Meet the Team

Anthony Alkatib, Team Lead
Thom Durso, Quality Lead
Austin Whitaker, SEIT Lead
Tristan Kaskoun, Manufacturing Lead
Miles Kiefer, Supply Chain Lead

Meet the Sponsor

The sponsor for the Smart Granola Kiosk was D&K Engineering. D&K Engineering is a company that specializes in smart machines and kiosks with the addition of a smart granola kiosk. A granola mixing and dispensing kiosk would allow them to expand into this emerging market and keep their business thriving. This kiosk will enable a customer to create their own mixture of granola from a base granola and a selection of up to four different toppings. The goal for this kiosk is for it to ultimately be used in a grocery store much like Whole Foods.

Project Overview

D&K Engineering is looking to expand their product line of smart machines and kiosks with the addition of a smart granola kiosk. A granola mixing and dispensing kiosk would allow them to expand into this emerging market and keep their business thriving. This kiosk will enable a customer to create their own mixture of granola from a base granola and a selection of up to four different toppings. The goal for this kiosk is for it to ultimately be used in a grocery store much like Whole Foods.

Project Requirements

The three required subsystems which would ultimately makeup the entire kiosk were:
1. Storage Subsystem
2. Dispensing/Measuring Subsystem
3. Mixing Subsystem

These subsystems needed to meet the following requirements:
- Holds multiple ingredients
- Produces the granola in a reasonable amount of time
- Storage accommodates for multiple uses
- Has a small footprint to reduce cost
- Is shockproof and fireproof
- Runs on a common 120V outlet
- Is able to fit through doorways during transportation
- Dispenses consistent amounts of granola
- Dispenses granola and toppings in a homogenous mixture
- Uses same bags available in grocery stores

Design Breakdown

Storage Subsystem
Dispensing/Measuring Subsystem
Mixing Subsystem

Kiosk Specifications

- Height = 79 inches on wheels
- Weight = roughly 1000 lbs.
- Max Amperage = 5A
- Operating Voltage = 120V

Electrical Engineering

Gustavo Torres, Jiuzhang Peng, Wenjie Kuang
The Smart Granola Kiosk project was a joint effort with the help of a senior electrical engineering team here at San Diego State University. The EE team helped with the design and analysis of the dispensing/measuring subsystem, as well as the mixing subsystem. They provided the ME team with critical help concerning the motor selection, the programming and coding of the motor controllers, and the power supply of the system.

Lessons Learned

Throughout the duration of the project, the team has learned many lessons. For starters, the first thing learned was how to work with each of the team members. The team was relatively good at this from the beginning, but the cohesion among the group has continuously improved as the project has progressed.

Something that the group struggled with at first was keeping a detailed schedule, and taking it seriously. The team always had a schedule, yet it was realized later on in the semester that keeping and maintaining a detailed and thorough schedule is extremely important for the success of the project.

Something that the team found very effective and useful was the use of take 5s, 6-3-5, trade studies, and the use of virtual, collaborative workspaces. This allowed the team to work efficiently and cohesively with each other.

Acknowledgements

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“Scientists investigate that which already is; Engineers create that which has never been.” - Albert Einstein

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