

Ahmed TAREK

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WORK EXPERIENCE

Orange Digital Center

Aug. 2024 Sep.2024

Embedded Systems Intern

- Gained hands-on experience in embedded programming (Arduino, STM32).
- Developed IoT prototypes and worked with microcontroller interfacing.
- Participated in workshops on C programming, debugging, and RTOS.
- Collaborated on group projects and received mentorship from industry experts.
- Strengthened teamwork, problem-solving, and communication skills.

Hassan Allam Engineering and Trading

Jul.2024 – Aug.2024

Networking Intern

- Gained practical experience in routing and switching using **Ruijie** and **Cisco** equipment.
- Conducted configuration, troubleshooting, and performance comparisons between Ruijie and Cisco devices.
- Assisted in setting up and optimizing VLANs, routing protocols (OSPF, EIGRP), and network security policies.
- Collaborated with IT teams on network design and documentation for ongoing projects.
- Enhanced troubleshooting and technical communication skills through hands-on tasks and mentorship from senior engineers.

EDUCATION

Abdullah Gül University - Türkiye

June, 2025

BS. Electrical and Electronics Engineering

Graduation Project

Wireless node for Soil Moisture Monitoring

Completion of this project yields to several key outcomes:

- A fully functional prototype of the wireless soil moisture monitoring system, validated through comprehensive testing
- Providing precise, real-time data on soil moisture levels, the system will enable farmers to optimize irrigation schedules, reducing water waste and enhancing crop yields.
- Establish benchmarks for energy consumption that inform future designs aiming for sustainability in IoT devices deployed in agricultural settings.
- The project will contribute to the field of precision agriculture by demonstrating the feasibility and benefits of integrating IoT technologies for environmental monitoring.

SKILLS

Electrical and Electronics Engineer with a strong foundation in Analog and Digital Circuit design, along with VLSI and microelectronics. Proficient in using CAD tools for circuit design and simulation. Demonstrated ability to collaborate in team-based projects and to solve complex problems. Committed to professional development and keeping current with the latest advancements in the field.

PROFESSIONAL EXPERIENCE

Embedded project: Developing a Line Follower Robot using PID control for accurate path tracking. The robot navigated autonomously along a path defined by visible or magnetic lines, using sensors like Photo-interrupters. The core challenge involved programming a microcontroller to adjust motor speeds based on sensor inputs, ensuring stable line tracking. This required meticulous tuning of PID parameters and motor settings, highlighting the effectiveness of embedded control systems in real-time robotic navigation.

Analog to digital system: Designing of Sequence Generator The system was composed of a ring oscillator, a 3-bit counter, combinational circuits, a MUX, and output devices. The counter implemented at the gate level. The rest of the system implemented at the transistor level by using the CMOS configuration

Analog Sensor project: Designing of wearable strain sensor system for human motion detection. The sensor characterization included the following items at the minimum. Gauge factors, response time, repeatability, dynamic range, detection limit, resolution, offset, reproducibility, calibration curve (with error bars), linear range, A scenario and under different conditions for data collection and statistical analysis.

Analog project Designing of fully analog system to Convert Light into Sound system design composed of three subsystems each of which shall be fully analog: Light-emitting subsystem, Light-sensitive subsystem and audio subsystem.

Analog project: Designing of Real-time respiratory surveillance system. We focused on contact-based chest movement techniques which include strain, impedance and movement measurements, Chest wall diameter can change up to 7 cm while we are breathing, sensor convert these changes to a respiratory signal.

Digital system: Designing Simple vending machine using VHDL

Objectives: Designing and implementing Button Synchronizer FSM, Designing and implementing Simple Vending machine, writing testbench for sequential circuits, Using Structural VHDL style to connect multiple modules to implement a digital circuit

Coding Project: Brain tumor calcification using image processing and machine learning.

Electrical machines systems:

Designing and analysis of a 4 pole 1500 W synchronous PM machine (at 1500 rpm) using FEA

Designing and Optimization of 3-Phase Transformer 5 kVA, 460/170 V, 150 Hz using FEA

Designing a system that controls two electric motors through a switch