

MOHAMMAD ZAID IQBAL FAHAD

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Technical Skills

Languages: Python (FastAPI, Django), C, Dart (Flutter), JavaScript, TypeScript, PHP, SQL, Shell Scripting (Bash), HTML/CSS
Embedded & Robotics: Automotive Grade Linux (AGL), LVGL, ROS 2, NVIDIA Jetson, Arduino, MQTT, SocketCAN / CAN Bus, Microcontrollers (ESP32/STM32)
Edge AI & Perception: Gemma 4 (Multimodal VLM), TensorRT-accelerated YOLO, Visual-Inertial Odometry (VIO), Intel RealSense Depth, OCR & Biometrics
Frameworks & Infrastructure: Astro, Next.js, React, Tailwind CSS, Supabase, PostgreSQL, WebSockets, Linux Daemon Engineering, Docker, Git, Figma

Professional Experience

Arcane Hive

May 2026 – Present

Product & Mobile Solutions Architect

Dhaka, Bangladesh

- **Project EV (2-Wheeler Smart Cluster):** Engineered an embedded digital instrument cluster for electric two-wheelers using LVGL; developed a companion Flutter application handling real-time BLE telemetry syncing, trip metrics, and turn-by-turn navigation updates.
- **Arcane Volt Dashboard:** Architected a web-based IoT monitoring platform interfacing with non-invasive hardware retrofitted onto utility electricity meters for live power usage telemetry, peak load analytics, and automated reporting.
- **Bongshal.com Unified Platform:** Architected and deployed an end-to-end multi-role Flutter application, unifying consumer commerce (Customer), garage job card tracking and repair servicing (Workshop), and inventory fulfillment (Vendor) within a single codebase.

JaduPC

Sep. 2024 – Mar. 2026

Research & Design Engineer

Dhaka, Bangladesh

- **Automotive Embedded Systems:** Engineered high-fidelity digital instrument clusters for **Automotive Grade Linux (AGL)** using Embedded Flutter to visualize vehicle CAN bus metrics in real time; conducted architectural research on next-gen infotainment system fluidity and embedded resource management.
- **Enterprise Kiosks:** Architected high-throughput Self-Checkout terminals, Food Ordering kiosks with thermal printing and kitchen synchronization, and Healthcare Kiosks for automated queue routing and medical report dispatch.
- **Biometric Identity (eKYC):** Deployed a Flutter-based verification terminal utilizing dual-camera facial recognition and automated OCR document validation for real-time customer onboarding.
- **Systems Engineering & IoT:** Authored a low-level Linux daemon in C for persistent MQTT data streaming to remote databases and integrated IoT telemetry hardware for live vehicle diagnostics.
- **Internal Tooling:** Developed a Flutter remote device support frontend and a background automation utility for operational workflow optimization.

Featured Projects

Falcry Autonomous Drone System | ROS 2, NVIDIA Jetson, Gemma 4, TensorRT, YOLO, RealSense, FastAPI Jan. 2026

- **Bi-Hemispheric Avionics Partitioning:** Decoupled non-deterministic mission reasoning from hard real-time inner-loop flight stabilization by deploying ROS 2 on an NVIDIA companion computer alongside a dedicated deterministic flight controller.
- **Perception & Semantic Reasoning:** Built a TensorRT-accelerated YOLO pipeline to extract dynamic obstacles; integrated an onboard multimodal vision-language model (**Gemma 4**) executing in parallel to evaluate camera feeds and command reactive path adjustments.
- **Obstacle Avoidance & GNSS-Denied Navigation:** Synthesized forward Intel RealSense depth feeds for evasive trajectory planning; sustained drift-free positioning in GNSS-denied environments by bounding VIO drift using nadir imagery matched with georeferenced satellite elevation maps.
- **Telemetry Backbone:** Engineered a low-latency, event-driven telemetry and fail-safe monitoring architecture using MAVLink/MQTT and FastAPI for real-time flight operations.

IUB NEST Platform & Course Planner | Next.js, Astro, Tailwind CSS, Supabase, Cloudflare Pages

2025 – 2026

- Directed full-lifecycle product engineering of the university companion platform, scaling to **4,000+ total users** (1,500+ DAU); recognized with 1st Runner-Up at IUB Programming Week Autumn 2025.
- Engineered a 4-step schedule generation engine in Astro and Tailwind CSS resolving advising conflicts via day limits (2/3/4 days), time slots, and ranking preferences with automatic theory-lab co-requisite linking.
- Built a retake optimizer, live CGPA impact simulator, 1-click HD wallpaper export, peer share URLs, and local-first data privacy sync.

Engineering & Campus Platforms

IUBPC Gate Keeper <i>Next.js, Supabase, Tailwind CSS, QR Verification, PostgreSQL</i>	2025 – 2026
• Sub-Second Entry & Kiosk Mode: Replaced manual spreadsheet check-ins with sub-second QR/ID scans and deployed a Self Check-In Kiosk Mode, eliminating venue bottlenecks for 200+ attendees; synced headcounts in real-time via Supabase subscriptions. • Dynamic Registration & Analytics: Implemented digital door registration and automated post-event PDF/Excel reporting with peak arrival analytics.	
SpeakBridge Smart Buzzer System <i>Arduino, Node.js, WebSockets, Express, JaduPC Starter</i>	2026
• Hardware-Software Precision: Built an integrated buzzer system for debate competitions, capturing physical button presses with millisecond precision and broadcasting state to a live web dashboard over WebSockets to eliminate human judging latency.	
Volunteer Management Portal (DoSA) <i>PWA, Django, NextJS, PostgreSQL</i>	Dec. 2025
• Architected the official Progressive Web App (PWA) for the Division of Student Affairs (DoSA) to digitize university volunteer coordination, replacing manual Google Sheets with a scalable workflow.	

Awards & Certifications

Bangladesh IT & Innovation Award 2026: Merit Award for XenOS Operating System (Certificate No: 10055)	
1st Runner-Up: Tech Project Showcase, IUB Programming Week (Autumn 2025) – IUB NEST Platform	
1st Runner-Up (Software Track): Project Showcasing & Poster Presentation, CARD 2025, IUB	
IUBPC Best Programmer Award: Conferred for engineering leadership and platform impact, Spring 2026	
Information Technology Engineers Examination (ITPEC, Japan / BCC):	
Fundamental Engineer (FE, Oct. 2024)	
Top Rank – IP (Oct. 2019)	
BUET BK-IAC: Professional Certification in Python Programming dSAT: 1110 (May 2024 Locator: 4097969318)	

Previous Experience

Design & Beyond	July 2022 – Dec. 2023
<i>WordPress Developer</i>	<i>Dhaka, Bangladesh</i>
• Athnic World: Spearheaded the digital transformation from Figma UI prototypes to a live WooCommerce site with custom service-booking logic and payment workflows. • Cassbeenlashed: Engineered a hybrid e-commerce and LMS platform incorporating automated client scheduling via Squarespace Appointments.	
Onirban Bangladesh	Dec. 2021 – May 2022
<i>Project Coordinator & Web Developer</i>	<i>Dhaka, Bangladesh</i>
• Penny Appeal AU: Coordinated the engineering of a 30-page international charity portal, implementing high-security donation funnels and dynamic event management. • Retail Prototyping: Transformed legacy PSD designs into production-ready e-commerce platforms using advanced WordPress frameworks and WooCommerce.	

Education

Independent University, Bangladesh	Dhaka, Bangladesh
<i>Bachelor of Science in Computer Science and Engineering (CGPA: 2.71)</i>	<i>May. 2024 – Present</i>
British Council	Dhaka, Bangladesh
<i>GCE International A Levels (May 2023) & IGCSE (May 2022)</i>	<i>May 2022 – May 2023</i>

Leadership / Extracurricular

IUB Programming Club (IUBPC)	Jan. 2026 – Present
<i>Sub-Executive & Senior Developer</i>	<i>Dhaka, Bangladesh</i>
• Direct end-to-end student club operations, administrative pipelines, and manage structural event frameworks within the university ecosystem. • Serve as a core technical instructor for the IUB Programming Club Dev Fellowship Program, delivering advanced application development curriculums.	