VIKRANTH VAKATI

SKILLS

Languages and Tools: Python, C/C++, ARM, Verilog, SQL, MATLAB, JavaScript, Node.js, React.js, Ladder Logic
Software: Linux, Git, LabView, MultiSim, Simulink, Click PLC, Quartus, Figma, Wireshark, SolidWorks
Technical Skills: Embedded development, Web development, Communication protocols, Hardware testing

PROJECTS

Real Time Energy Monitoring System | March 2024
Energy data aggregation system to optimize university campus power generation using Python and JavaScript
- Designed prototype modules to monitor electrical power supply, generation, and consumption data
- Aggregated diverse data from legacy and modern systems for historical and real time power metrics
- Designed a web interface to facilitate analysis of aggregated energy information
- Conducted rigorous testing of data collection modules to ensure reliability for decision making strategies

Live Security Camera | February 2024
Low cost real time security camera using the ESP32-CAM microcontroller
- Established seamless network connectivity for remote access to live camera feeds via Wi-Fi network
- Implemented motion detection algorithms to trigger alerts and notifications for enhanced security
- Designed a user friendly web interface to view and control the camera feed

Automated Hopper Dispensing System | August 2023
Ladder logic program to automate a hopper to fill boxes on a conveyor belt
- Utilized CLICK programming software and a 4 channel PLC to implement the controller
- Incorporated run, standby, and box full lights based on a conveyor motor, photo sensor, and level switch
- Validated the system to guarantee accurate operation and responsiveness to various inputs

Antenna Controller Design | August 2023
Digital lead controller for an antenna control system in Simulink
- Employed root locus analysis in MATLAB for system analysis, controller design, and optimization
- Conducted thorough analyses to identify critical system parameters and fine tune the controller
- Reduced the settling time of the uncompensated system within 0.8% of the design requirements

Optical Heart Rate Detection | April 2023
Non-invasive heart rate detection algorithm in MATLAB
- Implemented color signal extraction by selecting optimal color channels and regions of interest
- Applied signal processing for frequency domain analysis to capture changes related to the cardiac cycle
- Achieved 95% accuracy by conducting extensive testing to optimize the algorithm

EXPERIENCE

Electrical Systems Test Engineer | Delta Magnetics and Controls | January 2021 - January 2023
Custom control panel design and fabrication for process automation
- Conducted visual, point to point and operational testing on control panel systems to ensure functionality
- Designed and built test panels for functional testing
- Mentored new employees which led to improved onboarding and productivity
- Utilized wiring diagrams and schematics following industry standards

PUBLICATIONS

Automated Soil Testing Device for Agriculture | EAI BICT 2023 pp 31-39
Offline mesh network to monitor conditions on remote farms with ESP32 nodes and environmental sensors
- Programmed each node to take sensor input periodically and send the collected data to a server node
- Developed a custom web interface to provides farmers with valuable insights and decision making tools
- Optimized the system for reliability and performance with a 4% packet error rate, resulting in a system that is dependable in rural areas with limited internet connectivity

EDUCATION

Wentworth Institute of Technology | April 2024
- Master of Science, Computer Engineering | Bachelor of Science, Computer Engineering