VIKRANTH VAKATI

Embedded Systems Engineer - U.S. Citizen

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SKILLS

Technical Skills: Software development, Spectral imaging, Computational modeling, Hardware debugging
Languages and Tools: Python, C/C++, JavaScript, HTML, ENVI, MATLAB, NPM, React.js
Software/OS: VS Code, Git, ImageJ, LabView, MultiSim, Simulink, Linux, Windows
Equipment: Microcontrollers, Multimeter, Power Supply, Oscilloscope, Function Generator, Logic Analyzer
Protocols: Ethernet, SPI, I2C, BLE, LoRa, Wi-Fi, UART, RS232, RS485, Modbus, RFID

EXPERIENCE

Embedded Systems Engineer | Bodkin Design & Engineering — May 2025 - Present
Electro optical imaging solutions design for industrial and research communities

- Designed software for image acquisition, visualization, and control using C++, Python, and MATLAB
- Integrated optical components with electronics using wired and wireless communication protocols
- Investigated areas of new research and development to be implemented in designs

Electrical Systems Test Engineer | Delta Magnetics & Controls — Jan 2021 - Jan 2023
Custom control panel design and fabrication for process automation

- Wired and assembled control panels following IEC standard schematics
- Conducted visual, point-to-point, and operational testing on systems to ensure functionality
- Deployed over 1000 control panel systems, adhering to quality and functionality requirements

PROJECTS

Blackbody Calculator | JavaScript, HTML — Jul 2025
Browser-based interactive tool for calculating and visualizing spectral radiance and emittance
bodkindesign.com/reference-library/blackbody-spectral-radiance-calculator

- Built a mobile-responsive UI with validated inputs, auto-unit conversion, and intuitive controls
- Improved input response time by 5x from conventional tools via real-time updates
- Delivered enhanced data visualization using dynamic and interactive plotting

Energy Monitoring System | Python, JavaScript — Mar 2024
Data aggregation system to optimize university campus power generation

- Developed prototype modules to monitor real-time power supply, generation, and consumption
- Analyzed over 400 data points daily from legacy and modern systems to identify trends
- Crafted a web interface to streamline the analysis of energy data and enhance accessibility

Security Camera | C — Feb 2024
Low-cost real-time security camera using an ESP32-CAM microcontroller

- Established remote access to camera feeds on up to 5 devices via a Wi-Fi network
- Implemented a motion detection algorithm to improve security with real-time alerts
- Reduced false positive alerts by 50% by using a ratio of moving pixels to filter out noise

PUBLICATIONS

Automatic Soil Testing Network for Agriculture | EAI BICT 2023 pp 31-39 | bit.ly/3TsB0U8 — Sep 2023
Offline mesh network to monitor conditions on remote farms with ESP32 nodes and environmental sensors

- Integrated environmental sensors to periodically transmit data to a centralized server node
- Developed a custom web interface to provide insights through an embedded GUI
- Successfully transmitted 96% of data in rural areas with minimal power and communication networks

EDUCATION

Wentworth Institute of Technology

- Master of Science in Computer Engineering, Concentration in Internet of Things — May 2024
- Bachelor of Science in Computer Engineering, Minors in Electrical Engineering and IoT — Dec 2022