Team 521: Rockwell Automation Manufacturing for STEM Engagement

FAMU-FSU College of Engineering

Rockwell Automation

Carlos Aceituno | Tristian Belardo | Leah Bergman | Xavier Hammond

Objective

To **educate** and **engage audiences** in manufacturing engineering through an interactive, automated button-making demonstration.

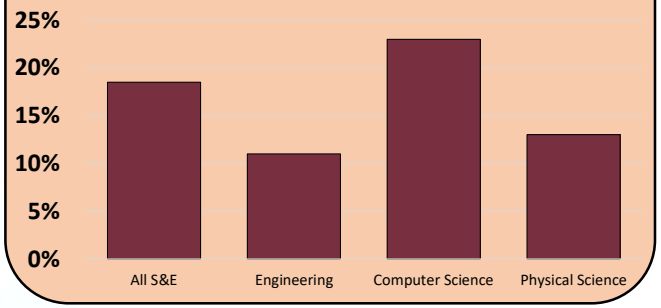
Project Background

STEM education benefits from **hands-on learning**, but many K-12 students have limited exposure to industrial automation. We bridged this gap with an automated button pin machine that showcases manufacturing concepts and industrial automation while serving as an **interactive educational tool** for students.

Why It Matters

Only 20% of US high school graduates are prepared for college-level STEM coursework.

Projected Increase in Employment for Science and Engineering Occupations by 2030 (Dell Inc.)



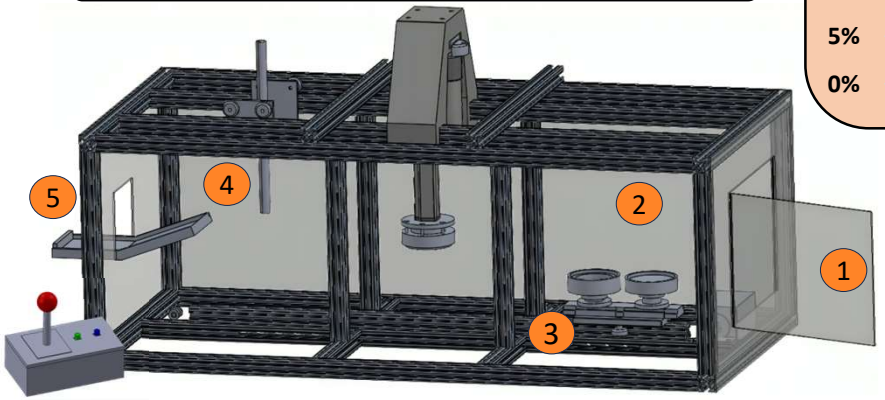
PLC Implementation

The Allen-Bradley CompactLogix PLC **initiates and coordinates the system** through safety interlocks and sequence control.

Interfaces to implement code in:

ARDUINO & Rockwell Software Studio 5000

Product Design



1) User-Safe Input Door
2) Polycarbonate Enclosure
3) Sensor-Controlled Conveyor
4) User-Controlled Output Claw
5) Output Shelf

Future Work

- Further safety features.
- Implement industrial sensors.
- Develop a user-friendly human-machine interface.

Scan the QR Code to navigate to our team website and learn more!

Engineering curiosity— one button at a time.