

# Samuel Micah

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Experienced Engineer passionate about leveraging sustainable technology to create innovative solutions and enhance user experiences. A challenging project should be considered done.

## Cloud Computing Engineer

### RELEVANT & PROFESSIONAL EXPERIENCE

#### Two Switch Forward DC/DC Converter, Ki-Cad, PLECS, Matlab — University Project 2024

- **Concept:** Design, construct, and test a fully controlled Two Switch Forward DC/DC Converter to provide a regulated output voltage across a 50W variable load bank, with a 30V AC input.
- **Key Activities:** Individual PCB design, open-loop and closed-loop simulations, gate driver and PWM circuit design, magnetic component design (transformer, inductor), PCB population and testing.
- **Skills Applied:** Power electronics, circuit design, control systems, simulation software, PCB design, practical construction and testing.

#### Pulse Oximeter and Heart Rate Monitor, STM32, CPLD, ADC, UART — University Project 2024

- **Concept:** Design, construct, and test a prototype heart rate and pulse oximeter device to measure blood oxygen saturation (SpO2) and heart rate using photoplethysmography (PPG) signals.
- **Key Activities:** Hardware circuit design (LED drivers, Transimpedance Amplifiers, signal conditioning), firmware development for data acquisition and processing with an STM32 microcontroller, logic design and implementation using a CPLD for data handling (e.g., UART communication, LED decoding), LED modulation via PWM, analog-to-digital conversion, and data plotting/display on an OLED.
- **Skills Applied (Group Project):** Electronic circuit design and analysis, embedded systems, digital logic design, signal processing, data acquisition, firmware development, PCB construction, teamwork, practical testing and debugging.

#### Autonomous Vehicle, C++, OpenCv, CAD, NodeRed, Raspberry pi, LtSpice, Arduino — University Applied Engineering Project 2023

- Worked on designing and prototyping a fully autonomous vehicle that used a camera on a Raspberry pi to manipulate the camera feed using the OpenCV library to navigate its environment and was able to solve maze, line and object following paths.
- Designed a user interface using Node-Red to monitor the vehicle stats and its surrounding.
- Used C++ to calculate the PID movement from the camera feed on the Raspberry pi to an Esp32 via i2c to control the 3d printed mecanum wheels.

### EDUCATION

#### → Electrical and Electronics Engineering, University of Nottingham

C, C++, Matlab, Fusion 360, LtSpice, Report Writing, Circuit (Analysis & Design), Open CV, node Red, IOT...etc

#### → Software Engineering, HyperionDev

Python, version control (Git, Github), Testing and Debugging.

#### → National Extended Diploma in Engineering, The Warren School Sixth Form

Machining (Additive and Subtractive Manufacturing), Risk Assessment, CAD, Health and Safety

## CERTIFICATION

→ **AWS Certified Cloud Practitioner** | [Link](#)

AWS services (Compute, Storage, Networking, Databases, Security, Billing and Management).

## EXTRA INFO

- **Hobbies:** basketball, football, table tennis, prototyping, music and video games.
- 8+ years developing **Games and Apps** using **Unity Engine**.

**SamuelMicah02@gmail.com**

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