# SAZZADUL ISLAM

**Kazi Nazrul Islam Hall, BUET, Dhaka-1000**
**Phone: 01644615185**
**Email: 1806018@eee.buet.ac.bd**
**sazzad1806018@gmail.com**

## Education

**Bangladesh University of Engineering & Technology (BUET)**:  April, 2019- Present
Final year B.Sc. Student in Electrical & Electronic Engineering
CGPA: **3.9538** out of 4.00 up to 7th semester (**Rank 7** out of 195 students)
Major : Electronics
Expected Graduation time : May, 2024.

## Working Experience

### 1. Internship at Inovace Technologies Ltd (2023)

During a two-week internship at Inovace, I gained valuable insights into their systems, corporate structure, and plans, providing me with a comprehensive understanding of the organization and its ongoing projects.

### 2. BUET Robotics Club

| Role | Year |
|------|------|
| Membership Development Coordinator | 2022-2023 |
| Deputy Head of Event Management | 2023-running |

In my experience with the robotics club, I organized various functions while actively participating in the club's activities.

### 3. Udvash and Roots Edu (2019-2023)

I worked there as a mentor of physics for four years.

## Publication

**Sazzadul Islam[1],** Mahbub Alam,PhD[2] *"Tight Binding Hamiltonian Parameter Extraction and I-V Characteristics of FET device formed by 13 AGNR using Machine Learning Method"* Proceedings of 6th ELECTRICAL ENGINEERING AND INFORMATION & COMMUNICATION TECHNOLOGY (ICEEICT 2024) *[Accepted]*

## Research Interests

Machine learning, 2D materials, Quantum transport.

## Core Courses

- Analog Integrated Circuits
- VLSI circuits and Design
- Digital signal Processing
- Digital Logic Design
- Compound Semiconductor Devices
- Microprocessors and Embedded Systems

- Process and Fabrication Technology
- Communication Systems -1
- Probability and Statistics

- Control System

- Power Transmission and Distribution
- Electrical Service Design
- Power System - 1
- Energy Conversion - 1
- Energy Conversion - 2
- Electrical and Electronic Circuits
  (4 Courses)
- Power Electronics
- Communication Systems -2
- Semiconductor Device and Materials
  (5 Courses)
- Linear Algebra

## Project

- **Ordinary differential equation solver and filter design using MATLAB**
  I used the numerical technique to solve differential equation using Euler's method. Then I did filter design to achieve desired output.
- **Voice based attendance system using Machine Learning**
  It can store the attendance of a student based on his voice command.
- **Line Following and Obstacle Avoider Robot using PID controller**
  The robot we built, can follow a black line drawn in front of it and can avoid any obstacle set in that line and find its way back to the line. But we applied PID controller to follow the line smoothly.
- **Message Transmission through LASER**
  We transmitted messages using a laser medium, received the signal with a solar panel, and displayed the output on an LCD.
- **HVDC Transmission System Under Normal and Faulty Conditions**
  We designed a standard HVDC transmission system that will work under normal and faulty conditions through simulation.
- **Speed Control of DC Motor with Feedback from Digital Tachometer**
  We used microcontroller to control the speed of a DC Motor through feedback.
- **IOT based door lock system**
  In this project, we designed the mechanical and electrical systems of the door lock, which can be controlled in three ways: via commands from the app, an external key, or fingerprint recognition.
- **Low Dropout Regulator (LDO) design**
  In this project, we designed a low dropout regulator using tsmc180.
- **Six ways traffic controller using Digital Logic Design**
  It can control traffic in junction of a six ways road and it can be manually controlled.
- **Nine story building design in AutoCAD**
  Each floor consists of two units, each of 1200 sq-ft.
- **I2C bus protocol using Verilog**
  In this project, we have designed and implemented the I2C bus protocol using Verilog. Then, under Cadence IUS environment, we have tested our design using test bench and visualized the test result using Sim Vision. After Cadence Genus Synthesis solution, we have used Cadence Innovus implementation system to convert this to integrated circuit.
- **Experimental setup to measure L-I characteristics of LED**
  In this project, we have implemented an automated process of measuring L-I characteristics of LED.

**Skills**

**Simulation Software/Tools:** Spice Circuit Simulator, Proteus, CYME PSAF, Cadence Virtuoso, Cadence NC-Sim, EDA Playground, MATLAB Simulink, AutoCAD.
**Programming Languages:** C, C++, Python, MATLAB, KeiluVision4, KeiluVision5, SystemVerilog
**Hardware and Embedded System:** ATmega and PIC Microcontroller, STM-32, FPGA Module.
**Computer proficiency**: MS Office, Windows OS.
**Libraries & Frameworks:** Pandas, NumPy, Matplotlib, Scikit-Learn, Keras, Tensorflow

**Awards & Achievement**

- **Recipient, Dean's List Award and University Merit Scholarship (2019-2023)**
  I achieved this award for consecutive terms starting from Level-1, Term-1.
  *Bangladesh University of Engineering and Technology (BUET)*
- **Champion at BUET EEE Olympiad – Senior Category (2023)**
  *Bangladesh University of Engineering and Technology (BUET)*
- **Recipient, Scholarship of Merit (2015- 2022)**
  *Intermediate and Secondary Education Board, Bangladesh*
  HSC-2018, SSC-2016 (7th in Chittagong Board), JSC-2014
- **Recipient, Meritorious student in Nazrul Islam Hall (2024)**
  *Bangladesh University of Engineering and Technology (BUET)*

**References**

Dr. Mahbub Alam
Associate Professor, BUET
Dhaka, Bangladesh
mail : mahbubalam@eee.buet.ac.bd

Dr. Muhammad Abdullah Arafat
Assistant Professor, BUET
Dhaka, Bangladesh
mail: abdullah_arafat@eee.buet.ac.bd