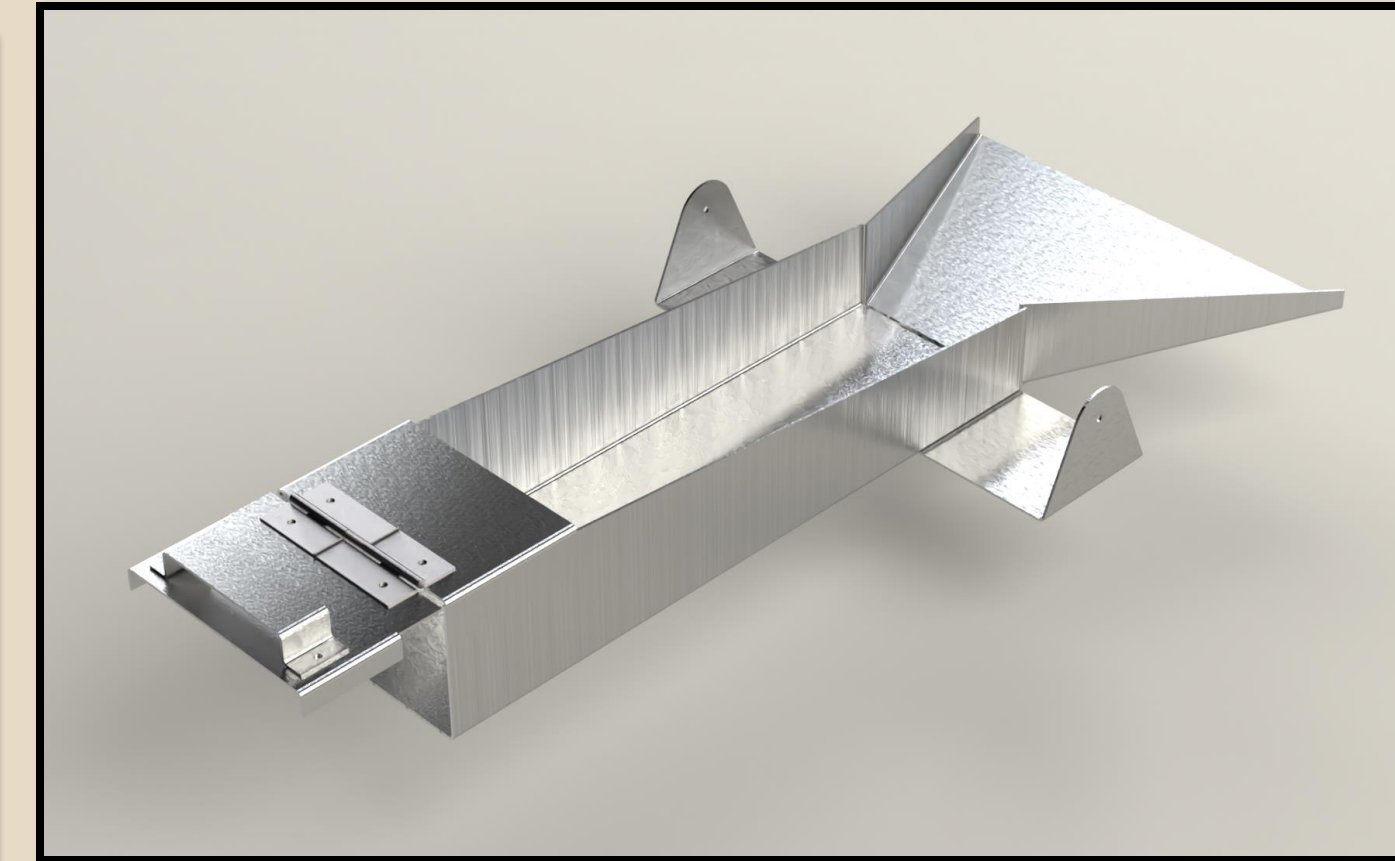
Acknowledgments

The team would like to thank Dr. Shaffar, Professor Dorr, Michael Lester, Dusty Fisk, Wayne Jackson, and John Reep for the support.

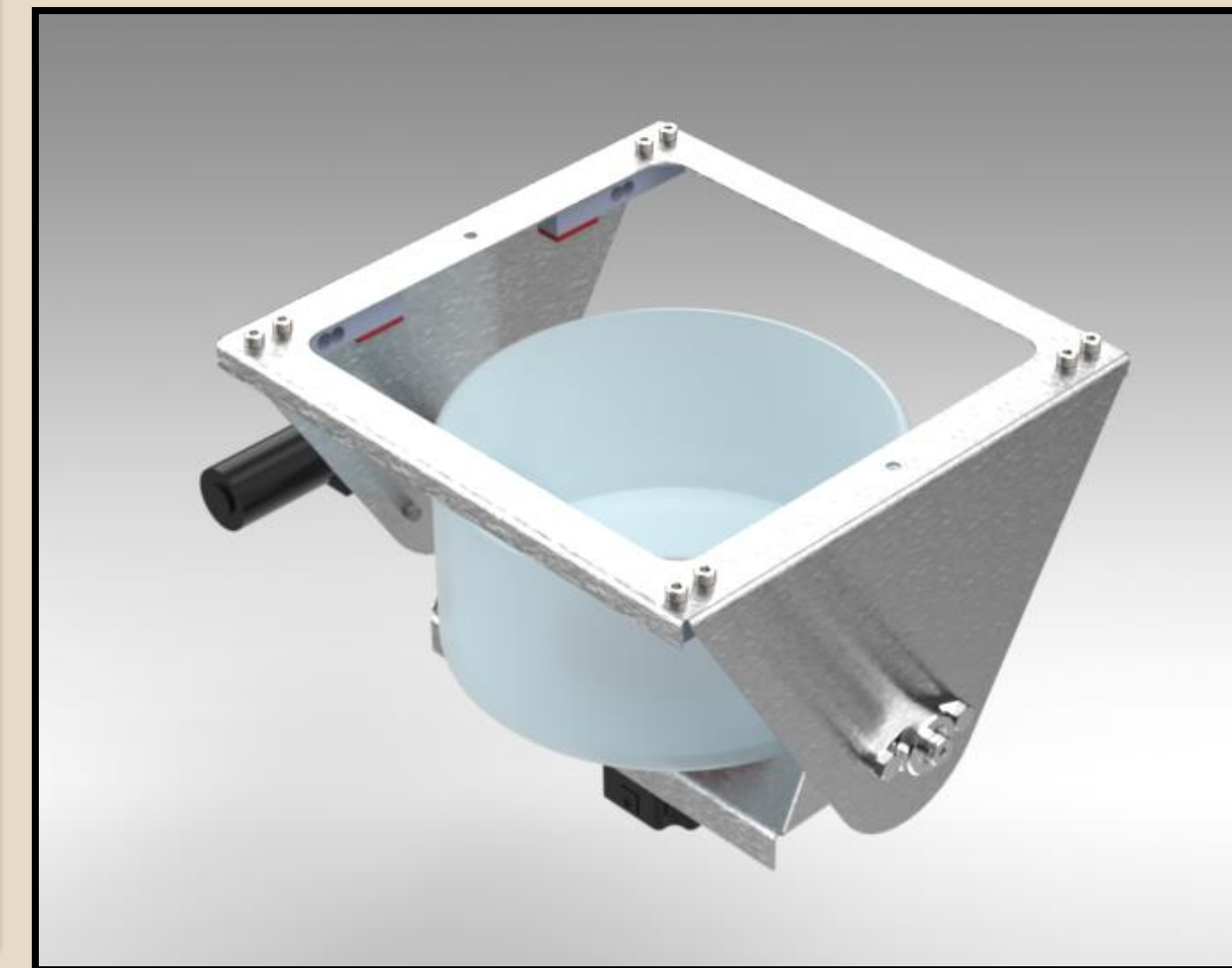
Granola Kiosk



Granola Kiosk Assembly



Dispensing Funnel



Mixing and Weighing Subassembly

Kiosk Electronics

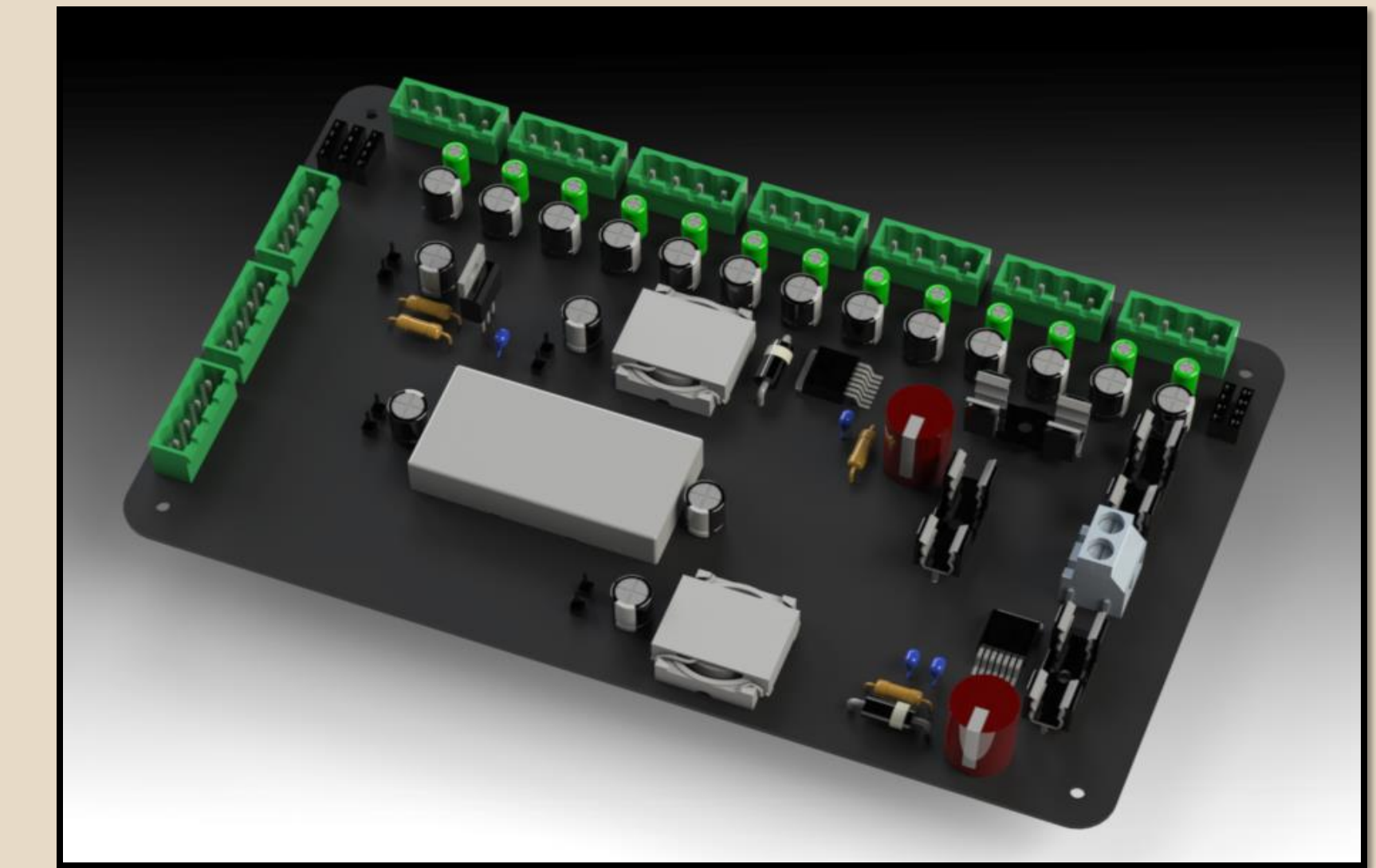


Figure 4: Power Distribution Board

Kiosk Details

To support the new mixing/weighing system, additional T-slot extruded beams were added. To provide a food safe system, the mechanical components such as the brackets and the dispensing funnel were manufactured out of 316L stainless steel for its corrosion resistance. HX711 Strain Gauge Load Cells are utilized to weigh the granola ingredients. All the electronic components are controlled by an Arduino Mega 2560 as well as a Raspberry Pi 4B.

Meet the Sponsors

D&K Engineering provides Total Commercialization Solutions for products and instruments that have high innovation content and complex manufacturing lifecycles. Their capabilities span the entire product lifecycle, including requirements definition, systems architecture, concept creation, design, prototyping, manufacturing, and after-market support. Project funding/resources were provided by D&K. Additionally they provided mentoring for the team that not only pertained to the project but would provide insight to problems faced within industry.

The Engineering Team

Mechanical Engineering Team



Xavier Lovato



Zayne Mirza



Paris Bee



Daniel Izarraras



Adhel Corpuz

Electrical and Computer Engineering Team



Evaristo Rodriguez



Kimo Barrere



Joe Huang



Claudia Callejas Dominguez



Conrad Delarosa