Content

Safety and standards in the electrification of embedded systems

Seminar – 15 and 16 October 2025

- Why Safety Matters

- Transporting people and food requires strict safety protocols
- Thermal runaway above 60°C can reach 900°C locally
- Jokosun integrates multi-layer safety: BMS, IP67/68, fuses, and monitoring

- Key Safety Challenges

- Thermal management and heat dissipation
- Ingress protection: IP67 (1m/30min) and IP68 (2m/1h)
- Vibration resistance: IEC 62619 (10–55Hz, 1mm amplitude)
- Electrical insulation: <100µA leakage at 500V (IEC 60664)
- Fire-resistant casing: UL94-V0

- Existing Standards & Gaps

- IEC 62619 – Industrial Li-ion batteries
- ISO 16315 – Marine electrical systems
- ABYC E-30 – Boat electrical installations
- IEC 60529 – IP protection levels
- Gap: few African countries have adopted or enforce these norms

- Recommendations for Africa

- Create harmonized African EV safety standards (marine + land)
- Minimum requirement: IP67, BMS, fuse, thermal cutoff
- Establish national testing labs for vibration and corrosion
- Train 10,000 certified technicians by 2030
- Use real field data (Jokosun telemetry) to guide standards

–Environmental Constraints in Africa

- Temperature: up to 45°C → derating of 10–15%
- Humidity >80% and salt exposure cause corrosion
- Vibrations from navigation: up to 2g RMS
- Jokosun batteries certified IP68 (2m immersion, 1h test)

–Subsidies: Thermal vs Electric (Senegal)

- Thermal engines: fuel subsidies ≈200–300 FCFA/L; import credits; loans for fishermen
- Electric systems: taxed imports, no fiscal incentives, no financing schemes
- Thermal appears 25–30% cheaper upfront due to subsidies
- Recommendation: redirect 20–30% of fuel subsidy toward electrification programs

–Benchmark – Leading African Countries

- Kenya – EV Policy 2025–2034, KEBS standards, active 2–3 wheel market
- Rwanda – 0% VAT/import tax until 2028, growing charging network
- Morocco – e-Mobility Plan 2025, 2,500–3,500 chargers by 2026
- South Africa – EV White Paper 2023, industrial incentives
- Senegal – target 37,000 EVs by 2030, standards for Li-ion pending

Closing Seminar

MERCI - THANKS

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