NAYANDEEP SIDHU

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ELECTRICAL ENGINEERING

Solutions driven individual with an Electrical Engineering degree who possesses a comprehensive knowledge of mathematics, research procedures and standards/ code regulations applicable to Electrical Engineering technology. Possessing a sound knowledge of electrical design principles, methods, procedures, and practices in measurements necessary for the completion of accurate drawings, and material specifications.

KEY SKILLS

- Circuit Modelling
- Drafting
- Organizational Skills
- Accountability
- Leadership
- Signal Analysis
- Troubleshooting
- Risk Assessment
- MS Office
- Data Analysis
- Management
- Problem Solving
- Analytical Skills
- Audit Systems
- Research
- Dynamic Modelling

FORMAL EDUCATION

- **University of Ottawa (Ottawa, ON)**
  Bachelor of Applied Science in Electrical Engineering (Systems Eng), Engineering Management and Entrepreneurship ***Sept 2016 – Nov 2020***

NOTABLE PROJECTS

Capstone Project – Four Arm Robot Control

- Drafted critical aspects of the project involving the design of the body, sensor perception and control parameters with aid of several applications such as CADD, RoS, Multisim and Matlab
- Reviewed and analyzed data to ensure that designs are practical, efficient and satisfy industry standards and policies as outlined by International Organization for Standards (ISO) and Institute of Electrical and Electronics Engineer (IEEE)
- Completed a full dynamic analyses of the robot from sensing to displacement of the robot to achieve geometric targets by composing a mathematical closed-form solution of the forward and inverse kinematics of the robot's arms
- Investigated operational problems and defect analyses and provided engineering solutions to troubleshoot problems such as use of heat dissipation mechanisms to ensure better thermal management
- Prepared progress reports for the client and the supervisor at all phases of the development that outlined system requirements and specifications, detailed engineering design and testing, risk management plan, simulation results, project breakdown schedule and proposals for modifications specific to system requirements

Automated Classification with Robotic Manipulation

- Designed and implemented a robotic system that will perform classification of various objects which were detected, located and provided feedback to a 5 degree-of-freedom manipulator for it to pick and move each object to a specific location marked by a geometrical shape
- Developed a MATLAB program that generates macro instructions in the Robix script language
- Created a fully automated operation of the robotic arm in desired XYZ direction by performing forward and inverse kinematics, and image processing algorithm used for object recognition and end-effector guidance
- Real-time investigation, on/off orbits: Achieved real-time investigation of on/off orbits by ensuring the end-effector successfully grabs the object and places it in its desired geometric location as outlined through image processing

Hydroelectric Power System Planning and Design

- Designed a hydroelectric power plant model consisting of Transmission and Distribution Systems, Substations, Protection and Monitoring Systems, and Distributed generation based on optimization of Electrical, Mechanical Environment and Economic Factors
- Initiated the project phases by the establishing the plant design envelope which comprises the design basis and complementary design features (including sizing of drivers, generators and transformers)
- Developed a theoretical risk management protocol for natural disasters and unforeseeable events ensuring safety of surroundings
- Completed an in-depth decision analysis involving multiple designs for each subsystem which complied with electrical industry standards and electrical codes
- Prepared a final report that outlined system requirements while adhering to the budgetary and financial principles as outlined by the client along with adhering to the Ontario Hydro Safety Code and Ontario Building Code

EXPERIENCE

GardaWorld Operations ***Feb 2020 - Present***

Duty Coordinator Supervisor

- Directly supervised the mobile fleet across Ontario and overviewed operations across Canada
- Dispatched alarms received from monitoring companies and national clients
- Ensured work is conducted with due regard for all health and safety regulations and legislation
- Set targets, objectives, delegate tasks and follow-up to ensure objectives are achieved
- Demonstrated ability to manage and work with professional multi-disciplined teams, deal with complex issues, and maintain effective working relationships
- Investigate any reports requested by the billing department, monitoring company and the client
- Effectively lead, coach and motivate staff to ensure sectional objectives are met with due regard for quality, quantity, effectiveness, and deadlines

UOE Racing ***Jan 2018 - Dec 2018***

University of Ottawa - Electrical Engineering Student

- Took part in co-developing the electrical architecture of the vehicle, namely PCB accessory and steering PCB redesign
- Developed multiple Saturn PCB and Simulink models for PCB's used in the UOE vehicle, such as Microcontroller, Motor Controller, Steering Board and Relay Board
- Conducted engineering analysis and research on various components to evaluate design limitations
- Investigated failures of the system and components and deduced to a required modification plan. For instance, addition of Through-Hole Mounting(THM) and traces on the PCB
- Designed components and features that ensured driver safety margin up to 70 percent
- Researched cost-effective composites, motors, adhesives, and manufacturing methods
- Documented progress reports, recognize problems, and evaluate solutions that complies with IEEE standards, applicable electrical codes, electrical industry standards/practice, and relevant government legislation/regulations
- Conducted real-time calibration and performance monitoring during vehicle dynamic testing.

INDUSTRY TOOLS AND COMPUTER TECHNOLOGIES

Machining Tools: Drill Press, Mill, Lathe

Software: SolidWorks, Microstation CADD, MATLAB, Robix, Simulink, MP LabX, Electric, Quartus, SQL, Multisim, Oracle Virtual Box, LTSpice, Microsoft Office Suite(Word, Excel, Outlook, Access, PowerPoint), C, Python