Needs Identification and Problem Statement

The clients have made it clear that a major change in their infrastructure and current system is not what they want. Instead, they want a means to make their current system more efficient. There are many initial ideas that fit the constraints, but most fall under the following categories: subtle tweaks to the actual hardware or software of the system, improved monitoring and analyzing systems with appropriate measures. Regardless, the current v-curved production line will be maintained and a focus on making that system more efficient will be the objective. The following is a list of client needs:

-**A means of measuring the speed of the conveyor at various points on the production line**
-needs to be able to know and analyze what the optimal speeds of the machinery should be (10% faster on either side of slowest part on conveyor belt)
-be able to display desired information
-be able to show recommended actions based on data
- needs to be easy to use and not confusing (color coding based on status would work well)
*- clients are willing to manually change and fix problems on conveyor if data shows that a problem is present
-process needs to be cheap
-needs to be reliable

Problem Statement: Mill Street Brewery needs a cheap, reliable, easy to use system that can analyze their conveyor belt, ensure that it is running at optimal speeds, and be able to convey the information in a convenient manner.

User Benchmarking: Although we don't know exactly how Mill Street Brewery analyzes their current system, there are already many systems used that measure the rate of objects, particularly objects on conveyor belts. Motion sensors, using sonar, or lasers already exist, and can measure the speed at which translational

motion takes place. This can be applied to the bottles as they are being filled. Interior methods also exist that can be integrated into the conveyor belt itself.

An example for an ideal v curve product line would be 33000 bpm at depalletizer, 30000 at filler, 33000 at labeller, and then increases by approximately 10% for further sections. This system allows the line to manage flow intelligently, but also would stop frequently between section to section due to lack or buildback.