

OMAR YARALI

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Education

Uludag University

Electrical and Electronics Engineering, B.Sc. | GPA: 3.70 | Türkiye Bursları Scholar

Sep. 2024 – Jul. 2028

Bursa, Turkey

Hochschule RheinMain

Electrical Engineering (B.Eng.) | Erasmus+ Study Mobility Grantee

Oct. 2026 – Mar. 2027

Rüsselsheim, Germany

Experience

KORDON TIP SAĞLIK ARAÇ VE GER.MÜH.PROJ.LTD.

Aug. 2026 – Sep. 2026

Embedded Systems Engineering Intern

Izmir, Turkey

- Managed the end-to-end hardware development for an ultra-low-power data logger capable of surviving 134°C.
- Architected the complete system architecture, from schematic capture and component selection to multi-layer mixed-signal PCB routing.

Ministry of Industry and Technology

Jul. 2026 – Aug. 2026

Electrical Engineering Intern

Bursa, Turkey

- Analyzed large-scale industrial and commercial electrical infrastructure to optimize overall system safety.
- Reviewed power distribution schematics using AutoCAD and Excel, resolving design discrepancies to ensure regulatory compliance.

iTech.tr

Dec. 2024 – Sep. 2026

Electronics Engineer & Co-Founder

Bursa, Turkey

- Engineered an electronic system capable of real-time edge processing for "iGlasses," an AI-supported assistive device.
- Programmed "TOKI," a hands-free AI voice assistant integrating speech-to-text transcription, LLM query routing, and automated Geoapify location parsing, alongside complex object detection pipelines.
- Drove business development by pitching technical roadmaps to investors, successfully securing a 30,000 TL grant at the Youth Tech Begin competition and the Entrepreneurship Potential Award from the T3 Foundation.

Ulurover Team

Sep. 2025 – Present

Electronics Team Captain

Bursa, Turkey

- Spearheaded end-to-end hardware design for a competitive 6-wheeled terrestrial rover, architecting resilient embedded systems capable of operating in demanding environments.
- Engineered the rover's core electronics using KiCad, designing an STM32F446-based Main Control Board and a high-power 6-Channel DC Motor Driver utilizing an STM32F405RGT6.

Projects

Electronic Bowie-Dick Test Device | PCB Design, Mixed-Signal, STM32

Aug. 2026 – Present

- Engineered a 4-layer mixed-signal PCB featuring a 24-bit Sigma-Delta ADC, designing ratiometric circuits, hardware filters, and strict analog-digital trace isolation to accurately digitize raw pressure and temperature sensors.
- Implemented an ultra-low-power STM32 control system, leveraging dual hardware SPI buses for simultaneous high-speed sensor sampling and non-volatile data storage while optimizing deep-sleep current.

iGlasses & TOKI AI Wearable | Raspberry Pi 5, Python, OpenCV, YOLOv8, I2S

Dec. 2024 – Present

- Built a custom power network using a 2S BMS, 7.4V Li-ion array, and XL4016 buck converter to safely deliver stable, high-current 5V power to the Raspberry Pi 5.
- Interfaced dual IMX219-83 cameras via MIPI-CSI for OpenCV depth estimation, fusing spatial maps with a compressed NCNN YOLOv8 model for real-time edge obstacle tracking.
- Architected a shared I2S audio bus mapping an INMP441 mic and PCM5102 DAC to the GPIO clock, integrated with a hybrid Whisper AI and Llama 3.1 LLM query routing pipeline.

Modular Power Distribution Boards | PCB Design, Power Electronics, KiCad

Apr. 2026 – Present

- Designed a 6x9 cm Bottom PDB utilizing dual XL4016 step-down converters to deliver precise, isolated power to an Nvidia Jetson Nano and a Raspberry Pi 5.
- Architected a 6x6 cm Top PDB with XL4015 converters to manage 24V Ubiquiti communications and 12V thermals, incorporating real-time digital voltage diagnostics to prevent compute brownouts.

Technical Skills

Programming: C, C++, Python, MATLAB, HTML/CSS, JavaScript

Hardware & Electronics: PCB Design, Power Electronics, Signal Integrity, Motor Drivers, Circuit Simulation

Embedded Systems: STM32, ESP32, Raspberry Pi 5, Arduino, Jetson Nano, Internet of Things

AI & Software: OpenCV, YOLOv8, LLMs, Audio Pipelines, Transformer Models, Conversational AI, API Architecture