MUHAMMET YILDIZ

Austin, TX | (617) 906-1307 | e-Mail | GitHub | LinkedIn | yldzmuhammed.com

SUMMARY

Embedded systems engineer with 15+ years designing and shipping production hardware and firmware for IoT, industrial, robotics, and medical devices. PCB design through firmware through cloud — Altium, C/C++, FreeRTOS, NVIDIA Jetson, AWS. Led cross-functional teams across firmware, hardware, and software. U.S. work authorized, no sponsorship required.

SKILLS

Languages: C, C++, Python, C#, JavaScript, SQL

MCU / SoC: STM32 (F0, F1, F4, F7, L0, L1, L4, G0, G4, H4, WL, WB), nRF52, nRF54, PIC18F, i.MX, NVIDIA Jetson Nano, Raspberry Pi

RTOS: FreeRTOS, Zephyr

Protocols: LoRaWAN, BLE (4.2, 5.x, 6.x), LTE / Cat-M1 / NB-IoT, MODBUS (RTU, ASCII, TCP), IO-Link, CANOpen, RS485, MQTT, CoAP

Hardware Design: Altium Designer, multi-layer high-speed PCB, SolidWorks, RF layout

Computer Vision: LiDAR point cloud processing, real-time video pipeline optimization, image-based distance measurement, AR (Apple ARKit / Swift), C2PA content authenticity

Frameworks & Software: Node.js, React, Qt (C++), Swift, .NET (C#), TouchGFX, Linux systems programming

Tools: JTAG, SWD, Logic Analyzer, Oscilloscope, Spectrum Analyzer, Git, Jira, AWS (Lambda, IoT Core)

EXPERIENCE

Hum Industrial — Austin, TX
Principal Embedded Systems Engineer — Jul 2025 – Present

- Designing custom modem and communication protocol for railcar preventive maintenance sensor network
- Developing LoRaWAN sensor firmware for train health monitoring on STM32WL + FreeRTOS
- Redesigning sensor PCBs to improve RF performance and reduce power consumption
- Optimizing LTE modem communication stack for UDP/MQTT telemetry in rail environments

Guinn Partners — Austin, TX
Software Team Lead — Aug 2024 – Jul 2025

- Implemented C2PA image signing and verification pipeline on i.MX platform
- Built LiDAR and real-time image processing systems on NVIDIA Jetson Nano for autonomous robots and drones
- Engineered network bandwidth reduction for security camera infrastructure on NVIDIA Jetson Nano
- Developed Apple AR application (Swift / ARKit) for image-based distance measurement
- Led Lift Foils mobile app and web backend development teams

Amplified Industries — Somerville, MA
Senior Embedded Systems Engineer — Oct 2022 – Dec 2023

- Redesigned PCBs in Altium, reducing field device failure rate by 15%
- Refactored firmware codebase, improving battery life by 23%
- Built BLE-to-Cat-M1 camera gateway on nRF52840 (FreeRTOS) for remote oil well monitoring via AWS Lambda

Fenac Encoder — Istanbul, Turkey
Senior Embedded Software Engineering Team Leader — Sep 2021 – Oct 2022

- Designed IO-Link encoder and industrial laser distance sensor PCBs (Altium) with firmware in C
- Built Qt (C++) configuration tools, cutting manufacturing line workload by 28%

Epsilon Elektronik — Istanbul, Turkey
Senior Embedded Systems Engineer — Aug 2020 – Sep 2021

- Developed firmware for Radia Synthesizer (FreeRTOS, C) controlling 20+ stepper motors and radioactivity sensors
- Built companion C# .NET application for device control, prescription tracking, and reporting
- Improved Radiation Area Monitor firmware accuracy, reducing field failures by 12%

Yasam Electronic Water Meter — Istanbul, Turkey
Senior Embedded Systems Engineer — Sep 2016 – Jul 2020

- Implemented LoRaWAN v1.1 stack for smart meters and smart city sensor nodes (Cortex-M0+ / M4, FreeRTOS)
- Designed and deployed LoRaWAN gateway (SX1301 / SX1308) and network server (C, Python, Linux)

Kodar Information Tech — Istanbul, Turkey
Senior Embedded Systems Engineer (Consultant) — Mar 2016 – Sep 2016

- Designed RF PCB and BLE firmware for indoor Real-Time Location System on nRF52

Tum Elektronik — Istanbul, Turkey
Embedded Systems Engineer — Jul 2012 – Oct 2015

- R&D device testing and validation through mass production sign-off

EDUCATION

Kastamonu University, Turkey — 2009 – 2014

B.S. Mechatronics Engineering

SELECT PROJECTS

Thermal Camera Access Control — Face temperature + mask detection, multi-protocol (BLE / Wi-Fi / CANOpen / RS485), TouchGFX, FreeRTOS

Mobile Payment Terminal — Custom POS on STM32F7: RFID, GSM, TouchGFX GUI, multi-layer high-speed PCB

Ultra-Low Power Water Meter — LoRaWAN v1.1 volumetric / ultrasonic meter with custom glass LCD, battery-powered

Smart Watch — nRF52 + DA1470x, environmental sensors, TFT LCD (open source on GitHub)

Industrial HMI — Zephyr-class RTOS production line controller with USB and Ethernet

ULP Sensor Nodes — Multi-protocol (Sub-1GHz, LoRaWAN, GSM, Wi-Fi, NB-IoT, BLE) environmental monitoring

LoRaWAN Gateway — Custom gateway (SX1301 / SX1308) with Raspberry Pi and STM32F4