Project Deliverable B - User Needs and Problem Statement

Benchmarking

Conveyor Systems:

https://www.dornerconveyors.com/resource/conveyor-optimization-and-automation

https://www.cisco-eagle.com/category/3352/10-ways-to-optimize-conveyor-productivity

Conveyor Speed Tracking:

https://www.sxddck-en.com/conveyor-belt-monitor/conveyor-belt-splice-monitor.html?gclid=Cj0KCQiAz9ieBhCIARIsACB0oGLo8fYZUhkQCSsFDcjc7qXrm_9Z12vAL27MESdeFJ7cuOLthHCmYBcaAl3IEALw_wcB

Manufacturing Data Analytics:

https://www.altair.com/manufacturing-analytics/

Methods of tracking Production Speed:

https://www.allaboutlean.com/production-speed-measurements/

Problem Statement

A need exists for Robert Ritchie and his fellow supervisors to find the optimal speeds of their beer packaging process to ensure it is “always at top efficiency (Project Background, Brightspace)”. The solution must have an attractive and straight-forward interface that uses a flexible algorithm, based on the V-Curve Theory, to report optimised speeds of each unit and make recommendations on how to achieve them.

Prioritising Needs

Priority	Need	Design Criteria
5	“Looking for a solution that gives can/bottles per minute and kegs per hour (Ritchie, Client Meeting Transcript)” (KPH) Calculation/ algorithm	Input desired filler speed then output ideal speeds of each unit (cans/bottles per minute or hour). **What the optimised speeds are** in both kegs/hour and cans per minute
5	User interface showing the speed of all the equipment and conveyor **Easy to use**	**Detailed information on an easy-use interface.** Show: Suggested speed in order to optimise yield and current speed of filler station.
3	Must be **maintainable** and **adapt** to expansion of the brewery and adapt to new products.	**Adjustable algorithm** that can add new conveyors into its functions and adapt to new processes.
2	Budget of the design team: 100$	**Maximum 100$**
5	The system should **identify areas that are and are not running at optimal rates**.	**Identify which units in the process are not at the ideal speed** within a range (ex. ± 100 cans/min).
4	It should be able to **make recommendations** if the speeds are not optimal.	**Make recommendations** on which units may be the source of inefficiency in the line.