

TAKSH GOLAKIYA

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EDUCATION

Purdue University, Purdue Polytechnic Institute — West Lafayette, IN

Bachelor of Science, Mechatronics Engineering Technology — *Expected May 2027*

Mechatronics Engineering Technology student with comprehensive, hands-on experience in mechanical systems, electronics, and automation. Adept at designing, developing, and integrating automated systems, robotics, and electromechanical solutions to enhance efficiency and performance. Possesses strong proficiency in programming, PLCs, control systems, and sensor integration, with a solid foundation in CAD design, circuit analysis, and system troubleshooting. Demonstrated ability to work across interdisciplinary teams, applying problem-solving skills and technical knowledge to deliver innovative, real-world solutions in manufacturing and automation environments.

PROFESSIONAL EXPERIENCE

Dharma Bhakti Diamonds Pvt. Ltd. — Mumbai, India

Hardware Maintenance — *May 2022 – Aug 2022* - Member of the machine-management team for diamond inspection, polishing, and analysis; performed hardware repair and preventive maintenance. - Applied programming and automation concepts to improve production workflows and operating precision.

Max Computer Education — Mumbai, India

Coding Instructor — *Mar 2021 – Jun 2021* - Taught foundational programming (C/C++/Python) to a cohort of students; created practice sets and mini-projects. - Implemented collaborative, project-based learning to build problem-solving confidence.

PROJECTS

- Virtual Reality Assistance for Individuals with Physical Disabilities

- Designed and developed an immersive VR-headset workflow aimed at improving accessibility for wheelchair users navigating large campus environments.
- Integrated interactive 3D campus maps with real-time navigation guidance, detailed building layouts, and room-level information to enhance wayfinding.
- Incorporated multimedia elements such as voice prompts, visual cues, and interactive hotspots to provide contextual information and improve user engagement.

- Focused on user-centric design principles to ensure intuitive controls and accessibility features, enabling independent navigation for individuals with mobility challenges.

Coffee Machine HMI (PLC)

- Designed and programmed a Human-Machine Interface (HMI) integrated with a Programmable Logic Controller (PLC) to manage and automate coffee brewing operations.
- Developed customizable brewing options, including beverage type, cup size, and strength settings, ensuring flexibility and user preference adaptability.
- Implemented real-time feedback systems to display process status, temperature, brewing progress, and error notifications for enhanced operational reliability.
- Created a user-friendly interface with intuitive navigation, clear graphics, and responsive controls to improve overall user experience.
- Ensured robust automation logic for consistent brewing performance, fault detection, and system safety protocols.

Elevator Control System (PLC Kit)

- Designed and implemented a PLC-based elevator control system capable of managing multi-floor operations with precision and safety.
- Programmed logic for floor selection, automated sequencing, and optimized travel paths to improve efficiency and reduce wait times.
- Integrated door open/close controls with interlocking safety mechanisms to prevent accidental operation during movement.
- Developed an emergency stop feature with immediate system halt and fail-safe protocols to ensure passenger safety.
- Conducted testing and troubleshooting to verify smooth floor transitions, accurate position detection, and reliable system response under various operational scenarios.

Motion-Sensing Lighting for Energy Savings (PCB + Sensor)

- Designed and fabricated a compact printed circuit board (PCB) to interface a motion sensor with room lighting for automated energy management.
- Developed a control circuit that detects occupancy and intelligently toggles lights on or off, reducing unnecessary energy consumption.
- Optimized sensor sensitivity and response time to balance user convenience with maximum energy efficiency.
- Targeted electricity savings of approximately 28% based on typical usage patterns in residential and small-office environments.
- Emphasized a space-efficient PCB layout for easy integration into existing lighting systems without requiring major rewiring.
- Conducted testing to validate system reliability, low power consumption, and consistent operation under varying lighting and occupancy conditions.

Vibration-Sensor Kill-Switch to Protect Equipment (PCB + Firmware)

- Designed and engineered a custom printed circuit board (PCB) integrating a vibration sensor to monitor machinery for abnormal or excessive vibration levels.
 - Developed embedded firmware to process sensor input in real-time, triggering an immediate shutdown when critical thresholds were exceeded.
 - Implemented configurable sensitivity settings to accommodate different machine types and operational environments.
 - Aimed to extend equipment lifespan by approximately 20% through proactive damage prevention and reduced wear from prolonged vibration exposure.
 - Emphasized fail-safe design principles, ensuring reliable operation and minimal false triggers during normal machine activity.
 - Conducted testing under simulated fault conditions to validate rapid response time, durability, and system reliability in industrial environments.
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LEADERSHIP & INVOLVEMENT

- **Parker Parliament** — President (2024)
 - **UR Global** — Marketing Head (2023)
 - **High School Throwball Team** — Captain (2022)
 - **Global Social Leader (2019); First in Maths (2019); Raëll Padamsee's Drama (2019); Callido (2019); Dr. Homi Bhabha Competition (2018)**
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COMMUNITY SERVICE

- Goonj NGO (2020)
 - Habitat for Humanity (2020)
 - Run For Hunger (2018)
 - Swachh Bharat Mission (2018)
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SKILLS

- **Programming & Control:** C, C++, Python, PLC (incl. Allen-Bradley)
- **Electronics & PCB:** KiCad (PCB design); embedded/PLC interfacing
- **CAD & Simulation:** SOLIDWORKS, Fusion 360, Autodesk Inventor, MATLAB
- **Data/Tools:** PDM; IBM SPSS, ARAS

- **Core Competencies:**
 - Mechanical Assembly & Fabrication
 - Electrical Circuit Design & Troubleshooting
 - PLC Programming & HMI Development
 - Sensor Integration & Signal Processing
 - Robotics & Automated Systems
 - CAD Modeling (SolidWorks, AutoCAD, Fusion 360)
 - PCB Design & Prototyping (Altium, KiCad)
 - Embedded Systems & Firmware Development
 - Control Systems & Industrial Automation
 - Data Analysis & Problem Solving
 - Communication & Technical Documentation
 - Team Collaboration & Cross-Functional Coordination
 - Critical Thinking & Analytical Reasoning
 - Time Management & Task Prioritization
 - Adaptability in Dynamic Environments
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CERTIFICATIONS

- RoboGenius; PLC; PCB Designing; Entrepreneurship; C; C++; Python Programming; Callido (Technology Integration)
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AWARDS

- **International Award for Young People (2020)**