Acuity Brands – Digital Transformation Analysis

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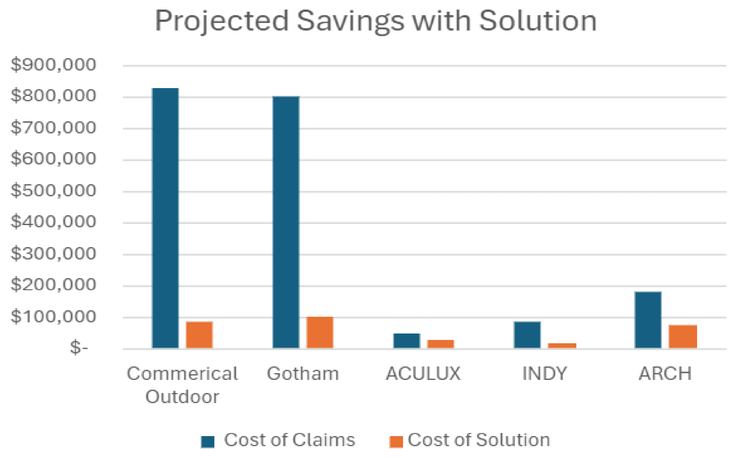
Problem Statement

Acuity Brands' Crawfordsville manufacturing facility is confronted with the challenge of improving its quality control processes. The plant has yet to benefit from the automated quality control systems, such as the ABL Vision Systems, that have been successfully deployed at other company locations. This gap has resulted in operational inefficiencies and a lack of comprehensive quality oversight. In response to this issue, Acuity Brands is initiating the focused implementation of the ABL Vision Systems to enhance quality control. The project will involve a series of targeted activities, including the procurement of necessary hardware, configuration of system components, and retraining of the system. This initiative is designed to equip the facility with advanced automated inspection capabilities, improving defect detection, reducing dependency on manual and potentially unreliable inspections, and ensuring a higher standard of product quality. This approach aims to streamline operations, increase product quality, optimize productivity, and pave the way for sustainable growth and continuous improvement at the Crawfordsville facility.

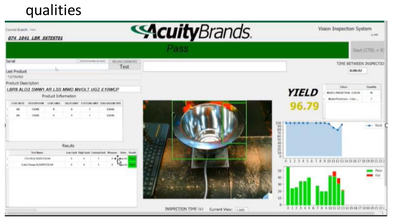
Client Background

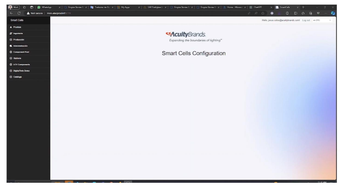
- Founded in 2001 in Atlanta Georgia
- Manufactures Commercial, Public, and Industrial Lighting Solutions
- Production based in US, Canada, and Mexico | Transitioning to Industry 4.0
- 4 billion in sales in 2023
- Products used in retail, healthcare, education, hospitality and government



Methodology

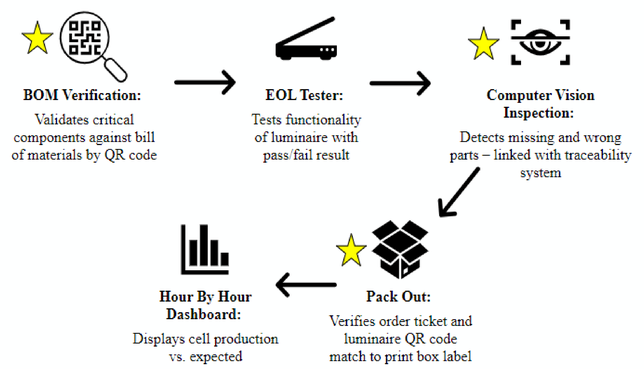
- Make Observations on the cell and workstation level to suggest improvements
- Create a priority list of cells needing the ABL Vision system (below) to validate luminaires' exterior qualities



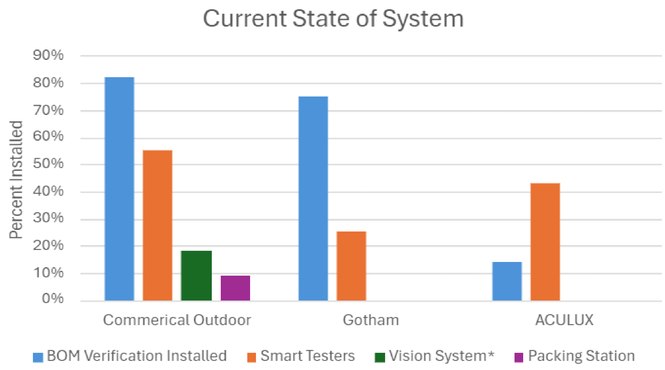


- Input data into the Acuity database and Smartcell app (see above) for each cells specific system components for the electrical testers and vision systems to communicate with.
- Create an action plan to integrate one or more of the following digital features;
  - Overhead camera on the cell level with AI that can track the luminaires transfer between workstations
  - Camera within the workstation that scans a QR code to track the luminaire transfer between stations
  - Pairing employee IDs with their workstation to track performance metrics

System Model



Factory cells were upgraded to the Digital Focus Factory Cell model shown above by adding the components denoted with a star



Results

Goals Achieved

- Learned the positive and negative qualities of Mexico Digital Focus Factory to prepare for Crawfordsville transformation
- Examined the applicability of the ABL Vision System in each production cell to ensure cost-effectiveness and operational suitability
- Implemented ABL Vision System across key production cells

Benefits and Long-Term Impact

- Reduced defect rates and quality complaints with the ABL Vision System; aimed for enhanced product quality standards
- Boosted production throughput and minimized downtime through advanced operational technologies

Discussion

Major Roadblocks:
- Employee Acceptance of Digitization
- Malfunctions on the floor
- Initial Installation disrupting production

Moving Forward:
- Expanding Digitization especially in Mexico
- Vision model for smaller products
- Vision System ML model could be improved
- Scanning process standardization
- Employee Check-In by Cell to save labor costs