

Rail Grinder Fire Prevention



From left to right: Samantha O'Connor, Andre Clifton, Max Skilbeck, Gentry Nuytten.



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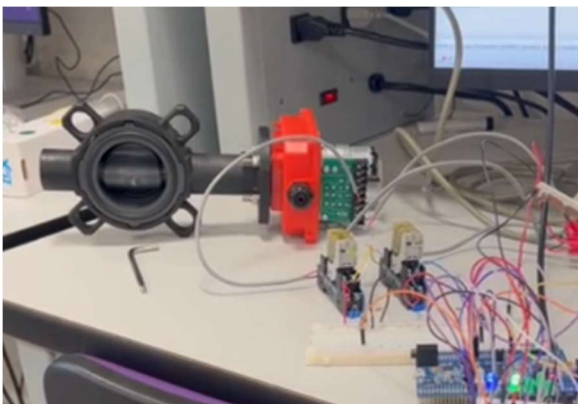
Chris Haas

PROJECT BACKGROUND & DESIGN GOAL:

Loram Maintenance of Way specializes in rail grinding. During the rail-grinding process, many sparks are produced. In some cases, a fire will start and the rail grinding machine must stop to extinguish the fire. Loram needs an improved fire mitigation system onboard their rail grinders that suppresses and prevents fires more efficiently and uses less water than their current version. **The design goal is to develop a more water efficient system to allow Loram to increase productivity during their rail grinding shifts.**

DESIGN OUTCOMES:

Design outcomes for the project include a working variable butterfly valve system to regulate the flow rate through the system, an improved nozzle selection, and a control system with user interface in the cab to monitor and change the valve position.



Control testing of the butterfly valve with a sliding potentiometer

DESIGN CONSTRAINTS:

- **Railroad Clearance** - The system must not violate railroad clearance profiles.
- **Retrofittable** - The new system needs to fit onto their current RG400 machines.
- **Use Less Water** - The system must use less water than the current version (goal being 20% less)
- **Mitigate Fires** - The new system needs to meet or exceed current fire mitigation ability.
- **Standards** - The design must meet all applicable railroad and industry safety standards.