

Al Nahian Mugdho

51/A, Borobag, Mirpur-2, Dhaka, Bangladesh
☎ 01683524783 • ✉ nahianmugdho@gmail.com
in al-nahian-mugdho 🌐 nahianmugdho.github.io



About Me

As a graduate student in Electronics and Telecommunication Engineering (ETE), I bring a strong background in wireless communication and a passion for IoT. My expertise encompasses electronics, networking, telecommunication, and cutting-edge advancements. With a knack for problem-solving and a creative approach, I excel in devising innovative solutions. As a dedicated team player and leader, I possess strong collaborative and management skills. My enthusiasm for continuous learning makes me a valuable asset to any company looking to leverage technology for growth and success.

Education

BSc. in Electronics & Telecommunication Engineering Rajshahi University of Engineering & Technology CGPA: 3.43 out of 4.00 (First Class 8th)	<i>Session : 2019 – 2024</i> <i>Rajshahi, Bangladesh</i>
---------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------

Higher Secondary Certificate Saint Joseph Higher Secondary School GPA: 5.00 out of 5.00	<i>Session : 2016 – 2018</i> <i>Dhaka, Bangladesh</i>
------------------------------------------------------------------------------------------------------	----------------------------------------------------------

Secondary School Certificate Monipur High School & College GPA: 5.00 out of 5.00	<i>Session : 2006 – 2016</i> <i>Dhaka, Bangladesh</i>
-----------------------------------------------------------------------------------------------	----------------------------------------------------------

Special Qualification

- | | |
|--------------------------------------|------------------------------|
| ◦ Proficient in Network Technologies | ◦ IoT Enthusiast |
| ◦ Multitasking Ability | ◦ Quick Learner |
| ◦ Problem-Solving | ◦ Technologically Proficient |
| ◦ Circuit-Designer | ◦ Hardware Programmer |

Technical Skills

- **Programming Language:** C, Python, HTML, Micropython, Arduino
- **Software:** CST Studio Suite, MATLAB, Simulink, Proteus, EasyEda, Fritzing, PSpice, EMU 8086, Microwind 2, DSCH 2, COMSOL, Arduino, Thonny, Huawei eNSP, Cisco Packet Tracer
- **Tools:** Latex, Igor Pro, Canva, Microsoft Office, MIT App Inventor, ThingSpeak, Adafruit IO, Google Data Studio
- **Hardware:** ATmega32, ATmega328p, Arduino (Uno, Nano, Mega), ESP 32, ESP 8266, Raspberry Pi Pico

Key Projects

- IOT based Environment Expedition Robot** Nov-Dec 2022
RUET
 - Designed and built an IOT-based expedition robot equipped with sensors for collecting data on soil properties, smoke, and gas concentrations, temperature, and humidity, and can be controlled remotely through the web. The robot is equipped with a color suite to analyze soil nutrient content via wavelength, gas sensors for detecting volatile compounds, and a smoke sensor for particulate matter in the air. It also includes temperature and humidity sensors for measuring ambient conditions. Data is transmitted wirelessly to a remote server for real-time analysis, displayed in a data studio dashboard. The robot is specifically designed to operate in remote and hazardous environments where human access is limited.
 - **Keywords:** IoT, ESP 32, Google Data Studio, MQTT, Python, MicroPython, EasyEda, HTML

- Designed an Android app for a Bluetooth-controlled home automation system. The system prioritizes safety with gas leak detection and automatic exhaust fan activation. It also offers basic controls for lights and door locks and an automatic light based on ambient light levels.
- *Keywords:* Microcontroller (ATmega328p), Home Automation System, Android App, Bluetooth Home Automation Gas Leakage Detection

Research Experience

- *Research Assistant, Communication Theory Lab, RUET* - Conducted in-depth research on communication channels, performance analysis, numerical analysis, channel secrecy, and channel modeling; specialized in RIS, FSO, THz, and mmWave communication technologies.
- A Journal of Wireless Communication and Networking is on review in Elsevier, titled '*Enhancing Terrestrial Mobile Backhaul Networks: Performance Analysis of Hybrid FSO/THz Relay Communication Integrated with Aerial RIS*,' which also forms the cornerstone of my thesis work. The study provided insights on enhancing sixth-generation network data transmission through novel backhaul systems using Reconfigurable Intelligent Surfaces (RISs).

Activities

- Volunteered as a firmware engineer at the non-profit organization *Durbar Kandari*, during the COVID-19 pandemic, contributed to the development of low-cost ventilators aimed at providing essential medical support to individuals in need.
- Co-founded a non-profit organization during university, *Anirban* dedicated to assisting the underprivileged and promoting blood donation.
- Participated in the *Etechnovation 2k22* project competition at RUET, presenting an IOT-based Environment Expedition Robot.

Awards

- Best Volunteer Award, *Durbar Kandari* (2021)
- Technical scholarships for Academic Results, *RUET* (2020-2024)

Others

- **Hobbies:** Writing, Travelling, Photography, Reading Books, Learning languages, Pet-keeping
- **Languages:** Bangla, English

References

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◦ A. S. M. Badrudduza
Assistant Professor
Electronics & Telecommunication Engineering, RUET
Email: asmb.kanon@ete.ruet.ac.bd | ◦ Dr. Md. Kamal Hosain
Professor
Electronics & Telecommunication Engineering, RUET
Email: khosain@ete.ruet.ac.bd |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|