

I2.01 - Toyota Paint Production Line

Bryce Garza and Emily Guajardo



Problem Statement

With the implementation of a new small-parts paint production line at the Toyota San Antonio plant, our team has been tasked with evaluating the maintainability and performance of its operating speed. This new paint line will service axles and small components, specifically for Toyota trucks and the battery cases for the upcoming electric Toyota Tacoma.

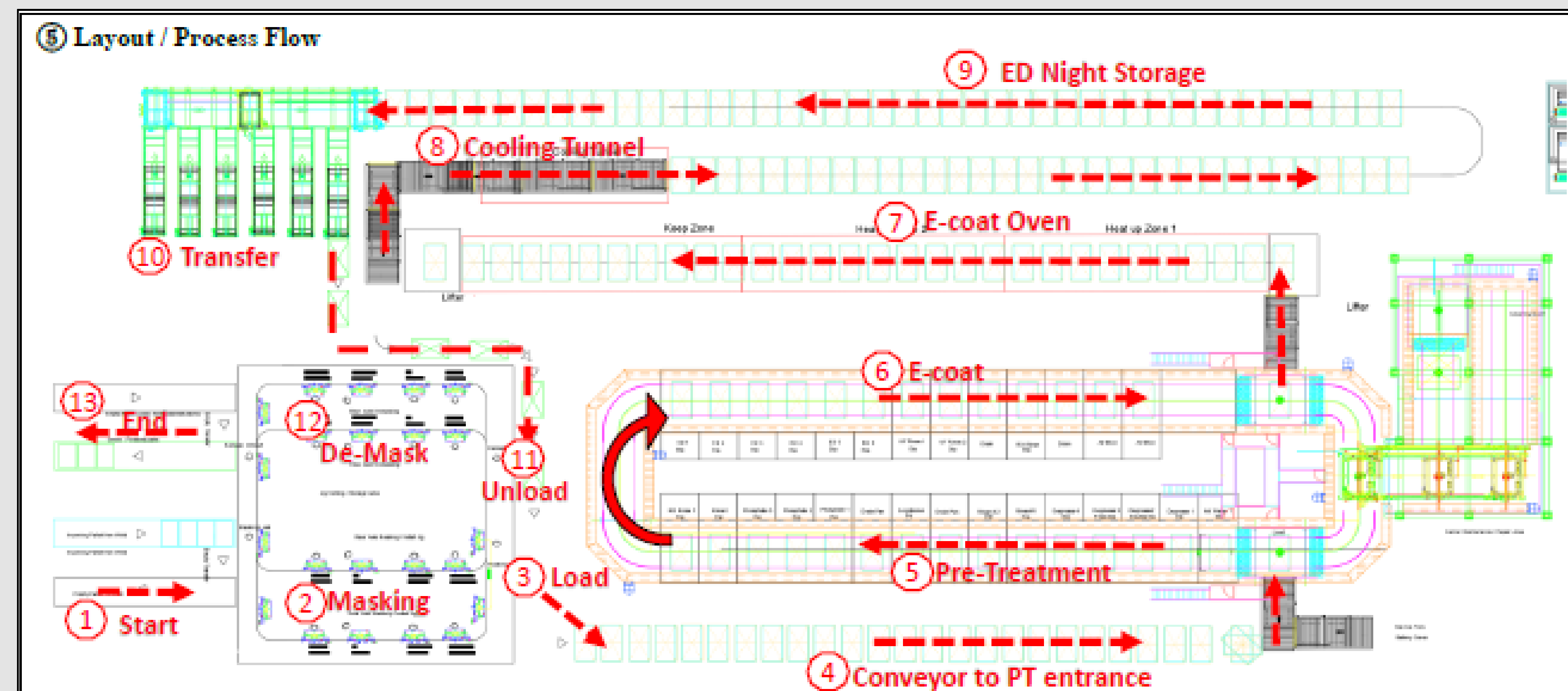
Project Purpose

Our project aims to use Arena Simulation to model the new paint line, test the maintainability of its operating speed, and determine settings that support smooth flow and efficient performance. The goal is to optimize the line so it can meet current and future production requirements.

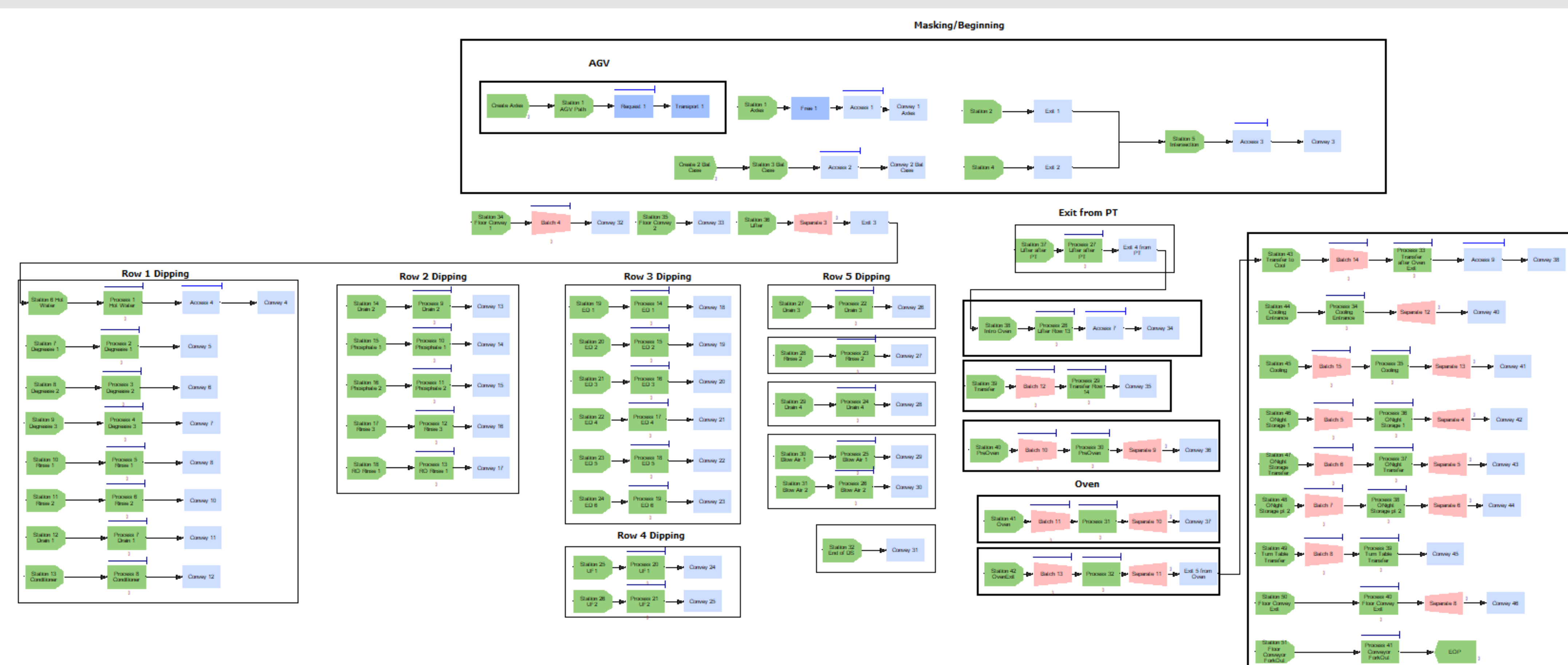
Project Objectives

- Evaluate whether the paint production process will function effectively within new operating environment.
- Identify potential bottle necks and failure points.
- Determine opportunities to improve process speed and optimize overall output across the system.

Paint Production Line



Arena Simulation



Results

Our team successfully developed a fully functional Arena simulation of Toyota's new paint production line using real cycle-time and process data from the Japan plant. The validated model confirmed that the system layout, operating speeds, and flow logic support feasible output under the planned production environment.

Methodologies

DMAIC:

Define phase

Obtained clarity on key developments and the expectations of our project sponsors.

Measure phase

Collected relevant data information from sponsors, baseline metrics of Paint Line, for proper use in simulation software.

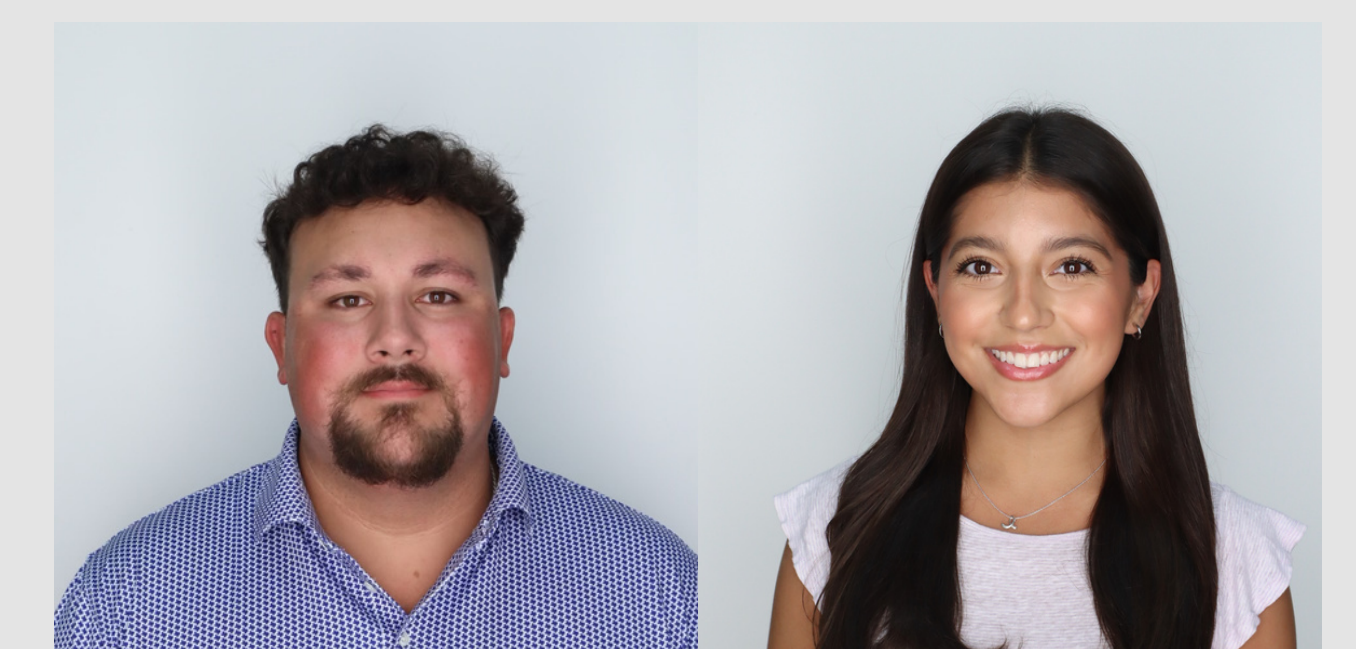
Analyze phase

Analyzed inputs and outputs of collected data through to find optimal speeds and potential bottlenecks.

Completed Work

- Created a running model of the paint production line.
- Ran the given numbers to confirm feasibility of the process in this new layout.
- Ran tests to check for optimality and to detect critical areas.
- Conveyed our findings.

Group Photo



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Acknowledgments

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