

ISHAAN MISTRY

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A hands-on engineer with a passion for building systems that bridge software and hardware — from circuit design to AI integration — with experience leading complex, cross-disciplinary projects.

WORK EXPERIENCE

Systems Integration and Test Engineer, OmniOn Power Inc. – Plano, TX

May 2024 – Present

- Develop automated test programs in Python to validate power system controllers, designing modular and scalable test suites to ensure full coverage across the product line. (**Selenium, PyQt, REST API, GPIB, Go, MODBUS, MQTT, SNMP, Kafka**)
- Validate **system-level functionality**—including rectifiers, converters, and batteries—by developing comprehensive test plans and performing in-depth **debugging** and **root-cause analysis**, while **collaborating closely** with hardware and firmware designers to resolve critical issues and ensure the product meets all customer and industry standards.
- Designed and developed a Python-based GUI application integrating **Python, VISA, I2C, RS485, and PyQt** to **automate the testing of end-of-life (EOL) and failing components** (FET, IGBT, etc.) in power converters (**Rectifiers, Converters**) of various topologies, reducing component evaluation time from **240 hours to 8 hours**.
- Reorganized the development timeline and implemented a prioritized feature list for a high-pressure, overdue project, taking ownership of delivery (**Software Requirements Specification, Test and Debug Plan, Engineering Change Notice**) and significantly improving team productivity to meet critical deadlines.

Systems Automation Engineer (Co-Op), Texas Instruments – Richardson, TX

Jun 2024 – December 2024

- Developed an AMHS sensor system using **Nvidia Jetson**, custom **PLC** laser system, and **Python framework** to detect metal shavings, worn bearings, and track cart height with tenth-of-millimeter precision for system to maintain fabrication production line standards and prevent system failures.
- Built on a Python framework using **SAHI model, GPIO, PMBus, and MQTT** for full system integration.

Systems Engineer (Intern), Raytheon Technologies – McKinney, TX

May 2023 – Aug 2023

- Responsible for generation of **MATLAB** based simulator based on representative customer documents (e.g., Statement of Work, Requirements Specification, Contract Deliverables and Performance Criteria).

PROJECT EXPERIENCE

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- **Car Automation Project:** Building a unified control system for Lexus/Toyota vehicles by reverse engineering **CANBUS** and **OBD-II** protocols to interface with existing vehicle hardware. Decoded **Bluetooth** protocol to allow 3rd party vehicle lighting solutions to be controlled via **C-based** script. Aiming to bridge 3rd party components with custom firmware and vehicle information under one seamless program.
 - **VESPA at Robosub Dallas (Electrical & Systems Integration Lead):** Led a student team to design a Remotely Operated Vehicle that placed 3rd in Overall Performance and won 1st in Technical Documentation at the MATE ROV World Championship. Designed custom **PCBs** and cooling solutions for thermal management, and integrated Nvidia Jetson with **AI, ZED 2, OpenCV, and GPIO** to analyze data of subsea environment. Contributed to many **mechanical design** changes.
 - **Home Automation Project:** Built a smart home system using Apple Home, HAOS, Zigbee, Z-Wave, and Python to automate cameras, sensors, lighting, and ESP32, greatly reducing power consumption.

SKILLS

Programming Languages: Python, C, C++, MATLAB, Verilog (HDL), Go

Hardware: Raspberry Pi, Arduino, MSP32, 3D Printing (Resin and FDM)

Software: MATLAB, VirtualBox, DevOps, OrCAD, Project, Git, SQLite, MQTT, REST API, PyTorch, OpenCV

Hobbies: Playing Tabla, Singing, Car Modding, Audiophile, Smart Home Hacking, Soda Making, Home Improvement, 3D Print.

EDUCATION, CLEARANCE

The University of Texas at Dallas, Richardson, TX

August 2020 – December 2024

Bachelor of Science in Electrical Engineering

Courses of Interest: Digital Circuits, EE Fundamentals, Computer Architecture, Electronic Circuits

Clearance: Secret, granted July 2023 | **Languages:** English, Partial Gujarati