

# Abu Bakkar Siddique Emon

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 ABU BAKKAR SIDDIQUE EMON |  ResearchGate |  [github.com/ABS-EMON](https://github.com/ABS-EMON)  
[abs-emon.github.io](https://abs-emon.github.io)

## Professional Summary

Innovative IoT, Robotics, Ai/Ml and Aerospace Engineer and researcher with expertise in embedded systems, autonomous UAV development, and IoT-based systems. Skilled in Python (TensorFlow, OpenCV, NumPy, Pandas, and package development ‘emon’), MQTT, C++, Java, Unity, ROS2, Gazebo, RViz2, and PX4 for simulation and autonomous control. Experienced with Arduino, ESP32, Raspberry Pi, and Pixhawk hardware, and proficient in full-stack tools like Laravel and Flutter. Passionate about integrating AI/ML to build intelligent, resource-efficient systems and exploring emerging technologies in UAVs, Aerospace, AI/ML, and AR/VR applications.

## Education

### University of Frontier Technology, Bangladesh

B.Sc. in IoT and Robotics Engineering Aug 2023 – May 2027 (Expected)

### Nasirabad College, Mymensingh

H.S.C. (Science), GPA 5.00 Aug 2020 – Feb 2022

### Monsurpur A.H.T High School, Netrokona

S.S.C. (Science), GPA 5.00 Jan 2018 – Feb 2020

## Experience

### SU-27 RC Jet Development and Operator, UFTB Aug 2024 – Jun 2025

- Manually built, assembled, and tuned a lightweight RC SU-27 jet.
- Conducted test flights, integrated Pixhawk and Mission Planner for flight stabilization and telemetry.

### Quadcopter Development & Operator, UFTB Aug 2024 – Jun 2025

- Designed and built a GPS-enabled quadcopter from scratch with responsive flight control.
- Integrated sensors, ESCs, and brushless motors for stable and precise flight operation.

### Unity & VR Game Development, UFTB / TGG Organization Apr 2025 – May 2025

- Developed and published a 3D Car Racing Game, 2D Role-based Access Game, and XR Drone Simulator using Unity and C#.
- Built immersive simulations demonstrating game physics, object-oriented programming (OOP) principles, and interactive XR training.
- Released WebGL games and published the XR drone simulator on Itch.io.

### Laravel & AI ChatBot Development (Japanese AI Course), TGG Organization Jan 2025 – May 2025

- Developed Laravel-based projects including Blog Web App, To-Do List, and AI-powered Chatbot with OpenAI API integration.

- Managed backend databases (MySQL) using HeidiSQL, TablePlus, and DB Engine; tested APIs with Postman.

<b>Python Package Developer</b> , UFTB	Apr 2025 – Present
• Published a Python package named <code>emon</code> on PyPI.	
<b>Android App Developer</b> , Amazon Appstore	June 2024 – Dec 2024
• Published Online Tools, Calculator, and Namata apps.	
• Integrated AdMob for monetization.	
<b>Web Developer</b> , UFTB Robotics Club	Jan 2024 – May 2024
• Designed and deployed secure, performance-optimized websites.	

# Projects

<b>Quadcopter Drone Development</b> Pixhawk, Mission Planner	November 2025 – Present
• Designed a GPS-enabled quadcopter with responsive flight control.	
<b>RC Plane GPS Telemetry System</b> Pixhawk, Mission Planner, MAVLink	September 2025 – Present
• Integrated real-time GPS telemetry with RC aircraft for remote monitoring.	
• Visualized flight data via telemetry modules and analyzed performance.	
<b>Drone Simulator XR(Extended Reality) Project</b> Unity, C#, Flight Physics	May 2025 – Present
• Developed an immersive XR drone simulator for training, published on Itch.io.	
• Designed a flight simulator replicating real-world quadcopter dynamics.	
• Implemented PID-tuned flight control and mission simulation environments.	
<b>AI-Powered Chatbot Web App (Japanese AI Course)</b> Laravel, PHP, MySQL, Tailwind CSS, OpenAI API	Mar 2025 – May 2025
• Integrated AI-powered chatbot with voice-to-text, text-to-voice, and AI image generation.	
• Managed backend databases using HeidiSQL, TablePlus, and DB Engine; tested APIs via Postman.	
<b>Laravel To-Do List Web App</b> Laravel, PHP, MySQL, Tailwind CSS	Feb 2025 – Apr 2025
• Created a task management app with CRUD operations and responsive UI using Tailwind CSS.	
<b>Laravel Blog Web App</b> Laravel, PHP, MySQL, Tailwind CSS	Jan 2025 – Mar 2025
• Developed a blogging platform with full CRUD functionality, user authentication, and responsive design.	
<b>2D Game with Role-based Access</b> Unity, C#	Apr 2025 – May 2025

<ul style="list-style-type: none"> <li>Implemented role-based access using polymorphism to demonstrate OOP concepts.</li> </ul>	
<b>IoT-based Health Monitoring System</b> ESP32, Firebase, IoT Dashboard	May 2025 – Present
<ul style="list-style-type: none"> <li>Built an ESP32-based system to monitor heart rate and temperature remotely.</li> <li>Visualized real-time data in Firebase dashboard and triggered alerts.</li> </ul>	
<b>3D Car Racing Game</b> Unity Engine, C#	May 2025 – Present
<ul style="list-style-type: none"> <li>Custom vehicle dynamics, terrain, camera, and controls.</li> </ul>	
<b>Sign Language Detection</b> Python, TensorFlow, OpenCV	Jan 2025 – Present
<ul style="list-style-type: none"> <li>Implemented ASL sign detection system using ML and OpenCV.</li> </ul>	
<b>School Management System</b> HTML, CSS, PHP, MySQL	Aug 2024 – Dec 2024
<ul style="list-style-type: none"> <li>Full-stack web app for school operations.</li> </ul>	
<b>Student Expense Tracker App</b>	October 2025 – Present
<ul style="list-style-type: none"> <li>A Flutter-based Android app with a PHP backend and MySql Database for students' expense tracking.</li> </ul>	
<b>Online Store</b>	Jan 2025 – Present
<ul style="list-style-type: none"> <li>Customized Amazon-style e-commerce with Blogger and JS.</li> </ul>	

## Publications

A. B. S. Emon, S. C. Das, A. Hasib, Md. Ashiqussalehin, “Aerobotics: A Low-Cost IoT-Based Real-Time Telemetry and Risk Prediction System for RC Aircraft Using ESP32 and Machine Learning,” in *2025 28th International Conference on Computer and Information Technology (ICCIT)*, Cox’s Bazar, Bangladesh, 2025, pp. 1–6.  
 DOI: 10.1109/ICCIT63776.2025.10546980 (979-8-3315-7867-1/25/\$31.00 ©2025 IEEE)

## Technical Skills

**Languages:** Python, C, C++, Java, PHP, SQL, C#, Dart

**ML Frameworks:** NumPy, Pandas, Matplotlib, TensorFlow, Scikit-learn

**App:** Java, Flutter, Kotlin, Android Studio

**Web:** HTML, CSS, JavaScript, FastAPI, PHP, Laravel, MySQL, WordPress

**Tools:** VS Code, PyCharm, Unity, Arduino, ESP32, Pixhawk, raspberry pi, Mission Planner

**Others:** ROS2 (rviz2, Gazebo), OpenCV, Git, Blender, Cisco Packet Tracer

## Training

<b>AI for Immersive Technology (BDSET)</b> Kaliakoir Hi-Tech Park, Gazipur AI/ML, Python, Deep Learning, AR/VR/MR/XR, Communicative English	October 2025 – Present
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- Gained hands-on experience in AI/ML model development and intelligent system design using Python.
- Learned immersive technology development with AR, VR, and MR using Unity 3D.
- Completed industry-focused training with advanced lab facilities and globally recognized certification.

**Japanese AI Course (TGG Organization)** Jan 2025 – Mar 2025  
 Laravel, PHP, MySQL, Tailwind CSS, OpenAI API

- Completed multiple Laravel-based projects including Blog Web App, To-Do List Web App, and AI-powered Chatbot.
- Gained hands-on experience with backend management tools (HeidiSQL, TablePlus) and API testing (Postman).

**Japanese VR Course (TGG Organization)** Apr 2025 – May 2025  
 Unity, C#

- Developed 3D Car Racing Game, 2D Game with Role-based Access, and XR Drone Simulator.
- Learned game physics, object-oriented programming (OOP), and immersive XR simulation.

**Web Development Training (UYLab)** Jan 2024 – May 2024  
 HTML, CSS, JavaScript, PHP, MySQL

- Learned full-stack web development and built secure, performance-optimized applications.

## Leadership & Activities

**Project and Workshop Secretary, UFTB Robotics Club** 2025 – Present  
 Organized robotics workshops, project exhibitions, and technical training sessions to enhance members' practical skills.

**Olympiad Coordinator, UFTB Math Squad Club** 2025 – Present  
 Coordinated inter-university math olympiads and academic events, fostering collaboration and problem-solving excellence among participants.

## Awards and Scholarships

Shaheed Syed Nazrul Islam Scholarship for HSC (2023)  
 15th National Undergraduate Math Olympiad Finalist (2024)  
 Student Robot Developement Fund 2025 (Robo Tech Valley)

## Certifications

Python Basics, NASA Space App Challenge, Robotics Course, Machine Learning, AWS ML, Soft Skills, VS Code Udemy Certificate, Hackerrank Problem Solving, ML Specialty, AI Concepts Microsoft, Excel for Workplace, WordPress Theme UYLab, Math Olympiad Participation, Math Olympiad Achievement

## References

- Farzana Akter**, Assistant Professor, Dept. of IRE, University of Frontier Technology, Bangladesh  
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