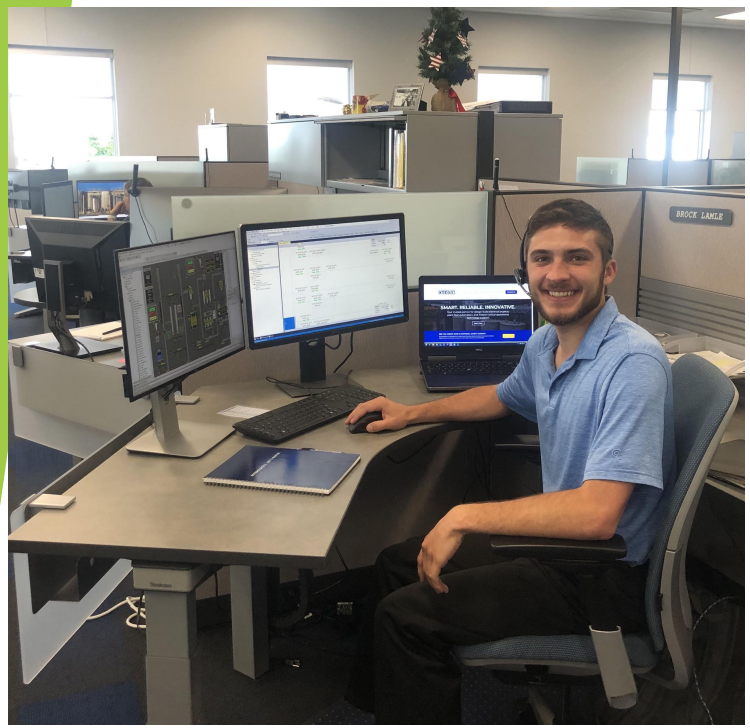
TECHing the Future



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Part I: Overview of Workplace

Interstates focuses on meeting electrical, automation, and operational technology needs for companies around the world. They have tackled complex challenges and developed innovative solutions for over sixty years. Through treating each other like family, they have built a team that focuses on trust, integrity, dependability, quality, and support. These elements have built a strong foundation and have been the key to their success.

Part II: Workplace Focus

FAT (Factory Automation Training) Camp
Projects include creating a PLC (Programmable Logic Controller) that communicates with a HMI (Human Machine Interface) to show running equipment. For this project I will be automating grain bins. Automations will include receiving, drying and loading product. The overall goal of this project is to program a PLC, create HMI displays, connect the PLC to the HMI, and run the system to make sure everything is working and communicating efficiently.

Part III: Introduce the Problem

You are a Control System Analyst and a local company contacts you about automating their new equipment. They would like you to create a PLC with a HMI display. They would like to pump water into a tank with a start and stop button. The motor needs to shut off when the tank is full and an alarm must sound until it is manually reset. They would like to see when the alarm is sounding and when the motor is running on the HMI.

Part IV: Standards, Driving and Essential Questions

- Students will examine how engineering and technology helps improve, manage, and control natural and engineered environments.
- Understand charting and the use of graphic tools in illustrating the development of a product and the processes involved.
- Understanding of PLC's and HMI's
- Basic ladder logic programming skills
- Basic HMI display skills
- Creating Tags
- What are the benefits of Automation?
- How is Automation changing everyday life?

Part V: Extern Host Role

- For this specific project, students could present their PLC to a Control System Analyst from Interstates for feedback on their system. They could also show students more complex systems and how they operate.
- Students could tour the panel shop to see the physical components of the system they have created.

Part VI: Student Learning

- Students collaborate and discuss efficient ways of programming PLC's through weekly standup meetings with peers or instructor.
- Students HMI displays can look different depending on layouts, component designs, and annimations.
- Students would be able to add additional components to their control system after meeting requirements.
- Students are able to present their ways of creating PLC's and HMI's to instructors, host, and the public.