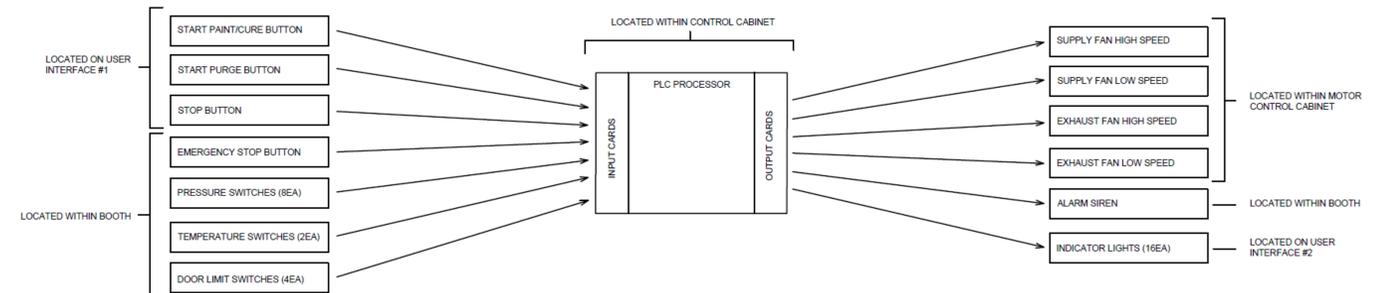


Automatic Paint Booth Ventilation

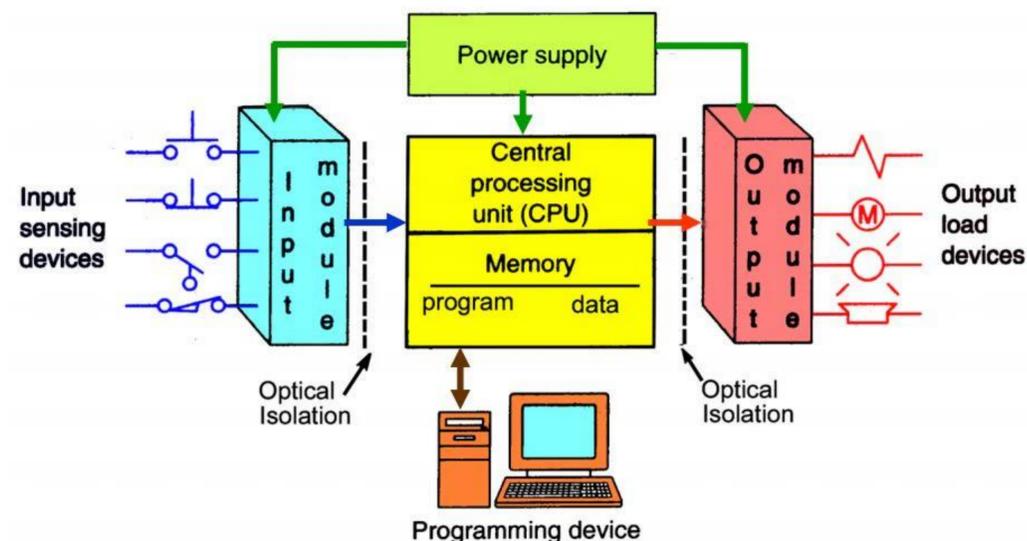
Problem and Solution

- For paint to cure properly, air flow must be maintained during the entire curing process.
- Proper air flow is also essential for the health and safety of those working within the paint booth.
- Automatic ventilation control of the booth will ensure that the air flow is sufficient while personnel are painting, as well as maintain the proper air flow when operators have left and the paint is curing.
- PLC system will monitor conditions within the booth and ducting, and the supply and the exhaust fans will be adjusted accordingly.

System



Methods PLC System



Conclusion

- The PLC control system was able to take user inputs and adjust the booth air flow for the desired setting.
- Safety of the booth was increased as the system will shut down automatically and sound a warning siren in the even of unsafe conditions.
- The booth functions as desired and fixed the problems that were indented to be addressed.
- A cool improvement that could be added to version 2 of this project would be to use VFD's (variable frequency drives) on the supply and exhaust fans instead of multi speed motors. This would allow for more precise control of the air flow.

<https://www.machinedesign.com/learning-resources/engineering-essentials/article/21834250/engineering-essentials-what-is-a-programmable-logic-controller>