

Usama Jahangir

+92-313-6112460 | mr.usama.jahangir@gmail.com | LinkedIn: [/usama-jahangir](#) | Github: [/usamajahangir](#)

SKILLS & INTERESTS

Programming: Python | C | Kotlin | C++ | MATLAB | Assembly A51

Embedded Boards: Rockchip RK3588 | Qualcomm SG865W | Oriange Pi 5 | ESP32 | Raspberry Pi

Other: Git | Docker | Gitlab CI/CD | ESP-IDF | Solidworks | Cura | Ansys | Proteus | Linux (OpenSUSE & Ubuntu) | Android Development

WORK EXPERIENCE

Cowlar Design Studio (Y-Combinator)

Islamabad

Team Lead, Industrial Automation

Sep 2024 - Oct 2024

- Led a multidisciplinary team of 5 engineers to optimize embedded firmware for custom fiber assembly robots, handling client communication, task delegation, and project coordination, resulting in a 400% increase in throughput for clients in Aurora, IL, USA
- Developed real-time firmware on Rockchip RK3588, delivering system integration and significantly enhanced automation performance

Embedded Design Engineer

Jun 2023 - Aug 2024

- Engineered communication protocols (SMBus over I2C, Modbus over UART, and CAN) on ESP32 using FreeRTOS in C, improving efficiency for battery management systems now actively deployed in Qatar
- Developed and optimized custom Android 12 applications on Rockchip RK3588 in C and Kotlin, integrating IMU sensors, Zebra, and Honeywell scanner modules for retail deployments in Almeera Wakra South Store, Qatar
- Automated deployments with Docker and Shell runner based GitLab pipelines, improving shell runner based pipeline efficiency by 60%
- Designed automation scripts for testing, and maintenance using Python and shell scripting, streamlining operational efficiency

Qadri Group

Lahore

Leaders for Manufacturing Intern

Jul 2022 - Sep 2022

- Conducted time-motion studies, testing jigs & fixtures designs to reduce lean wastages for 3 inline parts, improving throughput by 33%
- Collaborated with industrial and mechanical engineers to present feasibility reports and solutions, driving informed decision-making

National Centre of Robotics and Automation

Rawalpindi

Biomedical Research & Development Intern

Jul 2021 - Aug 2021

- Restored a 6 DOF 3D-printed, parallel manipulator-based "Upper Limb Prosthesis," enhancing control for users with amputations
- Programmed linear actuators in C, enabling multi-grasp capabilities to support improved dexterity and usability for prosthesis users

PROJECTS

Serial USB Driver: Developed a driver in C using JNI to map tty device paths, enabling USB detection for custom Android devices

SMBus: Implemented SMBus over I2C on ESP32, debugging with a logic analyzer to identify & correct errors in [BQ40Z50 manual](#)

Assistive Feeding System: Developed a Raspberry pi based robotic manipulator to feed food, successfully feeding rice to 3 test subjects

Indegenous Fruit Harvesting Robot: Led team of 6 to develop mobile robot to harvest fruits and participated in NERC Competition 2022

Checkout Accelerator : Developed python application to transfer session data from smart carts to Point-Of-Sale terminals, reducing average checkout time from 1 min to 6 seconds, currently deployed in 2 Almeera stores in Qatar [Link](#)

Chess 1.0: Created a CLI-based game with graphics using C++, enhancing user engagement through interactive gameplay [Link](#)

EDUCATION

National University of Sciences and Technology

Islamabad

BEng. Mechatronics Engineering - (Rector's Gold Medal, 2x Distingusihed Student Awards)

Graduation Date: Jan 2023

LEADERSHIP & EXTRA-CURRICULAR

Alkhidmat Foundation Pakistan

Islamabad

Volunteer

Oct 2024 - Present

- Volunteering in "Alkhidmat Youth Gathering 9.0" to promote volunteerism by connecting young leaders, trainers, and public speakers

Robotics and Automation Club

Rawalpindi

Mentor & Advisor

Sep 2021 - Jun 2023

- Mentored 50+ cross-department students via 3D printing and a series of programming (C/C++) workshops for robotics beginners

HONORS & AWARDS

Houston Award (Cowlar '24) | National Grassroot Research Grant (IGNITE '24) | Best Electromechanical System Project (COMMPEC '23)