Youssef Essam

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Summary

Software Developer with experience in programming languages such as Python, C#, C++, as well as frameworks such as .NET and Qt. Proficient in web technologies including HTML, CSS, and JavaScript, with a solid understanding of front-end and back-end development. I also have a background in designing and optimizing control software for underwater ROVs, embedded systems, and automation solutions. I approach problems with both a technical mindset and strong soft skills to drive innovation and maximize business value.

Education

Mechatronics Engineering *Sep 2020 - Feb 2025*

Bachelor's Degree - Yildiz Technical University - GPA: 3.02

Experience

Software/Mechatronics Engineer - ROV systems Istanbul, Turkey, Hybrid
Letna Marine Underwater Engineering Solutions *Feb 2023 - Present*

•Designed and enhanced control software for underwater ROVs using C++ and QML within the Qt Framework, integrating custom HUDs to display critical real-time sensor data in a non-obstructive manner, improving situational awareness for operators. Ensured a maintainable and scalable software architecture by applying OOP paradigms and following SOLID principles.

• Developed and refined advanced ROV control modes using embedded programming, including Altitude Hold, Collision Avoidance, and Distance Hold, to assist operators by stabilizing navigation and enhancing maneuverability in complex underwater environments.

• Developed a Python-based underwater measurement application that accurately determined real-world dimensions of submerged objects. Utilized image processing techniques and mathematical modeling to achieve 94.5% measurement accuracy.

• Conducted testing and integration of sensors to add value to the ROVs.

• Collaborated in the manufacturing and assembly processes of ROVs.

Lagari UAV team Istanbul, Turkey, Hybrid
Software Developer *Jan 2022 - June 2022*

• Participated in teknofest 2022 International UAV Competition

• Created and deployed image recognition algorithms for the identification of a red-colored target using Python.

• Integrated geolocation functionality to determine accurate GPS coordinates of identified targets.

• Automated GPS coordinate transmission to the UAV for target navigation and payload deployment.

Projects

TUBITAK 2209-B Support Programme - Portable Knee Rehabilitation Robot

Graduation project which is a knee rehabilitation exoskeleton with a DC motor that allows users to do lower leg passive rehabilitation movements.

• Electronics Design and Testing: Selected and integrated compatible components, including sensors, power distribution and data distribution systems. Designed and tested circuits to ensure optimal functionality.

• Control System Development: Implemented position and torque based PID control to achieve precise and adaptive knee rehabilitation exercises.

• Software Development: Utilized ROS2 on a Raspberry Pi to manage modular control, enabling sensor data acquisition and publication through dedicated topics.

• Mobile Application Development: Developed an Android application using C++ and QML utilizing Qt framework for Bluetooth communication with the robot, enabling mode selection and real time display of sensor data

Car Rentals API *github.com/joeshawky/CarRentals*

A scalable RESTful API for a car rental management system, including functionalities such as inventory tracking, customer data handling, and booking operations

• Developed a RESTful API using C# and .NET to handle core functionalities, including vehicle inventory, customer management, and booking operations.

• Implemented N-Tier architecture to enhance scalability and maintainability.

• Integrated user authentication, data validation, and error handling to ensure API security and reliability.

• Used Entity Framework for database CRUD operations.

Instagram Clone *github.com/dotnet-n-tier-architecture-instagram*

An Instagram-like web app using .NET technologies by utilizing N-Tier architecture design pattern.

• Designed and implemented an N-Tier architecture, organizing the system into layers such as Business, Data Access, Entity, and UI.

• Developed features for user interaction and content management, including user registration, post creation, and engagement functionalities.

• Used Entity Framework for database CRUD operations and built the UI layer using ASP.NET MVC.

• Ensured system security by implementing authentication and authorization mechanisms.

Skills

Programming : Python, C++, C#, HTML, CSS, JavaScript, TypesScript
Frameworks & Tools: .NET, Qt Framework, ROS2, Node.js, ReactJS, Git & GitHub
Embedded & Systems: Linux, Arduino, PLC programming
Language : Turkish C1, English C1, Arabic C1
Other : Figma