MUIZ ABIOLA AMINU

Mechatronics & Embedded Systems Engineer | Ogbomoso, Oyo State, Nigeria

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Portfolio: muheezabiola.github.io | **LinkedIn:** linkedin.com/in/muiz-aminu | **GitHub:** github.com/Muheezabiola

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SUMMARY

Mechatronics & Embedded Systems Engineer with hands-on experience developing C/C++ firmware for AVR, ESP, ARM Cortex, and Raspberry Pi microcontrollers. Proficient in MATLAB/Simulink for system modeling and control design, and Python for embedded applications. Experienced building IoT systems with real-time capabilities, sensor integration, and cloud connectivity (Firebase). Also develop cross-platform mobile interfaces using Flutter. Focused on creating practical, user-centered embedded solutions that solve real-world problems.

TECHNICAL SKILLS

- **Microcontrollers:** ESP32, ESP8266, AVR (Arduino), ARM Cortex, and Raspberry Pi.
- **Languages:** C, C++, Python, Dart (Flutter), Embedded C.
- **IoT & Connectivity:** Firebase, MQTT, IoT System Design, Real-time Cloud Databases.
- **Hardware & Protocols:** PCB Design, UART, I2C, SPI, CAN, Power Electronics.
- **Tools & Simulation:** MATLAB/Simulink, VS Code, PlatformIO, Git/GitHub.

FEATURED PROJECTS

Pipeline Monitoring Robot | *Raspberry Pi, Python, CAM*
- Built a semi-autonomous robot for pipeline inspection featuring cloud-hosted AI leak detection.
- Developed embedded control firmware to navigate and stream video for real-time anomaly detection.

Autonomous Vehicle Navigation System | *MATLAB, Control, Sensors*
- Designed a navigation system capable of detecting obstacles, slowing down for speed bumps, and avoiding potholes.
- Implemented algorithms to control steering and propulsion modules for autonomous safety intervention.

PlugGuard—Smart IoT Safety Device | *ESP32, Flutter, Firebase*
- Designed a multi-mode intelligent safety plug that detects leaks, automatically cutting power to prevent fires.
- Developed a Flutter mobile app for real-time monitoring, remote control, and emergency alerts through the Firebase database.

PROFESSIONAL EXPERIENCE

Engineer Intern | Artificial Intelligence for Clean Energy (AI4CE) Limited   *Minna | Jun 2024 – Nov 2024*
- Collaborated with other engineers to develop embedded IoT solutions specifically for clean energy applications, including smart energy monitoring and sharing systems.

Research Assistant | Advanced Engineering Innovation Research Group   *Minna | Jul 2021 – Present*
- Contribute to R&D in IoT, embedded systems, and robotics.

Embedded Systems Developer | E-lord Technology   *Ogbomoso | Aug 2019 – Present*
- Engage in foundational research and development for embedded systems and IoT applications.
- Execute early-stage PCB design concepts and hardware testing for consumer electronics.

LEADERSHIP & TRAINING EXPERIENCE

STEM Club Instructor | Himma College   *Minna | Nov 2024 – May 2025*
- Instructed secondary school students in robotics and electronics, conducting practical hands-on workshops to foster interest in mechatronics engineering.

Embedded Systems & IoT Facilitator | Ideal Intelligent Innovation Research Group   *Minna | May 2022 – Present*
- Deliver hands-on training in IoT and embedded systems, guiding participants through hardware prototyping, firmware development, and system integration.

Lead Trainer - Embedded Systems & IoT | **Build-a-thon Holiday Camp & Summer with DOME** *Minna | Aug 2024 & Aug 2025*
- Led intensive technical training sessions for over 250 students, teaching the fundamentals of embedded systems, IoT, and Scratch programming.
- Guided participants through hands-on hardware prototyping, fostering the next generation of Nigerian engineers.

EDUCATION

B.Eng. Mechatronics Engineering | Federal University of Technology, Minna, Nigeria (***Grade:** 87%)*

CERTIFICATIONS & AWARDS

- Control Design Onramp with Simulink – MathWorks (Feb 2025)
- Simulink Fundamentals – MathWorks (Jul 2023)
- Career Essentials in Sustainable Tech – Microsoft & LinkedIn (Oct 2024)
- NNPC/Seplat JV National Undergraduate Scholarship (2024)
- Abdulkabir Aliu Foundation Scholarship (2023)
- Vice Chancellor's Certificate of Excellence – FUTMinna (2022)

REFEREE

- Taliha Abiodun Folorunso (PhD) –
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  Department of Mechatronics Engineering,
  Federal University of Technology, Minna, Nigeria

- Jibril Abdullahi Bala (PhD) –
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