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SUMMARY

An electromechanical engineering technology graduate seeking for a job with more than 7 years of experience in 3D mechanical CAD designing and a thorough understanding of PLC programming in various platforms (Allen Bradley, Siemens, Omron), and a in-depth knowledge of microcontrollers, quality control using vision inspection.

EDUCATION

Centennial College, Canada **Jan, 2023-April, 2024**
Advanced Diploma (Electromechanical Engineering Technology - Robotics and Automation)

- Designed and built an obstacle detection vehicle integrated with robotic arm for minor project.
- Developed a **2d Pen Plotter** using **Arduino** in major project.
- Gained in-depth knowledge of **servo card** and implemented in building the card.
- Used **ABB ROBOTSTUDIO** to program various robot simulations such as **pick and place**, **color sorting**, **2D and 3D pallet stacking**.
- Used the knowledge of **HMI and PLC programming** for **maintainence** and **troubleshooting**.
- Analysed **fluid power** and **pnuematic systems** using the principles of **fluid mechanics** and **dynamics**.

Guru Gobind Singh Indrapastha University **August, 2017-June, 2021**

Bachelor of Technology (Mechanical Engineering)

- Design and assembled a wheelchair mounted mechanical arm as major project.
- Gained an thorough knowledge of **fluid dynamics**, **strength of materials**, **kinematics of materials**, **robotics**, **theory of materials**.
- Written 2 research papers based related to **FEA Analysis** and **Fluid Dynamics**.
- Made multiple projects using **Catia V5**, **SolidWorks**, and **AutoCAD** and **Blender**.
- Acquired a detailed knowledge for the working of **Ansys**, and the **principles and laws** of **CFD** and **FEA Analysis**.

SKILLS

3D Modelling and Mechanical Engineering

AutoCAD Mechanical | **Catia V5** | **SolidWorks** | **SolidEdge** | **MATLAB** | **Finite Elemcent Analysis (FEA)** | **Computational Fluid Dynamics (CFD)** | **Sheetmetal Design** | **Blender** | **GD&T** | **Surface Design** | **Lathe Machining** | **Drill and Milling Machining**

Programming and Electrical | Robotics and Automation

Python | **Arduino** | **Soldering** | **HTML & CSS** | **PLC Programming (Allen Bradley, Siemens, Omron)** | **ABB RobotStudio** | **Fanuc RoboGuide** | **AutoCAD Electrical**

WORK EXPERIENCE

STUDENT RESEARCHER
Centennial College (Contract Base - 3 months)

- Worked with a research team for designing hydrogen refueling station.
- Designed multiple parts of station such as refueling nozzle, check valve, safety valve, breakaway.
- Softwares used for designing the components were Catia V5 and SolidWorks.
- Assembled the whole station according to the Canadian standards for each components of refueling station.
- Rendered the gas station and hydrogen dispenser station with the help of Blender.

RESEARCH PAPERS

Fundamental Of Fluid Dynamics For The Spread Of Covid View Online
International Journal For Technological Research In Engineering Volume 8, Issue 5, January-2021

Design and Analysis of the Wheel Mounted Mechanical Arm using CATIA V5 View Online
International Journal For Technological Research In Engineering Volume 8, Issue 11, July-2021

INTERNSHIP (CO-OP)

P.K. Panchal - Machine Tools **May, 2019 - June, 2019**
Delhi, IN

- Gained experience in using **milling machine**, **grinding machine**, **drilling machine**, and **lathe machine**.
- Assisted in manufacturing multiple mechanical components using these machines.

Ranjit Welding Works **June, 2019 - August,2019**
Delhi, IN

- Acquired knowledge of **hobbing machine** to manufacture different types of gears such as, **helical gear**, **spur gear**, and **worm gear**.
- Contributed in designing gears using **proper calculations** for gears and applying these calculations for manufacturing the gears.

POST SECONDARY PROJECTS

Wheelchair Mounted Robotic Arm - Major Project (Bachelor of Technology)
Aim: The principle objective of this project was to finish important activities using a wheelchair-mounted mechanical arm for manipulation. Additionally, tasks which were done by the arm were “Holding water glass or bottle”,” Opening doors” ,”Operating switch” and “Turning pages often book.”

Softwares: **Fusion 360, Catia V5**

Obstacle Detecting Vehicle - Minor Project (Centennial College)
Aim: The objective of the project was to pick up an object in shortest time period, and detect all types of obstacles in front of the vehicle.

Software:
Catia V5, Solidworks, Arduino IDE, AutoCAD
Electronic Components:
Bluetooth Module, Servomotor, DC Motor, Power Supply, Fuse, Ultrasonic Sensor, Buck Converter
Microcontroller: **Arduino**
Result: The design helped us to complete the whole task in just **49.1** seconds.

2D Pen Plotter - Major Project (Centennial College)
Aim:

Software: **Catia V5, Inventor, Arduino, AutoCAD**
Electronic Components: **Arduino Uno, Stepper and Servo Motors, CNC Expansion Module, Motor Driver, LCD Display, E-stop & Push Buttons, Arduino Nano, Cooling Fan, Limit Switches**
Microcontrollers: **Arduino Uno and Arduino Nano**

PROJECTS

Catia V5 and SolidWorks Projects

1. Robotic Arm — View Online
   - Robotic Arm is a electro-mechanical arm which is used for different areas of industry such as medical, automation, manufacturing, etc.
   - The project was design using the features in part design and assembly design workbenches.
   - Features used were Pad, Edge Fillet, Groove, Hole, Mirror and Circular Pattern.
2. Drone Design — View Online
   - Unmanned Aeriel Vehicle (UAV), also known as drones, are controlled by humans or programmed in a software.
   - The project was design using the features in part design and assembly design workbenches.
   - Features used were Pad, Edge Fillet, Groove, Hole, Plane.
3. Globe Valve — View Online
   - Globe Valve is an instrument used to control the flow of fluid.
   - The project was design in part, generative surface design workbenches.
   - Features used in this project were chamfer, pad, pocket and formula
4. Refueling Nozzle — View Online
   - This nozzle is used to refuel the hydrogen fuel into the car engine.
   - The project was designed in part design, surface design workbenches using chamfer, pad, groove, pocket tools.
   - The design prevented the nozzle to freeze when refueling the vehicle.
5. Wheelchair — View Online
   - Wheelchair is a manual or power-driven device so that the individuals with mobility impairement can move around.
   - The project was designed in part design and surface design workbenches in both the softwares using sweep, close surface, shell tools.

AutoCAD Projects (3D and 2D)

1. 3D CPU Fan — View Online
   - These fans are used to cool down the processor by pulling in the air and sending it to heating component (CPU).
   - The project was design in 3D Modelling workbench of AutoCAD.
   - Tools used were offset, surface associativity, edge fillet, presspull.
2. 3D Impeller — View Online
   - This is a rotating component of centrifugal pump which send the fluid outwards.
   - Commands used were line, divide, rotate, extrude.
3. 2D Anchor — View Online
   - The project was design in 2D design workbench.
   - Command for this projects were used in this project were chamfer, pad, pocket and formula
4. 2D Mechanical Component — View Online
   - Designed in 2D drawing workbench.
   - Commands Used for Line, Circle, Mirror, Ray, Offset, Match Properties

Blender Projects (3D Modelling and Product Animation)

1. Spider Robot — View Online
   - Used animation and grass effects.

2. Sci-Fi Environment — View Online
   - Used Depth of Field.

3. Pubg Drop Crate — View Online
   - Used smoke simulation.