

ZAHID AHMED ALFAHMI

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SUMMARY

Detail-oriented Computer Engineering student with a solid background in embedded systems, FPGA development, and real-time monitoring applications. Proficient in programming languages such as C++, Java, and Python. Skilled with various microcontrollers, including ESP32 and PIC series. Enthusiastic about FPGA and digital design, with hands-on experience in developing and optimizing FPGA-based solutions. Seeking co-op training opportunities to further enhance technical skills and contribute to innovative projects.

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. | *UART , I2C ,SPI ,4g GSM, C++.* Sep 2024 – Present.

- Developed an extensive monitoring system.
- Executed real-time analysis of driving behaviors.
- Engineered user-friendly interfaces for PCs/smartphones and designed effective alert systems.
- Employed UART, I2C, SPI, and 4G GSM for remote connectivity, and power management.

MIPS Processor Implementation | *Computer architecture, Verilog.* 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, C++, Matlab, HDL / Verilog, Assembly / PIC / MIPS.

Hardware: Embedded Systems, Arduino, ESP32, FPGA, Microchip PIC, Control Systems, IoT.

Developer Tools: Git, VSCode, PyCharm, Quartus Prime, ModelSim, Gowin IDE, Arduino IDE, MPLAB / Simulink, CoventorWare, SOLIDWORKS.

LANGUAGES

Languages: Arabic, English.