MARTIN MWITI

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SUMMARY

Electronics Engineer with 10 years of specialized experience in embedded systems and firmware development. I am an expert in C and Python programming for microcontrollers, IoT solutions, and renewable energy applications. Passionate about leveraging technology to deliver impactful solutions that optimize performance and drive innovation in IoT sectors.

WORK EXPERIENCE

Firmware Engineer   **August 2020 - September 2023**
Ariya Finergy Limited – Nairobi, Kenya

- Designed and deployed wireless (LORA) and Modbus irradiation sensors that provided data that enabled calculation and generation of performance analysis data.
- Developed firmware for Modbus communication between a single-board computer and inverters, as well as battery systems, achieving consistent communication and control.
- Implemented remote control of diesel generators from single board computers using relays, facilitating automatic transfer of loads at specific times.

Embedded Systems Engineer   **January 2017 - November 2019**
EOS Solar – Nairobi, Kenya

- Designed a four-layer PCB for a solar-powered entertainment and lighting system for efficient energy utilization.
- Managed end-to-end PCB manufacturing process in China, including sourcing reliable batteries and battery testing equipment, resulting in streamlined production and improved product quality.
- Devised an IoT system for analyzing the efficiency of a solar-powered air heating facility that gathered temperature and irradiance data and uploaded it to Google Sheets for comprehensive analysis.
- Developed an IoT-based swimming pool controller prototype with SMS control capabilities, monitoring water heating temperature and pumping operations for enhanced efficiency and user convenience.

Embedded Systems Engineer   **May 2014 - November 2016**
Lectrotel Microsystems – Nairobi, Kenya.

- Achieved a minimum weekly production output of 20 units for speed limiters, increasing operational efficiency and meeting production targets consistently.
- Designed PCBs and wrote firmware for various products, including energy monitoring systems and intelligent vehicle speed governors.
- Optimized the accuracy of water flow rate sensors by implementing timers and interrupts to offload microcontroller CPU from pulse counting tasks. This initiative increased sensor accuracy and reliability.
- Enhanced the operational efficiency of solar water pumps by implementing Maximum Power Point Tracking algorithm, resulting in a significant increase in water output.
- Successfully mentored interns, significantly increasing their proficiency in embedded systems development and overall contribution to projects.
- Implemented a tamper-proof mechanism for electronic vehicle speed limiters, resulting in a notable decrease in tampering and unauthorized modifications.

EDUCATION

Diploma in Electrical and Electronics Engineering   **Graduated in July 2014**
University: Mount Kenya University - Thika, Kenya