Caddy Car Wash – Automation for Arcamed

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Problem Statement

Arcamed faces operational challenges due to its reliance on manual cleaning methods, resulting in inconsistent process durations. This inconsistency exposes the company to risks in validation testing and overall production efficiency. Moreover, human error threatens product quality and regulatory compliance, jeopardizing the safety and reliability of medical trays. These issues collectively amplify lead time variability in Arcamed's manufacturing process, compromising its commitment to delivering custom products to valued customers.

Client Background

- Arcamed, LLC is a contract manufacturer of medical cases and trays, headquartered in Indianapolis, IN
- Medical cases (caddies) are manufactured by customer use case and external requirements.
- Focus on customer service, design, quality, and delivery.
- Key during growth: Exceeding expectations while maintaining principles.

ARCAMED

Methodology

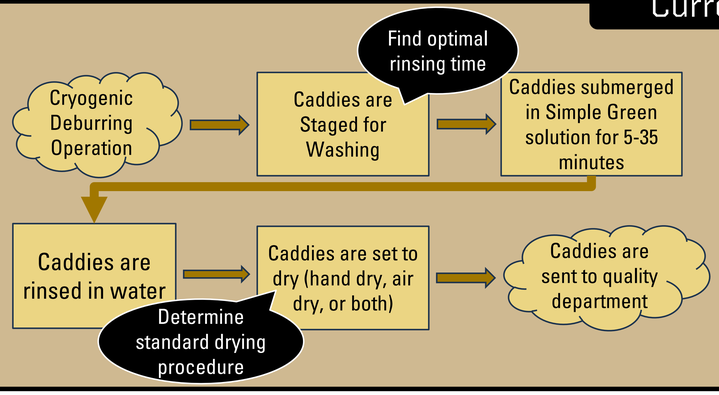
- Analysis of current manufacturing process
- Iterative system research
- Integration and Automation
- Design Review
- Determine Return on Investment
- Recommend Solution

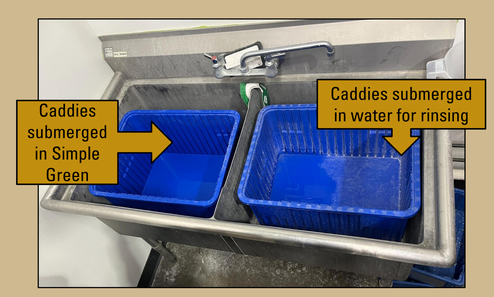
Results

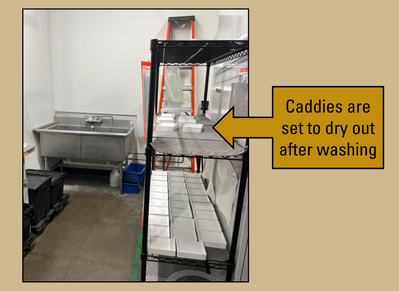
Custom Solution with UR Cobot

- Stage 1: Infeed
  - Caddies loaded into mesh basket by an operator
  - Belt Conveyor System
- Stage 2: Caddy Processing
  - Ultrasonic Cleaning Tank
  - Rinsing Tank
  - Hot Air Dryer
- Stage 3: Outfeed
  - Gravity Belt
  - Caddy Collection in Bin

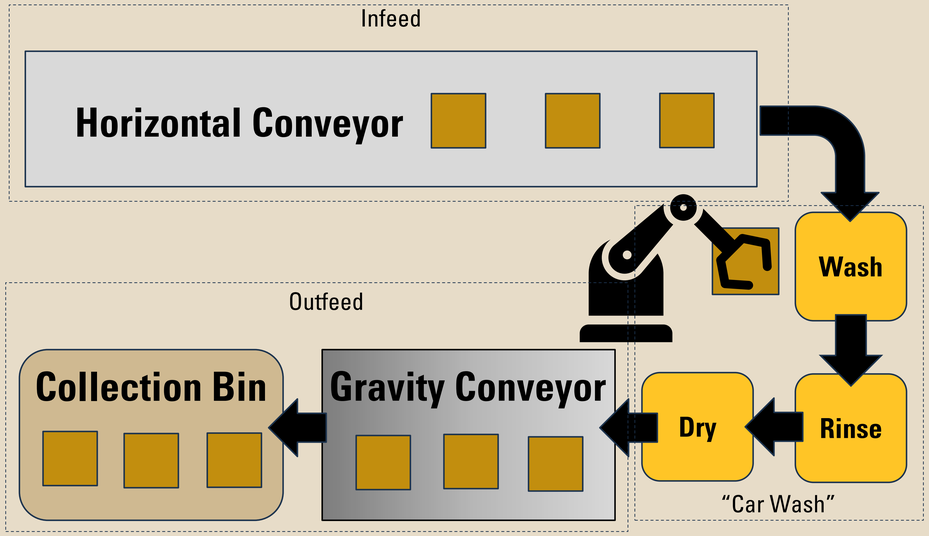
Current System Model

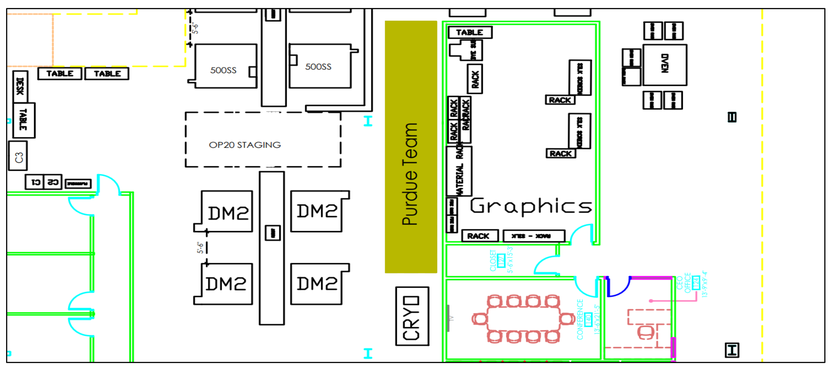






Proposed System Model





Discussion

- The solution handles automation and efficiency of cleaning the caddies from start to finish, with a three-stage system.
- A robotic arm (COBOT) will handle the automation aspect of the system, serving as the transporter of the mesh baskets
- Operator touches are minimal, as they are only required to place caddies into the basket at infeed and collect caddies from outfeed.
- Given dimensions of ~ 43' x 7', the proposed system fits, and can be expanded given Arcamed's growing production requirements.