Tahsin Can Koçum

Mechatronics Engineer & Software Developer | Embedded Systems, Robotics, Automation and Web Systems

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PROFILE

I am a project-oriented developer who combines mechatronics engineering with software development, embedded systems, robotics, automation, database management and web-based admin systems. I work with technologies such as ESP32, Raspberry Pi, LoRa, sensor networks, OTA, MATLAB/Simulink, ROS/Gazebo, PHP/MySQL, JavaScript, React and Electron across the full path from device layer to data model, admin interface and PDF/report generation. My goal is not only to build working applications, but to design engineering solutions that are observable, maintainable, secure, documentable and aligned with real usage scenarios.

TECHNICAL SKILLS

Embedded Systems & IoT ESP32, Arduino, Raspberry Pi, LoRa, OTA, MQTT, Sensors, PlatformIO

Simulation & Control MATLAB, Simulink, ROS, FK/IK, Simscape, Gazebo, Trajectory Planning

Software Development Python, JavaScript, React, C, C++, C#, Java, HTML/CSS, Electron, FastAPI, REST API

Robotics & Automation Robotics & Automation, Siemens TIA Portal, Blender

Web & DB Systems SQL, MySQL, PHP, MS SQL, SQLite, PostgreSQL, Git, Linux, Docker

PROFESSIONAL EXPERIENCE

Software and Database Projects

Freelance / Project Based | Turkey | 06/2019 - 09/2025

In project-based software work, I built applications that connect web, database, desktop and reporting needs end to end. These projects involved requirement analysis, data model design, admin panel flows, access control, file uploads, PDF/report generation, multilingual content, caching, backup and maintainability concerns. Using PHP/MySQL, JavaScript, Electron and data-oriented interfaces, I focused on both user experience and the long-term manageability of the system.

- Built manageable admin panels, content modules and data-oriented screens with PHP/MySQL.
- Worked on database schema design, query safety, uploads, caching, backup and reporting logic.
- Designed Electron and JavaScript based approaches for desktop and data management workflows.
- Handled operational details such as responsive UI, form validation, roles, permissions and maintainability together.

Mechatronics and Software Intern

Orkotek | Turkey | 01/2025 - 02/2025

During my internship at Orkotek, I had the opportunity to observe how mechatronics and software disciplines come together around real technical needs. I gained practical exposure to automation, data tracking, technical documentation, system testing and software-supported process improvement. This experience clarified that an engineering system is not only a screen or circuit; sensor data, control logic, user interface, reporting, maintenance and field constraints must be considered together. I also observed how requirements are collected, how technical decisions are discussed and why structured feedback is critical during development.

- Supported analysis of automation and software-assisted workflows.
- Observed how sensor, control, data and interface needs meet inside the same system.
- Contributed through technical documentation, test notes and structured feedback.
- Gained exposure to maintainability, observability and admin-side manageability needs in field-oriented systems.

IT Intern

Kaynarca Computer | Turkey | 06/2014 - 08/2014

Worked on computer maintenance, basic networking, technical support and user-focused troubleshooting during the IT internship.

- Handled hardware and software support tasks
- Provided technical support for user issues

FEATURED PROJECTS

Embedded IoT Telemetry and Remote Monitoring Platform | 2025

An observable embedded system concept combining ESP32, Raspberry Pi, LoRa, sensor data and OTA workflows.

ESP32, Raspberry Pi, LoRa, Sensors, OTA, MySQL

AWSN - Autonomous Wireless Sensor Network | 2025

LoRa and sensor-based wireless data collection approach.

Smart Home Fire and Security System | 2026

Sensor-assisted fire and security monitoring system.

Rescue Robot | 2024 - 2025

Robotic platform for search and rescue scenarios in challenging areas.

Mars Rover Simulation | 2025

Rover simulation with ROS, Gazebo and web-based support components.

ROS, Gazebo, PHP, Simulation, Robotics

EDUCATION

Bachelor Mechatronics Engineering

Izmir University of Economics | Izmir | 09/2019 - 06/2026

Bachelor program in mechatronics engineering with focus on control, robotics, automation, software, simulation and system design.

Associate Degree Mechatronics

Cankiri Karatekin University | Cankiri | 09/2013 - 06/2015

Associate degree in mechatronics with mechanical, electronic, basic automation and applied system foundations.

High School Information Technologies - Database Programming

Iznik Vocational and Technical Anatolian High School | Bursa | 09/2008 - 06/2012

Information technologies and database programming track, covering software and database foundations.

CERTIFICATES

Universal Robots e-Series Core Track

Universal Robots Academy | 2026

Universal Robots e-Series Core Track completion certificate issued by Universal Robots Academy, supporting e-Series robot ecosystem knowledge, safe operation, application-oriented robotics workflows and industrial automation fundamentals.

Universal Robots e-Series Pro Track

Universal Robots Academy | 2026

Universal Robots e-Series Pro Track completion certificate issued by Universal Robots Academy, supporting e-Series robot ecosystem knowledge, safe operation, application-oriented robotics workflows and industrial automation fundamentals.

Universal Robots e-Series Application Track

Universal Robots Academy | 2026

Universal Robots e-Series Application Track completion certificate issued by Universal Robots Academy, supporting e-Series robot ecosystem knowledge, safe operation, application-oriented robotics workflows and industrial automation fundamentals.

LANGUAGES

Turkish Native

English Upper-Intermediate B2

Japanese Beginner JLPT N5

ADDITIONAL INFORMATION

Core Competencies

Problem solving, system design, analytical thinking, technical documentation, project development, database modeling and device-server integration.

Interests

Embedded systems, IoT, sensor networks, robotics, automation, simulation, control systems and web-based management panels.

Driving License

Class B

Military Service

Mandatory service completed

REFERENCES

Prof. Dr. Gokhan Kilic

Prof. Dr. | Izmir University of Economics | Academic reference

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