Embedded Software Engineer

Oğuz Kağan Yağlıoğlu

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WORK EXPERIENCE

Huawei **Ankara, Turkey**

Software Engineer *September 2025 – June 2026*

- Developed and optimized software components for **Huawei smartwatch applications**, supporting new feature integration and product release requirements.
- Worked on **HarmonyOS** software development and maintenance by implementing improvements, resolving software defects, and validating system behavior.
- Conducted **software testing**, **debugging**, and **root-cause analysis** for wearable device applications to enhance stability, reliability, and user experience.
- Supported **testing and validation** processes for upcoming smartwatch and operating system releases, ensuring issues were identified, tracked, and resolved effectively.

BioCoder Teknoloji **Mersin, Turkey**

Embedded Software Engineer *August 2023 – September 2025*
December 2022 – July 2023

- **Advanced Beehive Monitoring & Security System**: Built a comprehensive solution with **STM32**, **GSM**, **GPS**, sensors, and **PDM** microphone; implemented **FFT** for audio analysis, enabled secure **MQTTS** communication, and orchestrated real-time data processing using **FreeRTOS**.
- **Beehive Theft Detection Device**: Developed **STM32**-based motion detection system with **GPS** and **accelerometer**; designed false-positive elimination algorithms and optimized power management for extended battery life under **FreeRTOS**.
- **Remote Alarm System & Bootloader Development**: Created integrated security systems with GSM connectivity; developed **custom bootloader** with **CRC** integrity checks to ensure seamless **OTA** updates and system reliability.
- **IoT Environmental Monitors**: Built two versions (v1:**ESP32**, v2:**STM32** and **ESP8266**) with temperature and humidity sensors, implemented secure communication (**MQTTS**, **HTTPS**), web configuration panels, **Wi-Fi Manager**, and **OTA** update functionality; optimized for battery operation and remote deployment.

Baykar Teknoloji **İstanbul, Turkey**

Embedded Software Engineer Intern *July 2023 – August 2023*

- Contributed to embedded software development tasks using **C/C++**, gaining hands-on experience in real-time systems, debugging, and testing within a professional engineering environment.

AWARDS & GRANTS

TÜBİTAK 2209-A Grant **2023**

Project Title: Integrated Health Monitoring System with Smart Bracelet
Role: Principal Investigator and Embedded Systems Developer
Scope: Developed an innovative smart bracelet solution for elderly and care-dependent individuals, integrating EKG monitoring, heart rate tracking, fall detection, and GPS for enhanced healthcare and safety.

CONFERENCES

2. INTERNATIONAL PARIS SCIENTIFIC RESEARCHES AND INNOVATION CONGRESS **France**

15-16 February 2025

- **Presented** our Smart Bracelet Health Monitoring System project to an international audience of researchers and industry professionals
- **Published** in the conference proceedings, documenting our innovative approach to wearable healthcare technology and real-time monitoring solutions

PROJECTS

TÜBİTAK 2209-A Health Monitoring System

C | nRF52840 BLE | Zephyr RTOS | BLE GATT | EKG Sensors | Oxygen Sensors | Gyro | Accelerometer

- **Developed** firmware for the **nRF52840 BLE** processor using **Zephyr RTOS**, optimizing power consumption and enabling real-time performance.
- **Implemented BLE GATT** protocols to ensure reliable, high-speed data transfer between a Java-based mobile application and an ASP.NET MVC web platform.

- **Integrated** custom drivers for specialized sensors (EKG, oxygen monitoring) and designed a fall-detection algorithm for automatic emergency notifications.
- **Led** PCB design for a **4-layer main board** and a **2-layer sensor board**; coordinated production of a 3D-printed enclosure to deliver a portable and user-friendly prototype.

Mini Game Console

C | TM4C123G | NOKIA 5110 *October 2022 – October 2022*

- **Created** an mini game console from scratch using Texas Instruments' **TM4C123G** board and a **Nokia5110** display.
- **Implemented** custom drivers and screen libraries in C at the register level, minimizing external library dependencies.
- **Designed** user input with a button and a potentiometer, completing the project successfully within one month.

Smart Bicycle

C++ | RASPBERRY PI PICO | SIM800 \ QUECTEL L80 *July 2022 – September 2022*

- **Developed** embedded software for real-time bicycle tracking, secure lock management, and lighting controls.
- **Engineered** security features (lock-break or impact detection) triggering user notifications.
- **Led** circuit design and oversaw prototype production to ensure reliable hardware functionality.

Smart LED Video Lighting

C++ | NODEMCU | JAVASCRIPT | HTML | CSS *2022 – 2023*

- **Built** a 72-watt smart light with color and brightness control via a web interface and an onboard control panel.
- **Integrated** Google Home and Google Assistant support for voice-controlled adjustments.
- **Implemented** wireless network configuration and **OTA updates** for seamless software maintenance.

Perfect Lights Custom Smart Home

C++ | NODEJS | EXPRESS | MONGODB | NODEMCU *2021 – 2023*

- **Architected** a system for manufacturers to quickly build and deploy smart home devices.
- **Published** an Arduino library, reducing development time by approximately 25%.
- **Maintained** backend services with Node.js, Express, and MongoDB for efficient data management.

NON-PROFIT WORK EXPERIENCE

ORION Rocket Team **Mersin, Turkey**

Embedded Systems Unit Leader *February 2022 – July 2023*

- **Spearheaded** the design and prototype production of rocket avionics boards, ensuring reliable performance under high-stress conditions.
- **Developed** core flight algorithms and embedded software to support successful launches and data acquisition.

Google Developer Student Clubs (GDSC) Mersin University **Mersin, Turkey**

Core Team Member *January 2022 – September 2022*

- **Built** software solutions for the Google Solution Challenge, presenting findings and innovative approaches to judges and participants.
- **Achieved** a top-5 rank among 200+ Turkish participants, demonstrating the project's technical excellence and social impact.

CERTIFICATES

- AlgoExpert Certificate — Certificate ID: c4dca73a68
- 2. International Paris Scientific Researches and Innovation Congress - Participant — February 2025, France

EDUCATION

Hacettepe University **Ankara, Turkey**

Master of Science (M.Sc.), Computer Engineering *02.2026 – Present*

Expected Graduation: 2028

Mersin University (GPA: 3.68) **Mersin, Turkey**

Bachelor's Degree, Computer Engineering *Graduation Date: 03.07.2024*

Ranked 2nd in the Class

SKILLS AND INTERESTS

Skills: *C, C++, RTOS, Git, Data Structures & Algorithms, Problem Solving, Teamwork, Leadership*

Languages: *Turkish – Native*

English – Professional Working Proficiency

TOEFL iBT – 95/120 (March 4, 2025)

CEFR Level: C1

Interests: *Science, Technology, Creating New Projects*