



Improving Process Monitoring for Tyson Foods, Berry Street



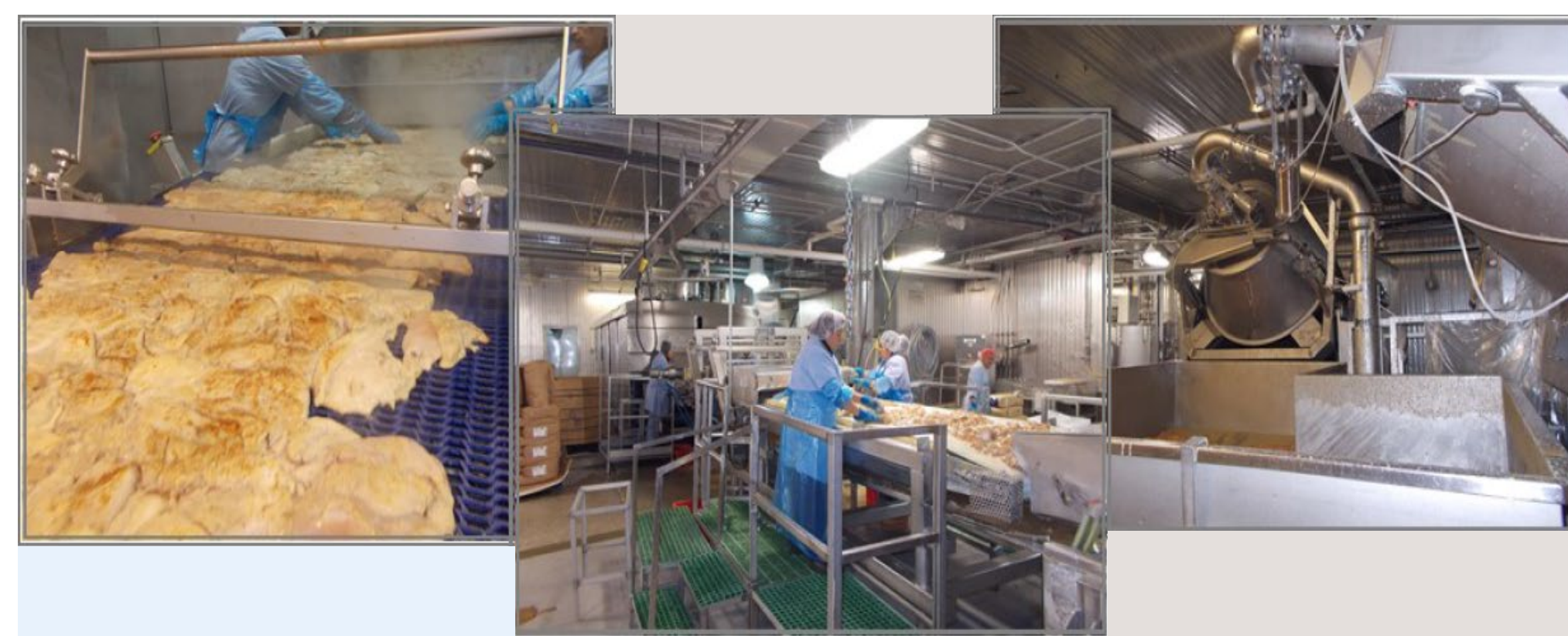
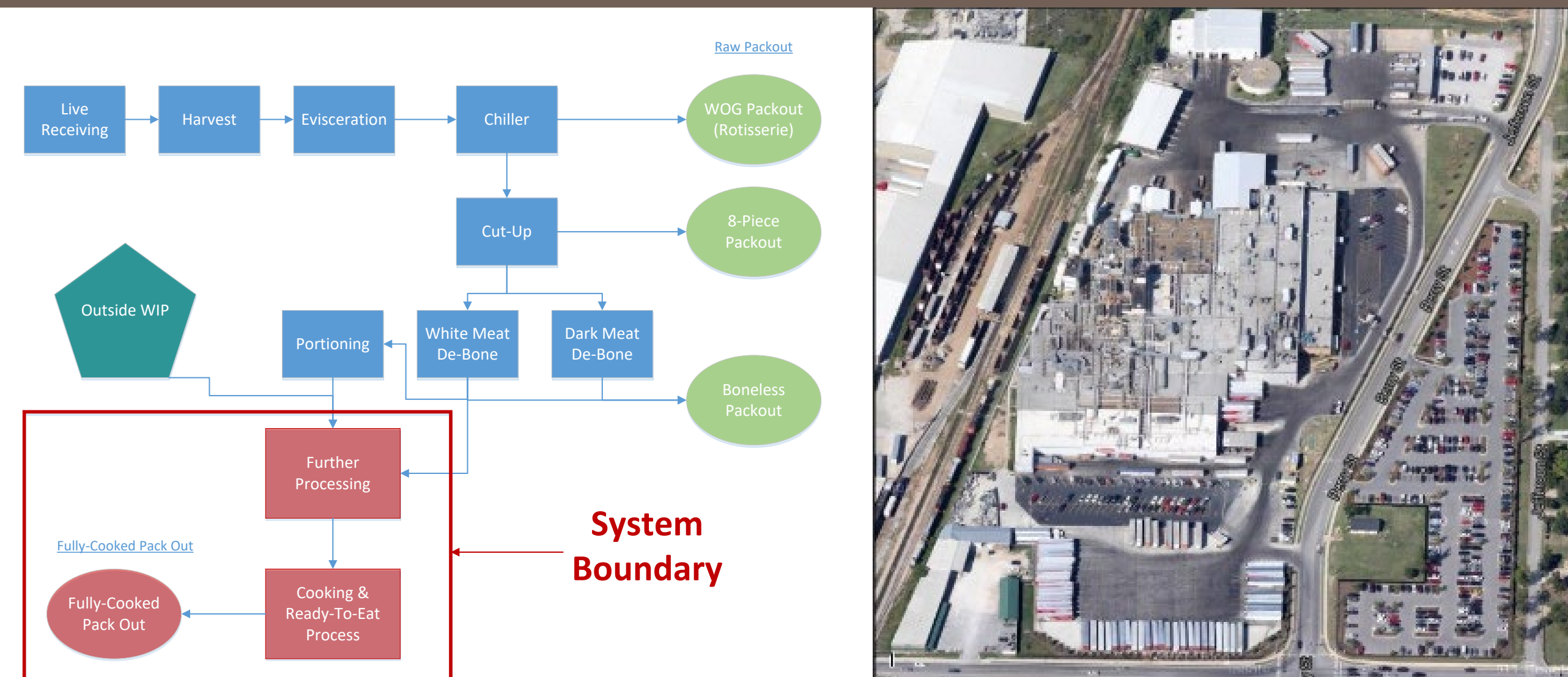
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ABSTRACT

The Berry Street facility, located in Springdale Arkansas, is one of Tyson Foods Inc.'s premiere poultry production facilities. Focusing on Line 1: Further Processing within the plant, this project targets the current process monitoring system. The current system is paper-based, resulting in both incomplete and missing records. In order to standardize and improve this process, our group has computerized line 1's process monitoring. Using a coding platform called Django, we created a web-based tool to collect and archive data. This tool mirrors the paper process, but allows the data to be stored in an organized fashion for later analysis. Increasing yield on Line 1 is the main objective of this project, and based on research, computerizing the process monitoring system should result in increases and therefore cost savings for Tyson. Since the beginning of our project, Tyson has begun to develop an enterprise wide computerized process monitoring system called the Tyson Production System. This new system will incorporate process control as well and will generate cost savings across Tyson's 20+ production facilities. As a secondary objective, we completed a simulation of Line 1 in Arena. This model was completed in order to quickly test any changes to the major processes in the line with statistical backing. Through the completion of these two objectives, we believe we have given tremendous value to Tyson, which will later generate a large amount of cost savings.

BACKGROUND

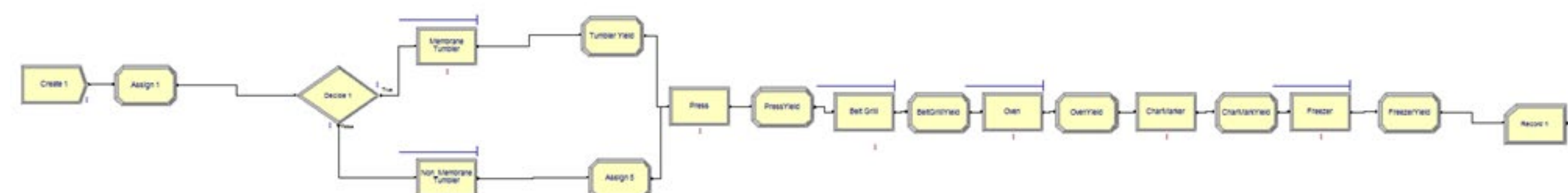
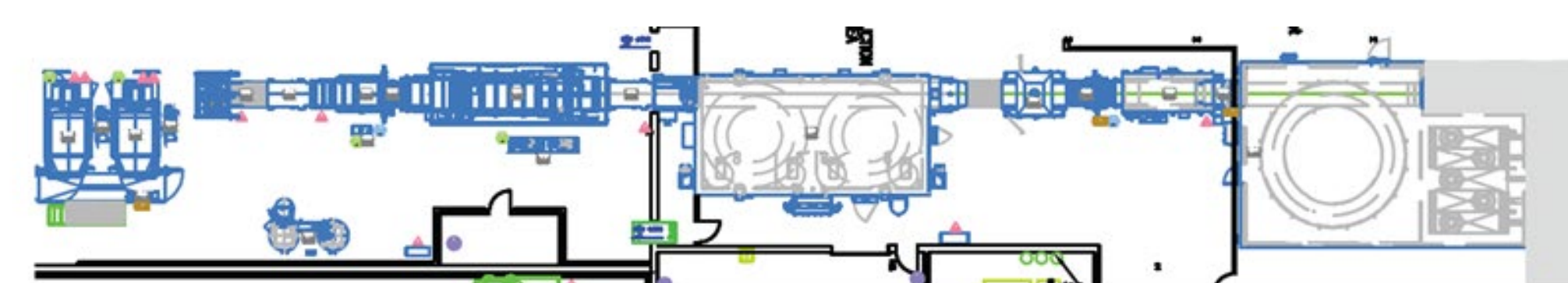
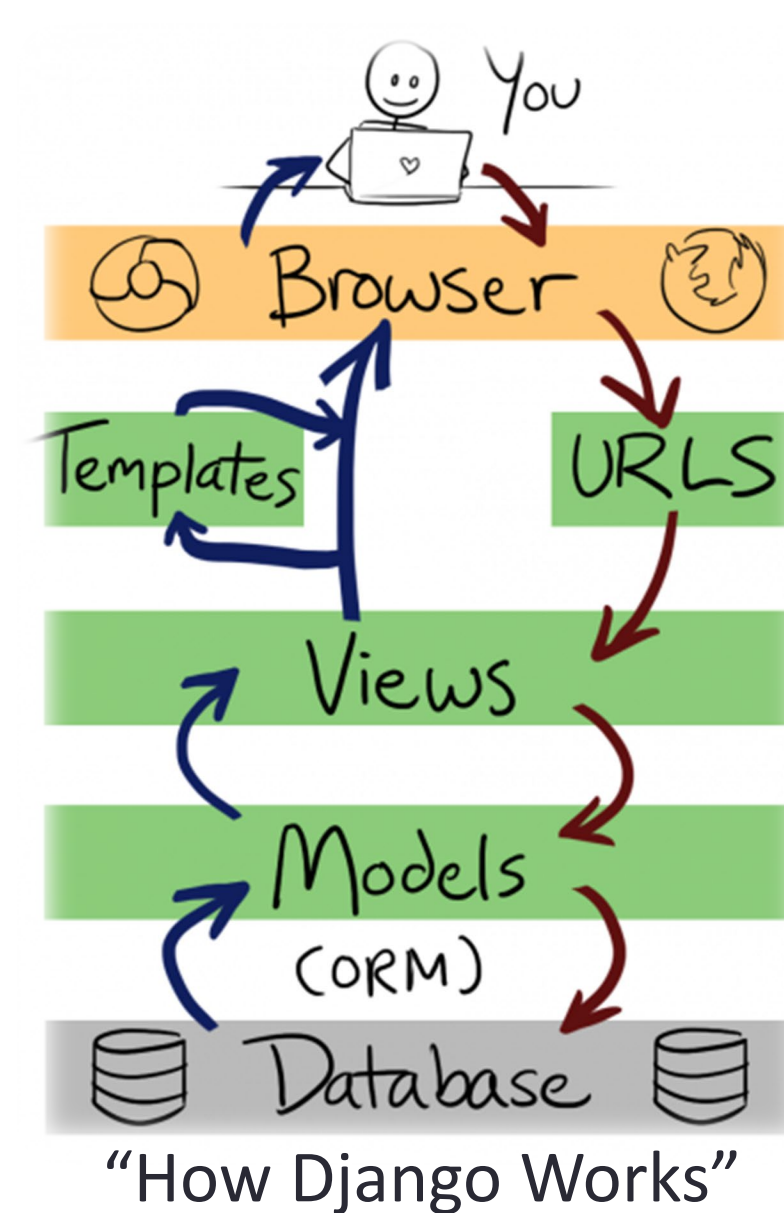
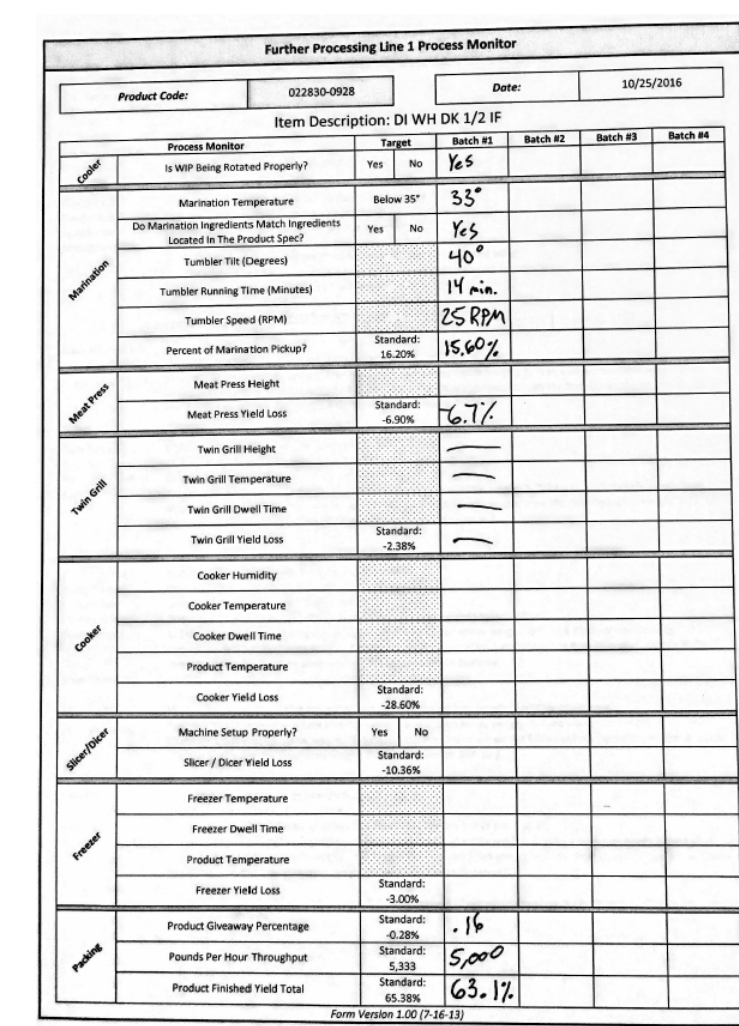


OBJECTIVES

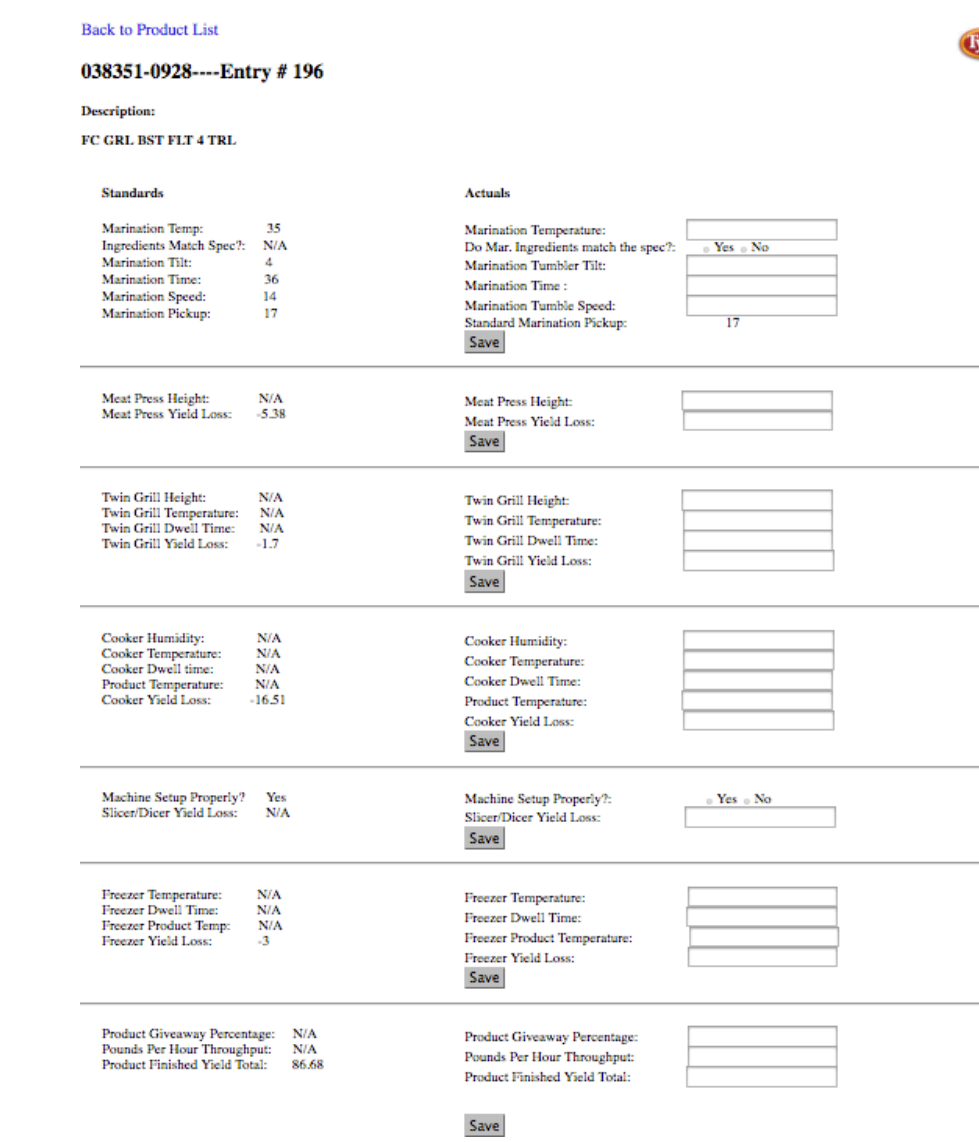
- Increase overall yield on Further Processing Line 1
- Simulate Further Processing Line 1 in order to test potential changes to the line

METHODS

- Method 1: Preliminary Analysis
 - Our team conducted basic analysis on yield margins to determine potential profit increase
- Method 2: Computerized Process Monitor
 - By utilizing Django, we came up with a new, computerized process monitor for data collection
- Method 3: Further Processing Line Simulation
 - By finding relationships from historical data, we were able to simulate a product run fairly accurately.



RESULTS



Using Django as a platform, we created a web-based version of the original paper document seen in the Methods section. The web page consists of two columns: the standards on the left and the actuals on the right. This maintains the original functions of the original document, but allows the actuals to be stored neatly in a database as opposed to stacked on a desk.

- **S** Safety
 - Zero Recordable Incidents
- **P** People
 - Taking care & investing in our Team Members
- **Q** Quality
 - Producing product to customer specifications
- **D** Delivery
 - Delivering product on time, every time
- **C** Cost
 - Achieving economies of scale

In parallel with our project, Tyson began to rethink and redesign their process control and process monitoring as an enterprise. They are in the process of creating a system based on Lean Concepts and the five company pillars to the left. To achieve this they have created a visual management system for process control and are in the process of creating a computerized process monitoring system, using concepts sparked by the design of our system.

Run	Lbs. / Min	Lbs. / Hr.	Wait Time (Min)
1	100	6,000	0
2	105	6,300	0
3	110	6,600	0
4	120	7,200	0
5	130	7,800	0
6	140	8,400	0
7	150	9,000	0
8	160	9,600	0
9	170	10,200	8.226
10	165	9,900	2.649
11	164	9,840	1.596
12	163	9,780	0.4128
13	162	9,720	0.0114
14	161.5	9,690	0.0006
15	161	9,660	0.0006
16	160.5	9,630	0

Using our simulation as a tool, we varied the input lbs. to the front of the line. This helped to identify bottlenecks and presented a different avenue of determining maximum theoretical throughput.

Theoretical Maximum:
9,630 lbs. Hr.

VALUE OBTAINED FOR TYSON

- Tyson is internally designing a computerized process monitoring system, using concepts sparked by the design of our system. This new system will be enterprise-wide spanning more than 20 facilities and will result in millions of dollars in savings.
- Once Tyson has created a robust data source, we have implanted the idea of using simulation to statistically analyze their processes.