Spot Tag Lamination Machine

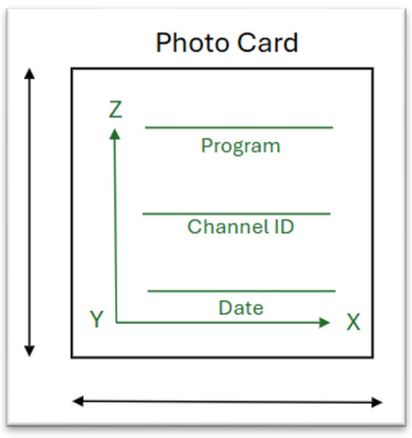
Team Members: Josiah Collins, Ismael A Cuevas, Fabian Frausto, Anthony James Guanzon, Mayra Molina, Vanessa Sanchez
Faculty Advisor: Kurt Sawitskas
Boeing Advisors: Carrie Laponza, Teo Masri, Jonathan Fish, Mack Mason, Cam Massey
Departments of Mechanical Engineering, Electrical Engineering, and Engineering Technology
College of Engineering, Computer Science, and Technology

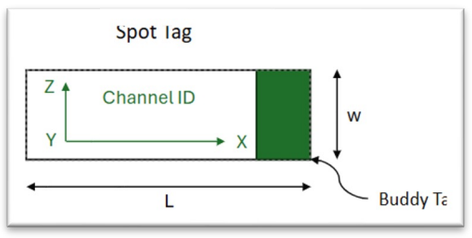
Project Background

Boeing currently relies on manual processes to laminate spot tags used in instrumentation testing. This approach is tedious, time-consuming, and inefficient, creating a bottleneck in test preparation and increasing the potential for human error. Automating the spot tag lamination process is critical to streamline test operations, minimize manual labor, and enable engineers to focus on higher-value testing activities, ultimately improving the overall efficiency and reliability of Boeing's instrumentation testing workflows.

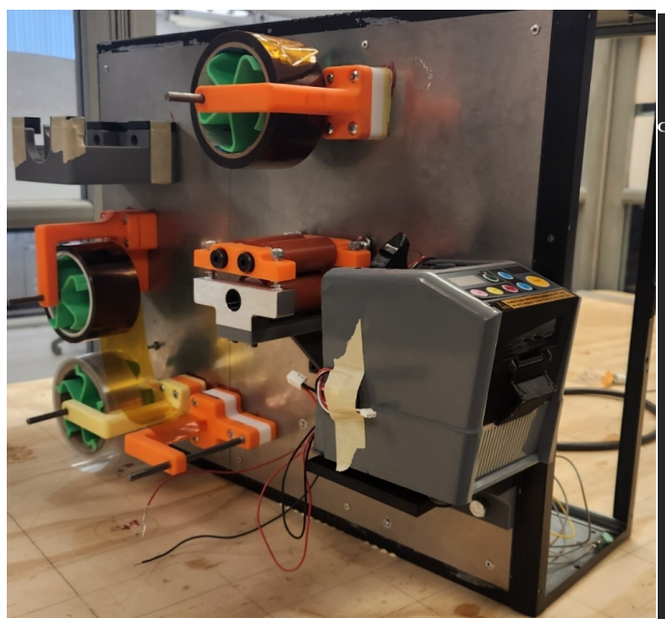
System Requirements

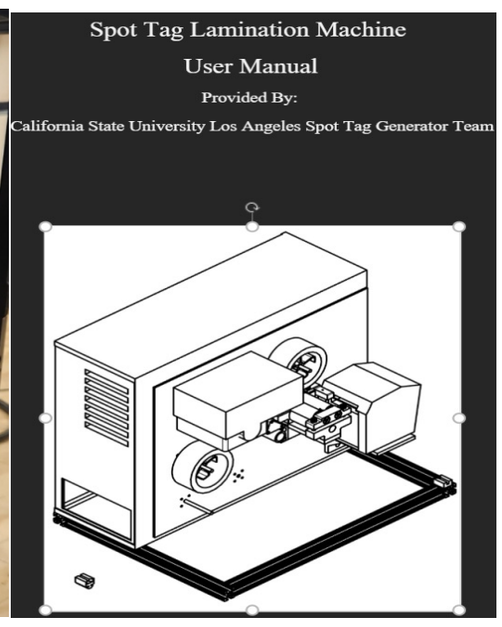
- Print spot tag with a width of 0.5 in. ≤ w ≤ 1.0 in.
- Print spot tag with a length of 1.0 in. ≤ L ≤ 1.5 in.
- Print photo cards no larger than 4 in. x 4 in. & no smaller than 2 in. x 2 in.
- Have a buddy tab along the short dimension side with no adhesive for easy removal
- Operated by a single-person.





Project Outcomes







Spot Tags

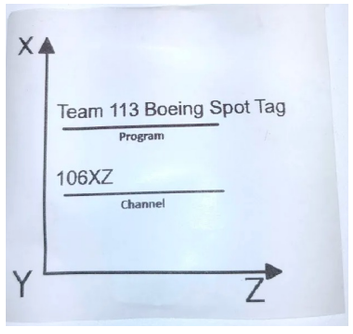
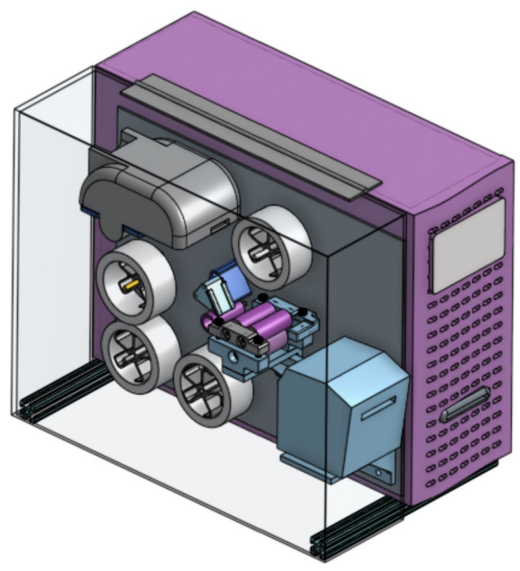
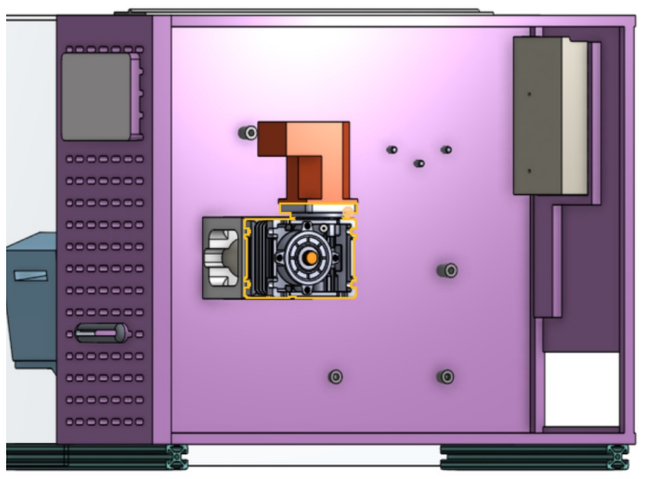


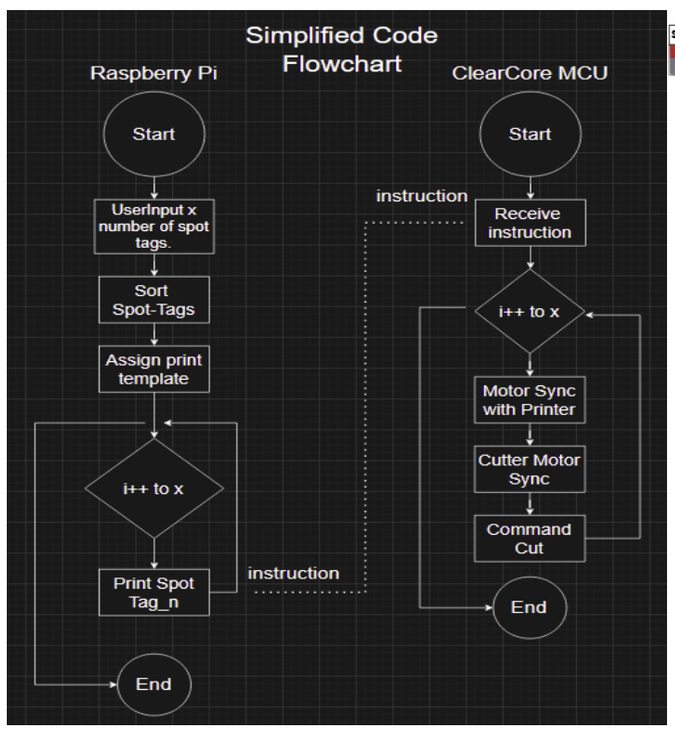
Photo Cards

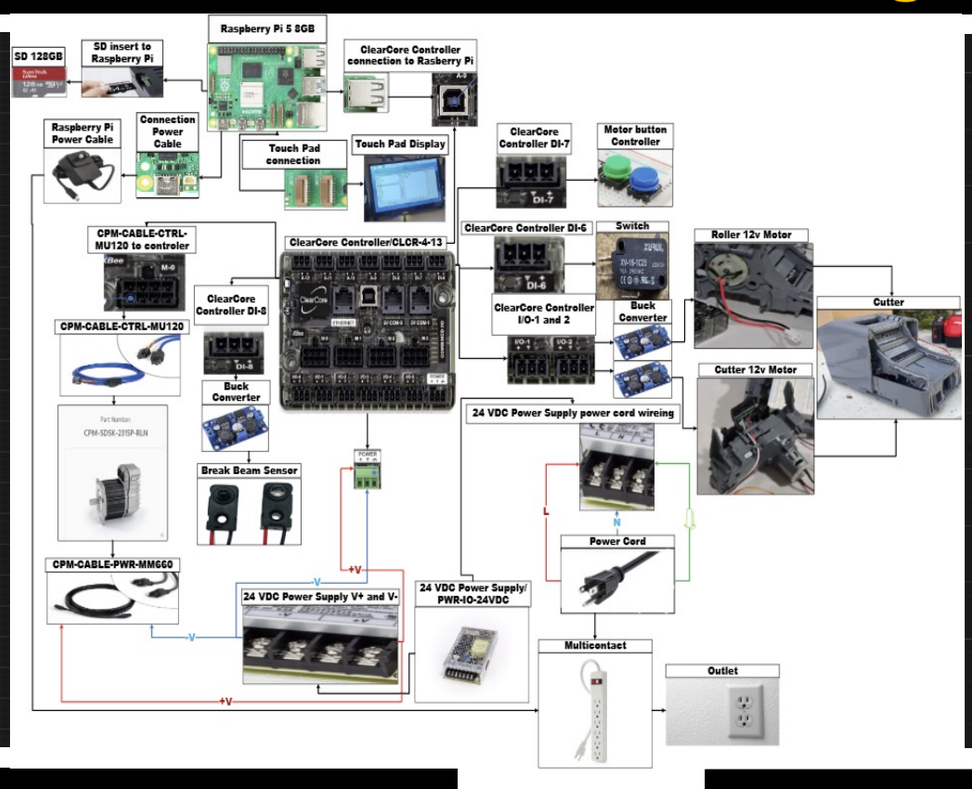
CAD Design

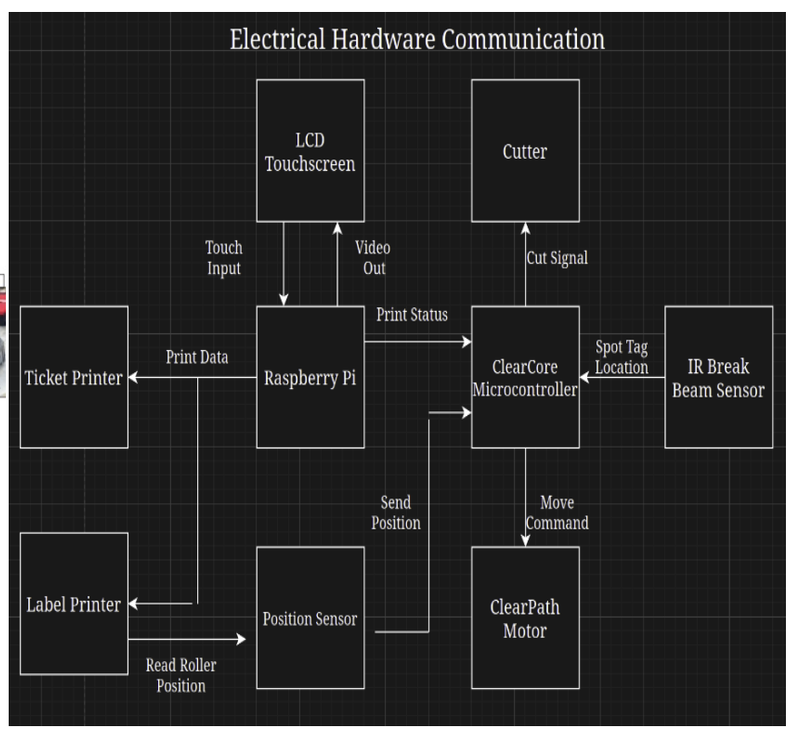




Electrical and Software Diagrams







Conclusion

- Raspberry Pi and ClearCore MCU was integrated
- Electrical components were tested and inserted into machine
- Met the weight and spot tag size requirement
- Printer was able to print spot tags and photo cards
- Created a user manual for Boeing

Acknowledgements

We would like to thank our Cal State L.A. advisor Kurt Sawitskas and Boeing advisors for their advice and guidance throughout this project. We would also like to thank the ECST Department for allowing us to utilize their Senior Design Lab and Makerspace.