

# Mousa Gaballah

IoT Application Developer

 Cairo, Egypt —  Military Status: Postponed

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 Mousa Gaballah —  Mousa Gaballah —  Portfolio

## Summary

Motivated Telecommunications and IoT Engineer with expertise in communication networks, wireless systems, and IoT architectures. Experienced in designing and implementing complex networks of heterogeneous devices, including ESP32 and Arduino nodes, with cloud and fog integration. Skilled in network protocols (MQTT, HTTP, BLE, Wi-Fi), data communication, and applying AI for network optimization. Developed interactive frontend dashboards to unify data visualization across IoT projects, combining embedded systems, network design, and intelligent data processing for scalable and efficient solutions.

## Education

**B.Sc. in Electronics and Electrical Communications Engineering** July 2026

Faculty of Electronic Engineering, Menoufia University

**Current Year:** Fourth Year **GPA:** 3.11

## Achievements

**Smart Plug Monitor** Aug 2025

- Developed an ESP32 smart plug with MQTT for real-time energy monitoring and remote control.
- Created a web dashboard for live data visualization and relay control.

**Smart Agricultural Monitoring System** May 2025

- Built a WSN with ESP32–LoRa nodes to monitor soil moisture, temperature, humidity, and light.
- Developed an MQTT–Node-RED dashboard for real-time monitoring and irrigation alerts.

**Short-Range Radar System** Dec 2024

- Developed an Arduino-based radar system to detect object distance and angle.
- Visualized tracking data in real time using Processing.

**Web-Based Student Management System** Mar 2024

- Built a full-stack PHP/MySQL web app for managing student records.
- Implemented secure CRUD operations with a responsive interface.

**AI Modal Classification Project – MATLAB** Feb 2024

- Built a MATLAB machine-learning model for feature extraction and classification.
- Evaluated model performance with accuracy and cross-validation.

## Experiences

**Software Development Trainee – React Frontend Web Developer – DEPI** Nov 2025

- Undergoing a full-stack web development training with focus on React and NodeJS, including a capstone project.
- Developed a real-world web application integrating frontend and backend components as part of the training.

**IoT Application Development Trainee – SpimeSenseLabs & ITI** Aug 2025

- Completed a 30-hour IoT training covering value chain concepts and practical application development.
- Built IoT solutions on the MasterOfThings platform using Wi-Fi, BLE, and SigFox devices.

**IoT Applications Trainee – NTI** Jul 2025

- Trained on end-to-end IoT systems including sensors, microcontrollers, cloud connectivity, and Python programming.

- Completed 120-hour hands-on labs covering fog computing, business use-cases, and full IoT solution development.

### Digital Design Trainee – Orange Digital Center

Jan–Feb 2025

- Completed a 96-hour intensive course on FPGA programming, HDL, and digital logic design.
- Designed and implemented combinational and sequential circuits.

### Data Analytics Trainee – DEPI

Oct 2024 – Feb 2025

- Executed the full data analytics pipeline: extraction, cleaning, modeling, and visualization using Microsoft Power BI and DAX.
- Developed interactive dashboards with automated refresh, integrating Azure services and external data sources.

### Summer Intern – Systel Telecom

Cairo, Sep 2024

- Gained practical knowledge of telecommunications, microwave communication, and CCTV systems.
- Participated in hands-on workshops on fiber optics and broadband communication.

## Skills

- Embedded Systems:** ESP32, Arduino, PIC16F877A, Servo Motor Control, LCD Interfacing, Sensor-based Systems
- Protocols:** MQTT, HTTP, BLE, Wi-Fi, LoRa, SigFox
- Programming Languages:** Embedded C, MikroC, Python, C++, PHP, C#, Java, JavaScript, TypeScript, HTML5, CSS, SQL, NodeJS, Docker, Kubernetes
- Tools and Platforms:** MATLAB, Simulink, Node-RED, Blynk, ThingsBoard, Processing, Proteus, EasyEDA, Jupyter Notebook, Google Data Studio
- Data Analytics:** Power BI (DAX, Dashboards), Tableau, Data Cleaning, Statistical Analysis, Data Modeling, Machine Learning Basics
- PCB Design and Simulation:** EasyEDA, Proteus
- IoT System Design:** Sensor & Actuator Integration, Microcontroller Interfacing, End-to-End IoT Solutions, Remote & Simulated Labs, Application Development using MasterOfThings Platform
- Networking & Cloud:** Fog Computing, Cloud Integration, IoT over IP Networks
- General Skills:** Data Governance, Problem Solving, Teamwork & Leadership, Time Management

## Courses & Certifications

• <b>Internet of Things (IoT) Applications</b>	SpimeSenseLabs & ITI	Aug 2025
NTI 2025		
• <b>IoT Value Chain Components</b>	DEPI	Feb 2025
Mahara Tech 2025		
• <b>IoT Application Development using MasterOfThings Platform</b>	ODC	2025
Mahara Tech 2025		
• <b>Mobile IoT Applications (Indoor &amp; Outdoor Positioning)</b>	ITIDA	2024
Mahara Tech 2025		
• <b>Developing Custom Events &amp; Plugins on MOT Platform</b>	Mahara Tech	2024
Mahara Tech 2025		
• <b>Hands-On Training on IoT Devices</b>	Mahara Tech	2024
Mahara Tech 2025		
• <b>IoT Application Development Summer Training</b>	Cairo	Sep 2024

## Languages

Arabic: Native

English: Fluent