

Mousa Gaballah

Cairo, Egypt — Military Status: Postponed

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Summary

Motivated IoT Application Developer and KNX Building Automation Specialist with solid experience in embedded systems, microcontrollers, and wireless communication protocols. Skilled in designing and implementing smart building and IoT solutions using KNX technology integrated with ESP32, Arduino, MQTT, BLE, and Wi-Fi. Proficient in developing automation systems for lighting, HVAC, and energy management, and integrating KNX with IoT cloud platforms such as Blynk, ThingsBoard, and Node-RED. Experienced in sensor interfacing, PCB design, and cross-technology communication between KNX and wireless IoT devices to build scalable, intelligent, and energy-efficient automation systems.

Education

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

Faculty of Electronic Engineering, Menoufia University

Current Year: Fourth Year

GPA: 3.11

Technical Projects

Smart Plug Monitor Aug 2025

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

IoT Air Quality Monitoring System Jul 2025

- Developed an IoT system using ESP32, DHT22, and MQ135 sensors to monitor temperature, humidity, and air quality.
- Connected data to the MasterOfThings cloud platform for visualization and alert notifications.
- Implemented data analytics dashboard and threshold-based alert system.

Short-Range Radar System Dec 2024

- Developed a radar system using Arduino, ultrasonic sensor, and servo motor to detect object distance and angle.
- Visualized object tracking data in real time using Processing software.

Experiences

KNX Building Automation Trainee – Skills4Trends Sep 2025

- Completed hands-on training on KNX topology, devices, and configuration using ETS6 software.
- Designed and simulated smart building systems including lighting, HVAC, and shading control.
- Gained practical experience in KNX TP and RF communication, line coupling, and addressing.

IoT Application Development Trainee – SpimeSenseLabs & ITI Aug 2025

- Completed a 5-day (30-hour) IoT training covering value chain, application development, and hands-on lab practice.
- Built IoT applications on the MasterOfThings platform using Wi-Fi, BLE, and SigFox devices.
- Gained practical experience with IoT lab systems under supervision at ITI Menoufia Branch.

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, HTML5, CSS, SQL
- **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
- **KNX Building Automation:** KNX Topology, ETS6 Configuration, TP & RF Communication, Line Coupling, Device Addressing, Lighting & HVAC Control, Smart Building Integration
- **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

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| <ul style="list-style-type: none"> • Internet of Things (IoT) Applications
NTI 2025 • IoT Value Chain Components
Mahara Tech 2025 • IoT Application Development using MasterOfThings Platform
Mahara Tech 2025 • Mobile IoT Applications (Indoor & Outdoor Positioning)
Mahara Tech 2025 • Developing Custom Events & Plugins on MOT Platform
Mahara Tech 2025 • Hands-On Training on IoT Devices
Mahara Tech 2025 • IoT Application Development Summer Training | <ul style="list-style-type: none"> SpimeSenseLabs & ITI • Data Analytics Training
DEPI Feb 2025 • Digital Design Course
ODC 2025 • Startup Project Development
ITIDA 2024 • Computer Network Fundamentals
Mahara Tech 2024 • Introduction to Network Security
Mahara Tech 2024 • Telecommunications & Public Safety
Mahara Tech 2024 • Python Programming Basics
Mahara Tech 2024 • Summer Internship – Systel Telecom
Cairo Sep 2024 |
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Languages

Arabic: Native

English: Fluent