

Md Mahabubul Hasan

Phone: +8801311310975 | Email: mahabubul470@gmail.com

[linkedin.com/in/mahabubul470](https://www.linkedin.com/in/mahabubul470) | [mahabubul470.github.io](https://github.com/mahabubul470)

Location: Dhaka, Bangladesh

PROFESSIONAL SUMMARY

Software Engineer with 3+ years of experience building high-availability backend systems across fintech, AI, and IoT domains. Specializes in scalable payment platforms and cloud-native infrastructure.

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, C#

Backend Development: FastAPI, NestJS, Django, Dot Net

AI & ML: PyTorch, OpenCV, LangChain, RAG Architecture, Computer Vision

Database Management: PostgreSQL, Patroni, MySQL, SQLAlchemy, Alembic, Query Optimization, Data Modeling

DevOps: Docker, CI/CD Pipelines, GitHub Actions, AWS

Infrastructure & Tools: Redis, Celery, Socket.IO, MinIO/S3, NGINX, HAProxy, Keycloak, APISIX, Linux, Git

Monitoring & Analytics: Grafana, Prometheus, Sentry, Loki, System Monitoring, Performance Metrics

Methodologies: Agile Development, Scrum, TDD, Code Review, Pair Programming

Languages: Bengali (Native), English (Professional – IELTS 7.0)

PROFESSIONAL EXPERIENCE

Software Engineer

Fingerprint Information Technology Ltd

Dec 2024 – Present

Dhaka, Bangladesh

- Architected Moneybag PGW backend from the ground up – led end-to-end requirements analysis, R&D, and integration of multiple mobile and bank payment processors to meet Bangladesh Bank PSO compliance.
- Designed database schema and layered service architecture with domain-driven patterns, enabling independent scaling and maintainability across settlement, reconciliation, and merchant workflows.
- Built automated settlement engine with configurable rules, EMI installment processing, recurring invoicing, subscription billing, and merchant payment link generation.
- Implemented bank reconciliation, dispute resolution, refund/hold workflows, and end-to-end audit trails – ensuring full financial traceability for regulatory review.
- Built multi-tenant merchant platform with role-based access control, API key rate limiting, webhook delivery, and affiliate commission tracking.
- Deployed PostgreSQL Patroni cluster across 3 data centers with automatic failover, ensuring high availability for payment-critical data.
- Built full observability stack (Prometheus, Sentry, Grafana, Loki) and automated CI/CD via GitHub Actions with health checks and rollback capability.
- **Technologies:** Python, FastAPI, PostgreSQL, Patroni, SQLAlchemy, Alembic, Celery, Redis, Socket.IO, MinIO/S3, Docker, Prometheus, Sentry, Grafana, Loki, HAProxy, GitHub Actions

Software Engineer (Part-time, Remote)

Yildiz Consultancy

August 2025 – Present

Remote

- Built a multi-tenant media localization and AI dubbing platform enabling multilingual voice generation, translation, and subtitle synchronization for podcast and video content.
- Implemented ElevenLabs voice synthesis pipeline with request stitching and emotional presets, ensuring natural prosody across long-form dubbed audio.
- Designed multi-stage content workflow with role-based routing (Editor, Translator, Content Manager, Publisher) and real-time progress tracking via WebSockets.
- Integrated DeepL translation, LanguageTool grammar checking, and Zemberek Turkish NLP with content change detection thresholds for quality assurance.
- Architected My Smart Homes (MSH), a custom-branded Home Assistant platform with consumer and enterprise tracks, container registry, version endpoints, and companion Android/iOS apps with Firebase push notifications.
- Designed a meta-repo architecture using Git submodules – eliminating 2–4 hours of manual upstream conflict resolution per sync cycle, reducing it to a single scripted operation.
- Built multi-tenant enterprise building management backend with FastAPI, supporting RBAC across multiple building sites.

- **Technologies:** Python, Flask, FastAPI, React, TypeScript, PostgreSQL, SQLAlchemy, Home Assistant, Docker, GitHub Actions, Firebase/FCM, AWS (S3, RDS, EC2), ElevenLabs API, DeepL, Socket.IO, Tailwind CSS

Software Engineer

Uhurutek Solutions Ltd

Sept 2023 – Nov 2024

Dhaka, Bangladesh

- Developed secure RAG-based chatbot systems using LangChain and OpenAI API, cutting customer support response time by 50%.
- Delivered on-premise chatbot solution for a government tax agency, meeting strict security and compliance standards with no cloud data exposure.
- Achieved 92% retrieval accuracy on complex tax queries through advanced prompt engineering, context optimization, and a custom document ingestion pipeline (PDF, Word, web content).
- Built API gateway with Keycloak authentication and APISIX rate limiting; migrated legacy infrastructure to FastAPI/PostgreSQL with distributed Redis caching, significantly reducing API latency.
- **Technologies:** Python, FastAPI, LangChain, APISIX, PostgreSQL, Docker, GitHub Actions, Keycloak, Redis, Vector DB, RAG Architecture

Software Engineer

Adorsho Pranisheba Ltd

Oct 2022 – Aug 2023

Dhaka, Bangladesh

- Built muzzle-based biometric recognition backend integrating trained CNN models achieving 95% cattle identification accuracy across 5K+ records, integrated into a full herd management system with insurance verification and health monitoring.
- Integrated IoT sensor data for real-time livestock health monitoring and automated feeding optimization.
- Contributed to shared farming investment platform enabling transparent multi-stakeholder tracking and reporting.
- **Promoted from intern to Software Engineer within 3 months** for outstanding technical contributions.
- **Technologies:** Python, Django, OpenCV, PyTorch, MySQL, RabbitMQ, IoT Integration, Computer Vision, CNN

PROJECTS

LiveSQL | TypeScript, PostgreSQL, WebSockets, React, Vue, Svelte

Open Source

- Built a real-time PostgreSQL sync library using WAL-based CDC logical replication, achieving 37,872 events/second throughput at p95 latency of 96ms with 1,000 concurrent clients and zero connection failures.
- Architected multi-package SDK with framework bindings for React, Vue, Svelte, and vanilla JS; includes JWT authentication, row-level permissions, filtered column access, and automatic reconnection with event replay.
- Covered by 163 unit tests and 23 chaos tests; handles backpressure, WAL slot monitoring, and failover recovery.

Canopy Cloud | Python, FastAPI, AWS, GCP, MCP

Open Source

- Contributing to a cloud infrastructure optimizer combining cost and carbon emissions into a unified EcoWeight score across 48 regions for AWS and GCP, targeting the 30–35% cloud spend wasted on overprovisioned resources.
- Implemented idle detection, right-sizing recommendations, carbon-aware workload scheduling (CARL), and MCP server integration for LLM-based infrastructure analysis via Slack and GitHub approval workflows.

EDUCATION

Bachelor of Computer Science & Engineering

American International University-Bangladesh

Apr 2018 – Apr 2023

Dhaka, Bangladesh

- CGPA: 3.59/4.0
- Relevant Coursework: Data Structures, Algorithms, Database Systems, Software Engineering, Machine Learning

ACHIEVEMENTS

Gold Medal – Dr. Anwarul Abedin Leadership Award, American International University-Bangladesh (*University's highest student honor*)

University Rover Challenge 2022 – Mars Society (International robotics competition)

International Rover Challenge 2023 – Space Robotics Society