Senior Projects 2013-2014

Team Railway Automation Solutions

TEAM MEMBERS
Kevin Danhof-EE
Randy Gee-EET
Taylor Heath-ME
Karl Larsen-ME
Levi Marchetti-CE

Faculty Advisor: Jon Coullard
Industrial Customer: Jeff Johnston

Outcome #1: Hole Detection
- Camera Determines Spike Hole Locations during Continuous Conveyor Motion.
- The Robot Moves to each Hole Location with the End of Arm Tooling Nozzles, Moving from Block-to-Block Following Two Holes at a Time.

Benefits
- Decreased Product Waste
- Automated System Can Run Continuously without Breaks
- Stepping Stone for Fully Automated Process
- Unforeseen Problems Discovered

Pre-Tec
- Division of Willamette Valley Company
- Located in Eugene, Oregon
- Focused on the Design and Manufacturing of Automated Solutions
- 185+ Custom Automated Systems in Last Decade
- Largest Custom Robotics Integrator on West Coast

SpikeFast®
- Polyurethane Product that Mimics Properties of Hardwood when Cured
- Manufactured by Willamette Valley Company
- Dispensed Manually into Holes in Railroad Ties when Spikes become Loose
- Labor Intensive and Repetitive Process

Outcome #2: Filling Process
- Robot Moves to Hole Locations
- Both Valves Dispense Fluid Independently
- Lasers Determine Fill Level and Shut off Valves to Avoid Waste