

## Needs Identification and Problem Statement

### Identified User Needs from First Interview

- Speed data from conveyors can be inputted to do an analysis of the system
- System should identify areas that are and are not running at optimal rates
- System needs to be easy to use and properly identify areas that are non conforming
- System should be able to make recommendations if the speeds are not optimal
- System should include a clear and useful user interface for the operators
- The improved design must increase the speed of all machines across the board
- The speed of products leaving the conveyors should increase by 2%

### A device that adjusts and optimizes the efficiency of an operation would likely be expected to:

- Continuously monitor and analyze various operational data
  - Such as
    - Energy consumption
    - Production output
    - Equipment performance
  - Use this data to identify inefficiencies and opportunities for improvement
- Implement adjustments or optimizations in real-time to improve the efficiency of the operation
- Provide detailed reporting and analytics on the performance of the operation, including the impact of any implemented optimizations

### Interpreted User Needs Statements

- The improved design must contain a user-friendly interface that is accessible to all 27 employees who use the machine on a day-to-day basis.
- The improved device should include a faster filler station in the packaging process (because the is currently being done in the bottleneck process and it affects the production capacity of the entire line)
- The improved device should “identify [stations] that are not running at optimal rates”
- The improved device should “identify [stations] that are not conforming”
- The improved device should be able to “make recommendations if the speeds are not optimal”
- The device should be capable of obtaining input from the conveyors in order to give an accurate insight into machine performance, and alerting employees when a machine is not running at optimal capacity.
- The improved design should be able to monitor and analyze various operational data including energy consumption, production output, and equipment performance.
- The improved design should increase production speed of the entire operation by 2%.
- Each machine previous to the filler should be 10% faster than the machine previous to it.
- The design should do minimal harm to the environment.

## Prioritized User Needs Statements

1. The improved design should increase production speed of the entire operation by 2%.
  - a. Each machine previous to the filler should be 10% faster than the machine previous to it.
2. The device should be capable of obtaining input from the conveyors in order to give an accurate insight into machine performance, and alerting employees when a machine is not running at optimal capacity.
3. The improved design should be able to monitor and analyze various operational data including energy consumption, production output, and equipment performance.
4. The improved design must contain a user-friendly interface that is accessible to all 27 employees who use the machine on a day-to-day basis.
5. The design should do minimal harm to the environment.

## Derived User Needs Statement

There exists a need for the Mill Street Brewery Company to increase production speed by 2% across all machines by implementing a device that is able to identify stations that are not performing at optimal rates, make recommendations for these stations, and provide accurate real-time operational analyses of energy consumption, production output, and equipment performance.

## Benchmark user perceptions of similar products

### Stray Dog Brewing Company

Location: Orleans, Ottawa ON

- Revenue: < \$5 million/year
- Employees: < 25 (11-25)

Reviews According to BeerAdvocate.com out of 38 ratings:

- Average rating: 4.8/5

Google Reviews Rating out of 229 reviews:

- 4.9/5

### Sources

- <https://www.zoominfo.com/c/the-stray-dog-brewing-company/403389815>
- <https://www.beeradvocate.com/beer/profile/47482/>
- <https://straydogbrewing.ca/pages/faqs>

### Bicycle Craft Brewery

Location: Industrial Ave, Ottawa ON

- Revenue: < \$5 million
- Employees: N/A

Reviews According to BeerAdvocate.com out of 132 ratings:

- 3.54/5

Google Reviews Rating out of 147 reviews:

- 4.7/5

## Sources

- <https://bicyclecraftbrewery.ca/>
- <https://www.beeradocate.com/beer/profile/36715/>

## **Unknown information that needs to be clarified or defined:**

- Any personal preferences for the design of the improved device?
- Are there any specific machines that run the slowest?
  - Other than the filler station in the packaging process
- Preferences on how input information would be taken?
  - Perhaps some sort of pressure sensor?
- Preferences on how employees would be alerted?
  - Perhaps through a mobile app, or a pager?