Varun Rana

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EXPERIENCE

SYNCRUDE CANADA LTD. | PROCESS CONTROL & AUTOMATION - ELECTRICAL CO-OP
January 2020 – April 2020 | Fort McMurray, AB

- Performed logic conversions for PLC software and upgraded various projects in the Extraction field. Provided support to a team of engineers in systems management and testing.
- Carried out Management of Change (MOC) procedures on systems drawings and software for implementation of newer functions requested by other teams for plant upgrades.
- Co-ordinated closely with On-site technicians to troubleshoot emergency issues on a daily basis while following strict guidelines to ensure robust resolutions.
- Conducted a complete overhaul of a Fluid-Fine Tailings Truck-Loading program to simplify the complicated logic and meet new functionality limitations requested by operators to improve safety.
- Visited On-site PLC and HMI locations for new installations, maintenance and troubleshooting issues while following strict safety procedures.

UBC SUPERMILEAGE STUDENT TEAM | ELECTRICAL PROJECTS LEAD
September 2018 – January 2020 | Vancouver, BC

- Using Altium Designer, improved PCB design on multiple Prototype vehicle boards in a yearly development cycle.
- Reduced Main PCB footprint by over 40% than the previous design over 2 development cycles. Started 4-layer PCB design process for future team development.
- Assisted in troubleshooting errors affecting vehicle up-time, and in setting up vehicle wiring for tests and final competition assembly. Thoroughly tested circuits for correct and reliable functionality to prevent future problems.
- Co-ordinated with other divisions to implement changes needed to meet competition requirements and new parts compatibility.
- Competed at annual Shell Eco Marathon (2019- 2nd place) and SAE Supermileage (2019- 2nd place) events. More information about the team available at supermileage.ca

PROJECTS

COIN PICKER ROBOT | MICRO-CONTROLLERS PROJECT
Languages: C, Python

- Using the STM32 platform created a magnetic field detecting robot which picked up coins in a specified area.
- Constructed a light-obstruction box for a simple coin-identification program. Used a Raspberry Pi to establish wireless communication and control.

DE1-SOC ARC4 DECRYPTION | CODE DECRYPTION ON FPGA
Languages: SystemVerilog

- Designed a system using complex datapaths and state machines, taking advantage of on-chip memory to conduct ARC4 decryption.
- Implemented parallel modules to double calculation speed for extra functionality.
- Familiarized with VGA adapter core, programmed a system output to display.

SKILLS

LANGUAGES
• Python • C
• SystemVerilog • Verilog
• Assembly
• MATLAB • R
• HTML • CSS

TECHNOLOGIES
• Git • Linux • Windows
• Quartus • ModelSim
• Altium Designer
• Solidworks • AutoCAD
• Unity Pro (PLC) • Wonderware Application Server

TOOLS
• STM32 • Arduino
• Raspberry Pi • DE1-SoC
• PLCs & HMIs
• Soldering • Oscilloscope

EDUCATION

UNIVERSITY OF BRITISH COLUMBIA | Vancouver, BC
BACHELOR OF APPLIED SCIENCE IN ELECTRICAL ENGINEERING
Present - April 2022
YEAR 3 (DEAN'S HONOR LIST)

COURSEWORK

Control Systems
Electronic Circuits
Digital Systems Design