AYOBAMI PHILIP OBAREWO

Critical Power & Mission-Critical Operations Engineer

Abuja, Nigeria • Open to Relocation / Remote

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PROFESSIONAL SUMMARY

Critical Power Engineer with 12+ years delivering high-availability electrical infrastructure across city-wide control rooms (Abuja AIITIS, 100+ signalized sites), high-throughput manufacturing, and embedded power-management product development. Hands-on expertise in UPS/ATS architectures, generator integration (Cummins PowerCommand via Modbus RTU), three-phase metering (IEC 62053-21), solar/battery hybrid backup, and BMS/EPMS/SCADA-style supervision. Reduced **MTTR from 48h to under 8h** and sustained **>99% operational availability** through preventive-maintenance programmes. Cross-functional team leader (8+), COREN Registered Engineer.

CORE COMPETENCIES

Critical Power Systems UPS / ATS design and operation • Generator monitoring and control (Cummins PowerCommand 1.1–3.3) • Three-phase metering (IEC 62053-21 Class 1) • Solar / battery hybrid backup • Switchgear & relay coordination • Power factor & load management

Monitoring, BMS & EPMS Modbus RTU / RS-485 • GSM / Wi-Fi real-time telemetry • Real-time monitoring dashboards • Automated fault detection & alarming • SCADA-style supervision • EPMS register mapping

Mission-Critical Operations 24/7 control-room operations • MTTR optimisation (48h → <8h) • Predictive & preventive maintenance • Incident response & root-cause analysis • Change management • Operational documentation

Hardware & Field Maintenance Hardware troubleshooting & board-level rework • Motor & drive maintenance • Heating / thermal control systems • Field-swap & repair protocols • Condition monitoring • MRO inventory management

Leadership & Stakeholder Management Cross-functional team leadership (8+ engineers / technicians) • Vendor & OEM coordination • Inter-agency collaboration • Technical training & mentoring

Tools & Software KiCad, Altium • Oscilloscope, logic analyzer, power analyzer, thermal imaging, multimeters • ESP-IDF, STM32CubeMX • C / C++, Python, Node.js for embedded systems and monitoring • JLCPCB DFM/DFT workflow • Git, GitHub, MS Office

PROFESSIONAL EXPERIENCE

Senior Electrical Engineer — Jan 2014 – Present

Transportation Secretariat, Federal Capital Territory Administration

Promoted Jul 2021; previously Electrical Engineer I (2019–2021), Resident Engineer / Project Staff (2014–2019)

- Co-designed and operate the Abuja Integrated Intelligent Transportation Information System (**AIITIS**, aiitis.fcta.gov.ng): a mission-critical platform with central control room supporting 100+ signalized intersections and mobility operators across the Federal Capital Territory.
- Operate the citywide control room: real-time traffic and infrastructure monitoring, server uptime, guaranteed power switching (UPS / ATS, generator, solar), alarm triage, and shift-based operational continuity.
- Implemented predictive maintenance with automated event logging in collaboration with field maintenance teams, extending uptime discipline beyond the control room out to distributed field infrastructure across the FCT.
- AIITIS information platform integrated with Galaxy Backbone infrastructure for data protection and backup (per government standard), coordinated via the FCTA ICT Department.
- Led a cross-functional team of 8 technicians and engineers across maintenance, upgrade, and new-installation programmes for citywide critical infrastructure.
- Implemented solar / battery backup across critical sites, reducing grid-outage downtime by ~40%.
- Established preventive-maintenance schedules with automated fault logging and rapid field-swap protocols, cutting **MTTR from 48 hours to under 8 hours**.
- Performed hardware troubleshooting and root-cause analysis on 20+ traffic control devices across multiple batches, producing repair-cost estimates and stakeholder reporting.

Earlier responsibilities (Jan 2014 – Jun 2021):

- Designed, installed, and maintained traffic control and power systems across the FCT, upgrading legacy solar installations across 20+ critical sites with measurable uptime improvements; established and led the Department's first traffic-light maintenance team (2016), receiving formal commendation that became the basis for the team's permanent appointments in 2019.

Embedded Systems & Power Management Engineer (Independent Contractor) Sep 2020 – Present

CyberFlux Nigeria Ltd.

- **SmartSAV Energy Management Platform v2.0** (~40 systems at Cosgrove Katampe estate): automated load-control / building-automation system using GSM / Wi-Fi real-time telemetry and on-board STM32 / ESP32 edge control, with integrated UPS / ATS, battery monitoring, relay sequencing, and solar charging.
- **SmartSAV v1.0** (~160 domestic units at Cosgrove Wuye estate): deployed estate-wide LoRa-based normalised energy monitoring with custom TDMA scheduling, achieving 99.2% uplink reliability across 2 km (latency limitations subsequently addressed in v2.0).
- Implemented Modbus RS-485 integration with industrial three-phase energy meters (JSY-MK-323, IEC 62053-21 Class 1), solar inverters, and battery management systems, with register mapping, polling engine, exception handling, and real-time visualisation.
- Integrated Cummins PowerCommand generator monitoring via Modbus RTU for voltage, current, frequency, power factor, and alarm status across PowerCommand 1.1–3.3 controllers.
- Built automated multi-site power monitoring dashboard with WebSocket real-time feeds and threshold-based alarming.
- Performed board-level hardware troubleshooting and rework through prototype, first-article, and field-deployment phases, including DFM / DFT handoff to contract manufacturers.

Embedded Systems & Maintenance Engineer (Independent Contractor) Nov 2019 – May 2022

Urban Motion Nigeria Ltd.

- Led wireless and wired control system development from prototype through volume production (hardware bring-up, debug, rework); engineered solar-power retrofits for critical sites with MPPT controllers, battery banks, and protection devices.

Consultant Maintenance Engineer Mar 2014 – May 2021

KEGA Integrated Networks Ltd.

- **Held primary ownership of factory MRO**: maintenance, repair, and operations of all machinery and equipment for high-throughput film-extrusion and bubble-wrap manufacturing, including motors, precision heating / thermal-control systems, extruders, and electrical distribution.
- Achieved and sustained **85% machinery capacity utilisation** through preventive-maintenance scheduling and rapid incident response.
- Coordinated daily, weekly, and monthly production reporting and KPI tracking, ensuring consistent uptime and zero unplanned production halts during critical runs.
- Applied disciplined thermal control, motor-drive maintenance, and mechanical-electrical fault diagnosis, building competencies that have shaped subsequent work in critical infrastructure and facility operations.

KEY PROJECTS

- **Indigenous Wireless Traffic Light Controller (2017 – 2025)**: Led R&D for the FCT's first indigenous wireless traffic light controller, replacing imported hard-coded systems prone to interference and post-installation reconfiguration limits. Initial deployment in Abuja (2017), with subsequent deployments extending to Kebbi State (2022), Lagos State (2023), and Bauchi State (2025). Supports flexible pre- and post-installation configuration and remote access; aligned with the FCT Urban Traffic Control Master Plan.
- **SmartSAV Energy Management Platform (v1.0 → v2.0)**: End-to-end intelligent power-management product family. v1.0 (~160 domestic units at Cosgrove Wuye): LoRa-based normalised energy monitoring with custom TDMA scheduling, 99.2% uplink reliability over 2 km. v2.0 (~40 systems at Cosgrove Katampe): GSM / Wi-Fi real-time control, on-board STM32 / ESP32 edge logic, and integrated BAS / load control.
- **AC-Wired Traffic Signal Controller Reverse Engineering (2014)**: Reverse-engineered failing AC-wired traffic controllers to address recurrent breakdowns from limited replacement parts. Solution scaled across FCT intersections, breaking the cycle of recurring import spend and establishing a sustainable maintenance approach. Recognised with commendation and cash prize.
- **Studer Innotec Xtender Inverter-Charger Repair**: Serviced Swiss-made UPS-class Xtender inverter-chargers (XTH 5000-24, 5 kVA / 24 V; XTM 3500-24, 3.5 kVA / 24 V) via Al-sudas (Abuja). Component-level rework on the XTM; XTH returned to service after sourcing the OEM replacement control board directly from Studer Innotec, Switzerland.

EDUCATION & CERTIFICATIONS

B.Eng. Electrical & Electronics Engineering — University of Ilorin, Nigeria 2012

- **COREN Registered Engineer (R56955)** — Council for the Regulation of Engineering in Nigeria, 2020
- **NSE Member (50295)** — Nigerian Society of Engineers, 2019
- **Polysolar Technologies (Beijing)** — Traffic Signal Workshop, May 2016 (Tektronix wireless analyser, embedded control).