

MURAT TUZUN

Embedded Systems · Real-Time Measurement & Signal Processing

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EDUCATION

Bursa Uludağ University (Transfer) — BSc, Computer Engineering	2023 – 2026
Minor: Electrical and Electronics Engineering	
CGPA 3.70 / 4.00 — Ranked 3rd in Department, 6th in Faculty of Engineering (Class of 2026)	
Manisa Celal Bayar University — BSc, Computer Engineering	2022 – 2023

RESEARCH & PROJECTS

Multi-Channel Data Acquisition & Real-Time Telemetry for Electric Vehicles	2025 – 2026
<i>BSc Thesis · Deployed on the UMAKİT vehicle, Shell Eco-marathon Europe</i>	
FreeRTOS on STM32F446 (four tasks)	
CAN → ESP32-C3 → MQTT cloud · PHP ground station	
21 min continuous on-track operation with zero data loss · Auto-segmented 4,730 m run	
Fuel Cell–Supercapacitor Hybrid Power Management System	2025 – Present
<i>TÜBİTAK 2209-B · Industry partner: FEV Türkiye · Principal Investigator · Competitively funded</i>	
Isolated three-phase measurement chain (shunt → isolated op-amp → Δ - Σ ADC → FPGA); sinc ³ decimation filtering and the Clarke transform on FPGA for instantaneous active and reactive power under high EMI	

EXPERIENCE

Beycelik Gestamp — R&D Department, Associate Engineer	2026 – Present
<i>Real-time control and fault diagnosis of a collaborative robot cell</i>	
- Profiled control-loop latency across the SDK's communication paths and isolated a hidden blocking call that bounded real-time performance. - Built a millisecond-resolution telemetry layer with real-time event detection to capture controller state at fault instants, supporting root-cause analysis of intermittent motion faults.	

LEADERSHIP

Uludağ Mechanical Engineering Community (UMAKİT)	2023 – Present
Team Principal (2025 –) · Electrical & Electronics (2023 – 26) · Board Member (2024 – 25)	
Passed Shell Eco-marathon Europe technical inspection three consecutive years (2024, 2025, 2026)	

TECHNICAL SKILLS

Languages	Turkish (native) · English — IELTS 6.5
Hardware	STM32 (incl. STM32F446) · KiCad PCB design · galvanic isolation analog signal conditioning · Δ - Σ ADC · MOSFET / gate drivers
Software	C · C++ · Python · Lua · C# / .NET · FreeRTOS · Verilog / Vivado (in progress)
Protocols	CAN · SPI · MQTT · UART · RS485 · XML-RPC · UDP
Other	Arm Armv8-M Architecture Fundamentals (Coursera, 2023)