HASSAN ISMAIL

IoT / Edge Solutions Architect

Abu Dhabi, UAE · +971 508390313 · hassan14nour9@gmail.com · LinkedIn · GitHub
Open to relocation · Germany / EU · Munich / Frankfurt / Stuttgart / Nuremberg preferred

PROFESSIONAL SUMMARY

IoT / Edge Solutions Architect with 6+ years of experience designing embedded-to-cloud platforms for smart city, fleet, inspection, and agriculture IoT systems. Currently leading a five-person engineering team at Tatweer, delivering government-scale platforms covering 4,150+ tracked vehicles, 6,000 impound devices, and 300,000+ AI-assisted driving tests across UAE federal operations.

Core strength: bridging embedded systems and scalable platforms — STM32, ESP32, LoRa/GSM, MQTT, Kafka, NestJS, Angular, Docker, Linux, and Azure. Targeting smart infrastructure, fleet/mobility, industrial IoT, and Industry 4.0 roles in Germany/EU.

CORE COMPETENCIES

Architecture	Edge-to-cloud IoT design, event-driven systems, microservices, hybrid cloud-edge, smart city & fleet platforms
Embedded & RF	STM32, ESP32, AVR, C++, LoRa, GSM/4G, GPS, BLE, MQTT, Modbus TCP/RTU fundamentals, I2C, SPI
Backend & Data	NestJS, Node.js, Python, Apache Kafka, REST APIs, MQTT broker architecture & topic design, MySQL, MongoDB
Frontend	Angular, real-time IoT dashboards, WebSocket integration
DevOps & Cloud	Docker, Linux (Ubuntu), CI/CD pipelines, IIS, Azure, Git
Leadership	Project lead — 5-person engineering team · Agile/Scrum · Government stakeholder delivery
Target Sectors	Smart city, fleet & asset management, public safety, agriculture IoT, industrial automation, Industry 4.0

PROFESSIONAL EXPERIENCE

IoT / Edge Solutions Architect & Project Lead

Nov 2022 – Present

TATWEER MIDDLE EAST & AFRICA · *Full-time* · *Abu Dhabi, UAE*

Responsible for end-to-end architecture and delivery of mission-critical IoT and smart city platforms for the UAE federal government agencies. Manage a team of five engineers through all project phases — requirements, system design, embedded integration, cloud deployment, and client acceptance.

- Fleet Management Platform — Architected a real-time vehicle tracking and compliance system (NestJS, Angular, GPS/GSM) covering 4,150+ government assets: civil defence (2,000 vehicles), police patrol (1,800 units), smart police (350), and specialist undercover units (8). Delivers live telemetry, route history, and SLA compliance reporting across multiple federal agencies.
- Smart Driving Test System — Led development of an AI/ANPR-based driver assessment platform deployed across Abu Dhabi and Umm Al Quwain emirates. Processed 300,000+ driving licence tests within two years across a 55-vehicle embedded sensor fleet, achieving a 25% efficiency improvement over the legacy system.
- Impound Device Infrastructure — Designed IoT backend managing 6,000 field-deployed impound devices with real-time status monitoring, remote lock/unlock command dispatch, and full audit logging for law enforcement operations.
- Smart Parking Platform — Built an MQTT-based municipal parking system integrating ANPR cameras, edge processors, and city dashboards; automated violation detection and reduced reliance on manual patrol workflows.

- Inspection Vehicle Telemetry — Designed Kafka/Python real-time data pipelines for mobile inspection units, enabling live incident reporting and faster operational response.

Stack: *NestJS · Angular · Python · Apache Kafka · MQTT · ANPR/AI · GPS · GSM/4G · BLE · Docker · Linux · CI/CD · IIS · Azure*

IoT Hardware & Systems Architect
Aug 2019 – Oct 2022

AGRISENSORS · *Remote Contract* · *Italy (Remote)*

Owned full-cycle IoT product development for an Italian agri-tech company — from sensor hardware and embedded firmware through cloud connectivity and customer-facing SaaS dashboards. Established core expertise in productised IoT: systems that must run unattended, on solar power, in the field, with minimal cloud dependency.

- Designed solar-powered crop monitoring systems (STM32/ESP32) measuring feed, water, temperature, and CO_2 — optimised for ultra-low power and off-grid deployment.
- Built GPS cold-chain tracking for refrigerated logistics fleets using GSM/LoRa with real-time dashboard alerting for temperature excursions.
- Delivered a multi-tenant SaaS IoT platform covering device provisioning, real-time telemetry, remote configuration, and subscription billing.
- Implemented edge computing decision logic on embedded devices, reducing cloud round-trips and enabling autonomous field operation.

Stack: *STM32 · ESP32 · C++ · MQTT · LoRa · GSM · GPS · I2C · SPI · Node.js · SaaS platform design*

Independent IoT / Embedded Systems Contractor
Sep 2018 – Nov 2022

Self-employed — Contract Projects · *Various clients* · *Remote*

Concurrent engineering contracts alongside primary roles, covering IoT hardware R&D and platform development for industry clients:

- MK Illumination (Jan–Oct 2021) — Led R&D for AVR/ESP-based IoT power metering boards used in large-scale decorative lighting infrastructure; implemented 2G/3G/4G and Wi-Fi remote monitoring for field-deployed units.
- Industrial IoT Platforms — Built Angular real-time dashboards and REST APIs (Node.js) for SME clients, containerised with Docker and deployed on Azure Linux infrastructure.
- Embedded Automation Systems — Designed firmware and hardware integration for industrial machine automation requiring precise real-time control.

Stack: *AVR · ESP32 · C++ · GSM/4G · Wi-Fi · MQTT · Angular · Node.js · Docker · Azure · Linux*

EDUCATION

B.Eng. Information & Communication Technology Engineering
2014 – 2020

Tartous University, Syria

CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

AWS Solutions Architect Associate — *In progress (target: Q3 2026)*

ITIL 4 Foundation Training · 2024
CCNA · CompTIA A+ Training · National Education Network · 2017
Advanced IoT & Embedded Systems Training · 2018–2019

LANGUAGES

Arabic — Native **English** — C1 Proficient **German** — A1

Syrian national · UAE resident · Open to Germany/EU relocation