ZAHID AHMED ALFAHMI

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SUMMARY

Computer Engineering student excelling in embedded systems and digital design, with a focus on FPGA development and real-time monitoring applications. Successfully implemented projects such as the Driving Behavior Analysis System. Proficient in C, Python, and Java, adept with microcontrollers and a range of development tools. Pursuing a challenging co-op where a strong technical foundation can drive innovative project outcomes.

EDUCATION

King Abdulaziz University. Jeddah, Saudi Arabia.
Bachelor's Degree in Electrical Engineering - Computer Engineering. Aug 2019 – Present.

PROJECTS

Driving Behavior Analysis System-Senior Project. | *SPI, 4G, C, MQTT, RTOS.* Sep 2024 – May 2025.

- Designed a comprehensive real-time driving behavior monitoring system.
- Performed continuous analysis of driving patterns and events..
- Developed intuitive user interfaces and robust data analysis workflows..
- Integrated UART, I2C, SPI, 4G GSM, and MQTT for reliable remote communication.
- Leveraged FreeRTOS for efficient multicore processing and optimized memory usage.

MIPS Processor Implementation | *Computer architecture.* Jan 2024 – May 2024.

- Implemented a 32-bit MIPS processor using Logisim Evolution with single-cycle and pipelined versions.
- Supported instructions including add, sub, and, or, addi, andi, ori, li, j, bne.
- Developed pipeline stages: Instruction Fetch (IF), Instruction Decode (ID), Execute (EX), Memory Access (MEM), Write Back (WB).
- Handled hazards with detection and forwarding mechanisms.

Plant Status Monitor | *C, PIC18F4580, ESP32.* Aug 2023 – Sep 2023.

- Designed a plant monitoring system using PIC18F4580 and ESP32, reading soil moisture levels.
- Communicates sensor data via UART to ESP32, which updates a web server.
- Activates a pump below 20% moisture, with LED indicators: Red (low), Yellow (medium), Green (high).

Air Quality Monitoring System | *ESP32 , C ,UART ,I2C.* June 2023 – Jul 2023.

- Built an air quality monitor using ESP32 and sensors (MQ7, MQ131, PMS5003).
- Displays data on OLED and via web server for remote access.

TECHNICAL SKILLS

Languages: Java, Python, C, Matlab, Verilog / System Verilog, Assembly / PIC / MIPS.
Hardware: Embedded Systems, FreeRTOS, Arduino, ESP32, FPGA, Microchip PIC, Control Systems, IoT.
Developer Tools: Git, VSCode, PyCharm, Quartus Prime, ModelSim, Gowin IDE, Arduino IDE, MATLAB / Simulink, MPLAB, SOLIDWORKS.

SOFT SKILLS

Communication, Teamwork, Problem Solving, Time Management, Adaptability

SPECIAL COURSES

Digital Control Systems May 2025.

LANGUAGES

Languages: Arabic, English.