Md. Asif Rahman

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ABOUT ME

Recent **Electrical and Electronic Engineering** graduate with a **3.53 CGPA**. My background includes specialized research in 5nm-node SOI MOSFET modeling and practical experience with industry-standard tools like Cadence Virtuoso, Genus, Innovus, and Silvaco ATLAS. I am adept at applying theoretical knowledge to develop engineering solutions for practical problems. Beyond core EEE disciplines, I possess a strong interest in coding, automation, and system design. I am a proactive professional looking to leverage my technical versatility to drive efficiency and innovation in a fast-paced team.

WORK EXPERIENCE

Energypac Industrial Park

Address: Jaina Bazar, Jaina-17003, Gazipur, Bangladesh., | **Website:** https://www.energypac.com/

Link https://tinyurl.com/Energypacvisit

Industrial Visit (Observational)

[29/06/2024 – 29/06/2024]

- Visited generator manufacturing and assembly plant at Energypac Industrial Park
- Observed technical workflows including motor integration, testing, and commissioning
- Gained practical understanding of industrial-scale power generation equipment

EDUCATION AND TRAINING

Bachelor of Science in Electrical and Electronic Engineering

Ahsanullah University of Science and Technology [29/11/2021 – 22/02/2026]

Address: 141 & 142, Love Road, Tejgaon Industrial Area, Dhaka-1208, Bangladesh., | **Website:** https://www.aust.edu/ | **Field(s) of study:** Engineering | **Final grade:** 3.534 out of 4.00

Higher Secondary Certificate (HSC)

Dhaka Residential Model College [01/01/2019 – 31/12/2020]

Address: Aurangajeb Road, Mohammadpur, Dhaka-1207, Bangladesh., | **Website:** https://www.drmc.edu.bd/ | **Field(s) of study:** Science | **Final grade:** 5.00 out of 5.00

Secondary School Certificate (SSC)

Dhaka Residential Model College

Address: Aurangajeb Road, Mohammadpur, Dhaka-1207, Bangladesh., | **Website:** https://www.drmc.edu.bd/ | **Field(s) of study:** Science | **Final grade:** 5.00 out of 5.00

PROJECTS

[12/01/2025 – 23/01/2025]

Voltage Monitoring & Switching-ON Surge Protection System

- Designed and implemented a protection system to prevent damage to appliances from undervoltage, overvoltage, and switching-ON surge, ready for protecting residential appliances
- Developed a window comparator circuit using dual op-amps (LM324) and Zener references for accurate voltage threshold sensing.
- Achieved fast response time, low power consumption, and adjustable voltage cut-off thresholds compared to NE555-based circuits.

Link: https://tinyurl.com/voltagem

[16/02/2025 – 13/03/2025]

Replication of a High-Speed MCML D-Latch at 0.6V in 45nm CMOS Technology of an existing Journal paper

- Designed and simulated a Low Voltage Folded MCML D-Latch at 0.6 V using 45 nm CMOS technology in Cadence Virtuoso, based on replication of a high-speed circuit from a published journal.
- Performed schematic, layout, DRC, and LVS verification of the proposed circuit and executed transient analysis under FF, FS, SF, and SS process corners using ADE Explorer.
- Conducted iterative transistor sizing (up to 50x) to replicate journal results, gaining hands-on experience with performance metrics such as power, delay, and noise cancellation, despite deviations from expected output.

Link: https://tinyurl.com/mcmldlatch

[26/06/2024 – 10/07/2024]

Optical Fiber Sensor Network for Environmental Monitoring Using Arduino & MATLAB

- Built a real-time environmental monitoring system using Arduino, DHT22, BMP180 sensors, and IR communication through a fiber-like channel.
- Developed a Python script to generate real-time .csv files and visualized data using MATLAB.
- Demonstrated low-cost, modular sensor network design suitable for home, agricultural, or industrial deployment.

Link: https://tinyurl.com/opticalnet

[16/01/2024 – 08/02/2024]

Real Time Weather App Using Open Weather API (Developed in MATLAB App Designer)

- Developed a GUI-based weather app in MATLAB using App Designer.
- Integrated OpenWeatherMap API to fetch and display real-time temperature and weather data.
- Implemented input validation and error handling for an appropriate user experience.

Link: https://tinyurl.com/rtwappop

PERONAL PROJECTS

[24/03/2026 – 04/04/2026]

Expinance (Personal Finance Tracker)

- **Developed a privacy focused personal finance mobile application** using **React Native** and **Expo**, implementing a **local-first architecture** with **SQLite** to ensure 100% user data ownership.
- **Integrated Google Gemini AI and OCR technology** to automate transaction entry, enabling users to record expenses through natural language voice commands and receipt image parsing.
- **Optimized UI performance** by utilizing **React Native Worklets** and **Skia** to render complex, interactive data visualizations for real-time spending analytics.

Link: https://github.com/ASIFxRAHMAN/Expinance

TECHNICAL SKILLS

Simulation & Circuit Design:

Cadence **Virtuoso**, Cadence **Genus**, Cadence **Innovus**, **Silvaco TCAD**, Quartus Prime, Mathworks **MATLAB**, PowerWorld Simulator, PSPICE

Programming Languages & Tools:

C++, Python, Arduino IDE

EDA & PCB Tools

Cadence OrCAD, Proteus, PSPICE, Quartus, Design Builder

Data Analysis & Visualization:

OriginPro, MATLAB.

Productivity & Design Software:

Microsoft Office Suite, Adobe Illustrator, Adobe Photoshop

LANGUAGE SKILLS

Mother tongue(s): Bengali

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

THESIS

[03/12/2024 – 11/01/2026]

Simulation Modelling & Investigation of Silicon on Insulator Devices

- Simulated and analysed 5nm node PDSOI and FDSOI n-MOSFETs using Silvaco ATLAS TCAD.
- Investigated short channel effects (SCEs) such as DIBL, subthreshold slope, and kink effect under aggressive scaling.
- Compared electrostatic performance and threshold voltage behaviour by varying silicon film thickness, gate oxide thickness, and doping profiles.
- Explored practical applications of 5nm FDSOI and PDSOI MOSFETs based on investigated performance metrics.

Link: https://dx.doi.org/10.2139/ssrn.6188838

PUBLICATIONS

[2026]

Design & Analysis of 5 nm PDSOI and FDSOI n-MOSFETs for Ultra-Low Power Applications with High-k Dielectric Materials

Authors: Md. Muntasir Alam, Md. Asif Rahman, Anika Tahasin Parisa, Towhid Adnan Chowdhury | **Journal Name**: Materials Sciences and Applications