Project Scope

Project Description

The team was able to determine the project description by meeting with the project sponsor representatives, Jeffery Roche and Jeffery Stott, and discussing their current needs. Based on these meetings with the Corning representatives the team has determined that the goal of the project is to improve the current device that is being used to protect the ceramics. The objective of the project is to prevent the ceramics from falling off the conveyor in the Corning's manufacturing plant, while also decreasing the cost in labor by minimizing the number of employees needed along the conveyor.

Key Goals

After developing the project description, the team was able to come up with a list of key goals that the design must achieve. The first key goal of this project is to design a method to prevent damage to ceramic filters and substrates while on the production line in Corning's manufacturing plant. Their current design utilizes a "T" shaped piece of plexiglass that is placed upside down and inside the slots on their chuck system. This method adequately prevents short part ceramics from falling and obtaining damage. Another goal of the team's design is to limit human interaction compared to the current system. The system currently in place requires two plant workers to place the T's on the chuck at the beginning of the line and remove them before the imaging process. The design used for this project should also be able to seamlessly integrate with the current conveyor system. There are several overhangs and space limitations on their current conveyor and the team's design needs to fit within these parameters.

Market

The primary market of this project is the end-user of the pallet ceramic stabilizer, Corning. The company will use the project in the manufacturing process of their ceramic parts benefiting the company directly. Secondary markets for this project include any manufacturing services that maneuver fragile cylindrical parts along a conveyor. This would consist of other ceramic manufacturers, motor vehicle manufacturers, and other companies developing emission control systems.

Assumptions

In order to complete the project in the required timeframe, the team needs to make some vital assumptions. The team is assuming that the pallets and conveyor itself remain level during the transporting process. Additionally, the team expects the data and measurements received from our sponsor to be accurate and precise. This means that the pallets are uniform across the plant. Lastly, the team assumes that the manufacturing plant conditions will remain the same throughout the project duration.

Stakeholders

The major stakeholders for this project include the sponsors from Corning, Jeffery Roche and Jeffery Stott, the team's academic advisor Dr. Eric Hellstrom, and the senior design instructor Dr. Shayne McConomy. Each of these stakeholders have an interest in or will benefit from the successful completion of the project. Although this project is a custom design for Corning's manufacturing plant, the team was able to establish other possible stakeholders that could benefit from this project. These other stakeholders include other ceramic manufacturers, such as FineWay Ceramics, who are part of the secondary market.