Md. Muntasir Alam

Electrical & Electronic Engineering | Semiconductor Devices & VLSI Design

Dhaka, Bangladesh · mdmuntasiralamanim@gmail.com
LinkedIn · Linktree

PROFILE

Electrical and Electronic Engineering graduate from Ahsanullah University of Science and Technology (AUST), majoring in Electronics. Specializes in semiconductor devices and VLSI design, with hands-on experience in SOI device simulation, TCAD modeling, and EDA workflows using Cadence Virtuoso, Genus, and Innovus. Research focuses on FDSOI and PDSOI MOSFETs for low-power applications.

CORE SKILLS

Semiconductor devices SOI MOSFETs, FDSOI, PDSOI, short-channel effects, low-power CMOS, high-k dielectrics	EDA and simulation Silvaco TCAD, Cadence Virtuoso, Genus, Innovus, ModelSim, MATLAB, COMSOL, LTspice, PSpice, OrCAD, Quartus, Proteus
VLSI and design Verilog HDL, ASIC flow, RTL, synthesis, physical design, CMOS layout, DRC, LVS, timing and power analysis	Programming and engineering C++, Arduino IDE, Simulink, AutoCAD, Tinkercad, OriginPro, Linux (Ubuntu), Microsoft Office

EDUCATION

B.Sc. in Electrical and Electronic Engineering — 2021–2026

Ahsanullah University of Science and Technology · Major in Electronics · CGPA 3.157/4.00

Higher Secondary Certificate, Science — 2018–2020

BAF Shaheen College Dhaka · GPA 5.00/5.00

Secondary School Certificate, Science — 2016–2018

BAF Shaheen College Dhaka · GPA 5.00/5.00

THESIS

Simulation, Modelling and Investigation of Silicon-on-Insulator Devices (SOI) · Nov 2024–Jan 2026
TCAD-based simulation and analysis of PD-SOI and FD-SOI MOSFETs at the 5 nm process node, examining electrical behavior and short-channel effects for low-power CMOS applications.
Read thesis

PUBLICATIONS

Design & Analysis of 5 nm PDSOI and FDSOI n-MOSFETs for Ultra-Low Power Applications with High-k Dielectric Materials **2026**

Md. Muntasir Alam, Md. Asif Rahman, Anika Tahasin Parisa, Towhid Adnan Chowdhury · Materials Sciences and Applications, Vol. 17, No. 2, pp. 35–49
View publication

Enhanced Resource Allocation for Integrated Radar-Communication System Using RSMA (Pre-Print) **2024**

Md. Muntasir Alam, Nafiuur Rahman · Accepted, Open Access Library Journal (OALib) · Research Square preprint
View publication

SELECTED PROJECTS

Design and Implementation of an Air Conditioner Using Finite State Machine (FSM) **Jul–Nov 2025**
Implemented an FSM-based controller through RTL verification in ModelSim, synthesis in Cadence Genus, and physical implementation in Cadence Innovus.
Cadence Genus · Innovus · ModelSim · Project link

Optimized CMOS Design of Full Adder Using 45 nm Technology **Jan–Feb 2025**
Designed and optimized a 28-transistor CMOS full adder in Cadence Virtuoso; evaluated process-corner delay, power, EDP, and PDP. DRC and LVS checks confirmed a clean layout.
Cadence Virtuoso · DRC · LVS · Project link

Precision Voltage Monitoring and Switching-On Surge Protection System **Jan–Feb 2025**
Improved a surge-protection circuit by replacing the NE555 timer with an op-amp window comparator for faster, more precise, lower-power response.
Window comparator · Op-amps · Project link

Optical Fiber Sensor Network for Environmental Monitoring Using Arduino and MATLAB **Jun–Sep 2024**
Developed a low-cost modular monitoring system using IR communication and emulated optical fiber; silver foil substituted for fiber due to hardware limitations.
Arduino · MATLAB · IR communication · Project link

ACTIVITIES AND ENGAGEMENT

Publicity Coordinator, IEEE Electron Device Society AUST Student Branch Chapter (2024–2025)
Supported technical workshops and seminars on semiconductor devices, VLSI, and nanoelectronics.

Campus Associate, International Leadership Competition 1.0 (2024)
Served as an executive member.

General Member, BAF Shaheen College Dhaka IT Club (2018–2020)
Participated in SDITC Technovation 2.0 Gamecon and the 1st BAFSD Carnival.

Student Member, IEEE (2024–2025)
Engaged in professional development and student branch activities.

Industrial visits: Energypac Industrial Park; Walton Hi-Tech Industries PLC (2024)
Observed manufacturing, power systems, compressors, rooftop solar, and industrial operations.

LANGUAGES

Bangla: Mother tongue · English: Listening C1, Reading C1, Writing B2, Spoken production B2, Spoken interaction B2