# Embedded System Design & Smart Device Development

From concept to connected, intelligent, and production-ready embedded products.

- DAL IOT is an embedded systems and IoT hardware design company focused on developing intelligent, connected, and sensor-based products. We support clients through the full development cycle, from research and concept validation to PCB design, firmware development, prototyping, testing, and deployment.
  By combining hardware, firmware, connectivity, AI capabilities, and product design, DAL IOT delivers practical embedded solutions that improve monitoring, automation, control, and decision-making across different industries.

## What We Do:

- We design and develop custom embedded systems that connect devices, collect data, process information, and enable remote monitoring or control. Our solutions are built to operate reliably in real-world environments, whether for industrial systems, smart consumer products, wearable devices, environmental monitoring, or advanced AI-powered applications.
  Our work includes designing electronic circuits, integrating sensors, developing embedded firmware, creating PCB layouts, building prototypes, and supporting clients through testing and product optimization

## Key Value Statement:

- We help clients move from an idea to a working product faster, with reduced technical risk and a clear path toward production.

## Our Services

- **Embedded Hardware Design:** Custom electronic system design for smart devices, control boards, sensors, wearables, power systems, and industrial applications.
- **PCB Design & Layout:** Schematic design, PCB layout, multi-layer boards, compact PCB design, manufacturing files, and production documentation.
- **Firmware & Embedded Software:** Device drivers, sensor data acquisition, control logic, communication protocols, diagnostics, security features, and low-power firmware.
- **Sensor Integration:** Integration of biometric, environmental, motion, pressure, impact, vibration, GPS, power monitoring, and stretch sensors.
- **Wearable & Smart Device Development:** Development of smart rings, smart bands, health monitoring devices, compact electronics, battery-powered products, and ergonomic enclosures.
- **AI-Enabled Embedded Systems:** Embedded products supported by AI, sensor fusion, data interpretation, intelligent user interaction, and edge or cloud-based processing.
- **Connectivity & IoT Integration:** BLE, Wi-Fi, LoRa, LoRaWAN, RF, cellular, GPS, wired communication, mobile app integration, cloud connectivity, and remote monitoring.
- **Prototyping & Testing:** Proof of Concept development, rapid prototyping, hardware bring-up, firmware testing, calibration, enclosure prototyping, and field validation.

## Industries Served

- Industrial automation and smart infrastructure
- Smart energy and power monitoring
- Defense, security, drones, and robotics
- Wearable, healthcare, and wellness devices
- Agriculture, meteorology, and environmental monitoring
- Consumer IoT, training, simulation, and VR systems

# Development Workflow & Engineering Approach

A structured process for transforming concepts into tested, reliable, and production-ready embedded products.

- DAL IOT follows a practical engineering workflow that reduces technical risk, improves product quality, and accelerates development. From requirement analysis to prototyping, testing, and production preparation, our team works closely with clients to ensure every embedded system is technically sound and ready for real-world use.

### 01 Requirement Analysis

Project goals, requirements, users, environment, and constraints.

### 02 System Architecture

Hardware, firmware, sensors, power, connectivity, and integration.

### 03 Hardware & PCB Design

Schematics, PCB layout, BOM, and manufacturing files.

### 04 Firmware Development

Control logic, sensor reading, communication, and diagnostics.

### 05 Prototype & Bring-Up

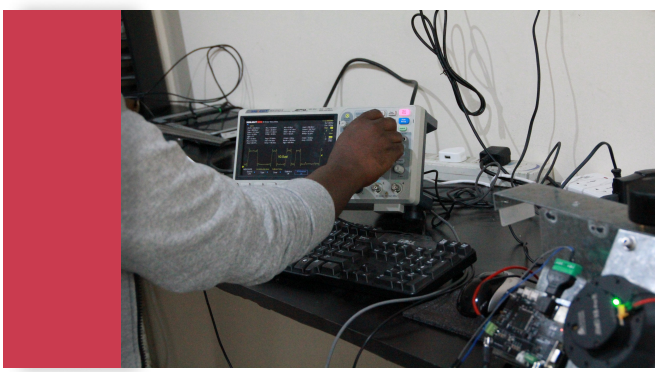
Prototype assembly, board testing, debugging, and validation.

### 06 Testing & Optimization

Calibration, reliability testing, power optimization, and production support.

## Engineering Approach:

- Client-focused requirement analysis
- Modular system architecture
- Prototype-first validation
- Reliable hardware and firmware design
- Sensor accuracy and calibration
- Low-power and battery-aware development
- Secure and scalable connectivity
- Production-aware documentation

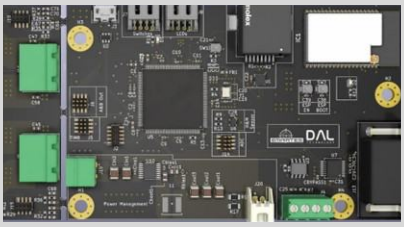



## Key Deliverables

- Requirement documentation
- System architecture diagram
- Electronic schematic files
- PCB layout and Gerber files
- Bill of Materials
- Firmware source code
- Prototype hardware units
- Enclosure design files
- Test and validation reports
- Integration and production support files

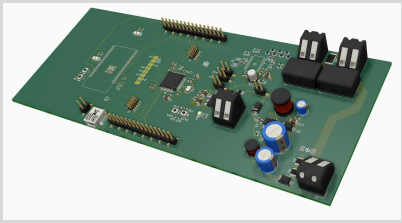
# Project Experience

Proven embedded system experience across smart devices, industrial systems, wearables, AI-powered products, and advanced technologies.



### Emirate Shooting Equipment Baseboard

An advanced embedded control board designed to operate multiple shooting target systems, including popup targets, monorail targets, vehicle targets, and POLYRACK targets.



### DAL IOT Smart Plug

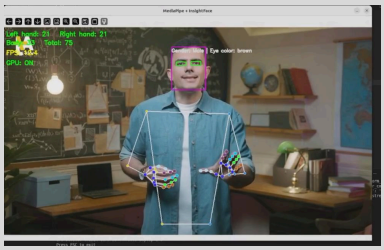
A smart power monitoring device designed to stand between a wall outlet and electrical equipment, enabling remote monitoring and control through Bluetooth connectivity.

### Radiosonde for Meteorological Applications

An atmospheric measurement device designed to measure and transmit weather data in real time while carried into the atmosphere.

### Smart Band

A wearable device platform integrating biometric and physical sensors for health, wellness, and movement monitoring.



### Human Specs Reader Powered by AI

An AI-powered smart reader concept combining embedded hardware, intelligent processing, and user interaction for assistive and smart personal device applications.

## Let's Build Your Next Embedded Product

Whether you need a proof of concept, custom PCB, firmware development, wearable device, AI-powered embedded system, or full smart product design, DAL IOT can support your project from idea to deployment.