Overview
General Motors containerization invests heavily in containers and logistics to ensure safe delivery of parts from Tier 1 Suppliers to assembly line point of use. Container designs must incorporate protection of the part, logistics and manufacturing equipment, loading and unloading ergonomics, and total enterprise costs to the company. To overcome current damages of parts in containers our team generated conceptual designs for two challenging commodities, the H-VAC unit and door panel on the new Camaro Program. Furthermore, by performing an analysis on capital investment, logistics costs and by building one prototype container of the most value-added design, the team will be able to provide general Motors new containerization solutions.

Objectives
Our team was asked to design 3-5 container models for both door panels and HVAC units, which will protect their commodities from damages during shipment and the loading and unloading process, as well as provide safe ergonomic factors and improve delivery logistics, mainly truck utilization.

Approach
- Weekly conference calls were held with the company sponsor to discuss design approaches
- An onsite visit to the Lordstown facility allowed the team to see the current container problems first hand and the handling process of the commodities
- Current designs of new containers were provided as working points to improve on
- Brainstorming sessions were held to discuss various features that should be included in designs
- Four container designs for each part were created and modelled on SolidWorks
- Truck utilizations were calculated based on each container’s dimensions and how many parts per truck the container would allow
- Presented the eight designs to the company sponsor to get feedback on designs
- Containers were compared and ranked against each other based off quantitative analysis, logistics, and ergonomic factors
- A half-scale prototype was created for the best door panel container design
- Critical dimensions and key features were provided to the sponsor

Outcomes
Our team was able to provide General Motors with eight designs that will:
- Protect all commodities from getting damaged during shipment
- Allow employees to safely and efficiently load/unload parts from the containers
- Decrease transportation costs by transporting as many parts per truck possible and increasing truck utilization
- Help improve current container designs for the door panels and HVAC units with certain features of the proposed designs