

Harjap Dhatt Singh



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Experience

Mechanical Engineer (Co-op) @ Weir Minerals Canada January 2023 – August 2023

- Worked on an Oil Sands Upgrade project from construction to close-out by keeping track of its progress compared to projections, managing the RFI process and QA releases, and creating packing and shipping releases, which led to successful, timely completion.
- Acquired advanced skills in constructing detailed 3D models from scratch and promptly reverse engineering pre-existing models for complex modifications.
- Witnessed tests, maintained meticulous material traceability, met all customer requirements, marked technical drawings with precision, hosted third-party inspectors to ensure the highest quality in the manufactured items, and ultimately guaranteed client satisfaction and reliability throughout the process.

Technical Production Support (Co-op) @ Euro Solutions Sept. 2022 – Dec. 2023

- Reworked and tested the dome CCTV cameras, which involved replacing the pigtail wire connector and installing additional hardware to secure the circuit components. As a result, the overall performance of the cameras improved by 25%, and the hardware failure rate decreased by 80%.
- Utilized a standardized procedure to reverse-engineer an electrical elevator harness for prototype development and created an instructions manual for future production.
- Learned to select the appropriate gauge for wires required for any specific project, including different types of connectors and the tools used to install those connectors.

Skills

Electrical and Electronics

- Work with DC Power Supply
- Breadboard Circuits and AWG
- Digital Multimeter
- Function Generator
- Oscilloscope
- PCB design and Soldering
- Knowledge of Industrial IPC standards

Mechanical

- Project Execution and Closeout
- Reverse Engineering
- Quality Engineering
- Familiar with Team Center
- Kinematics and Dynamics
- Fluid Mechanics
- 3D modeling in Siemens NX and SolidWorks

Software and Systems

- Autodesk Eagle
- MATLAB
- LT Spice
- Siemens NX & SolidWorks
- MS Office
- Visual Studio (C++)
- NI Multisim

Technical Projects

Engineering Design Project: Run-of-the-River January 2022 – April 2022

- Implemented the given design parameters under different flow conditions using fluid mechanics equations to determine maximum amount of energy available for conversion to electricity.

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Technical Projects cont'd

- Performed calculations by hand and in MATLAB to obtain the dependence of important fluid parameters on the structural factors of the penstock.
- Changed the design of the penstock based on the results obtained which increased the efficiency of the system by 13% and reduced the optimum turbine speed for maximum power generation by 6%.

Electronic Die

September 2021 – December 2021

- Assembled an electronic die by using through-hole and surface-mount soldering techniques where components such as Diodes, Resistors, Capacitors, and an IC chip were soldered onto a PWB.
- Inspected the solder joints for each component by hand and under microscope to ensure proper soldering.

Strength Analysis and Design of Bicycle Frame

September 2021 – December 2021

- Calculated the bending moments and forces of the bicycle frame truss by hand using the techniques learned in Statics to obtain the Safety Factor (SF) for each part.
- Determined the strength of each joint by using Finite Element Analysis (FEA) in SolidWorks and redesigned the frame (based on the results) with minor changes increasing the SF by 33%
- Investigated for a suitable material using CES Edupack to ensure improved fatigue stress limit and Factor of Safety but a reduction in the weight of the frame.

The Maze Solving Robot

January 2021 – April 2021

- Designed and implemented breadth-first algorithm using RobotC (a programming language based on C language) for a LEGO EV 3 robot to scan for walls while keeping track of its position and direction and solve any given maze.
- Implemented the Backtracking algorithm which stored all the changes in the direction and then eliminating the duplicated that were next to each other and thus, allowed the robot to return to its initial position using shortest path.

Work Experience

Wendy's Crew Member

January 2020 – Present

- Operated drive-thru services including taking orders, handling payments and delivery in a prompt but friendly manner.
- Provided exceptional customer service and trained 9 new employees in proper procedures including operation and maintenance of equipment that resulted in being awarded employee of the month thrice.

Education

BASc. Mechatronic Systems Engineering

January 2020 – Present

- Simon Fraser University, Surrey, BC
- Expected Graduation: August 2025