

Musa Ahammed Mahin

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SUMMARY

Electrical and Electronic Engineering graduate with research and practical experience in prosthetic robotics, rover electronics, embedded systems and solar energy. Co-authored a TENCON 2023 WIE Best Paper Award-winning paper and led engineering projects and robotics training. Research interests include assistive robotics, embedded sensing and control, and power and energy systems.

EDUCATION

BRAC University, Dhaka, Bangladesh

January 2018 - April 2023

Bachelor of Science in Electrical and Electronic Engineering

Concentration in Power. **Relevant coursework:** Control Systems; Microprocessors; Power Electronics; Digital Signal Processing; VLSI Design; Elements of Statistics and Probability.

TECHNICAL SKILLS

- **Programming:** Embedded C, C/C++, Python; basic SQL.
- **Engineering:** Embedded systems, robotics, automation, IoT, solar PV and energy storage; circuit protection, hardware integration and fault isolation.
- **Tools:** Eagle, Proteus, SolidWorks, AutoCAD and PVsyst.

EXPERIENCE

Decor Energy Solution Limited

September 2025 - February 2026

Electrical Engineer

- Developed 24 solar photovoltaic system designs, preparing engineering drawings and PVsyst simulations to support system design and feasibility assessment.
- Designed and configured energy storage solutions; prepared feasibility analyses, technical documentation and bills of quantities to support system planning and equipment selection.

CyborgBD

October 2024 - August 2025

Engineering Lead

- Led a multidisciplinary team developing an AI-powered prosthetic exo-leg; managed project development from concept through funding activities.
- Contributed to an ESP32-based gas-monitoring prototype integrating raw sensor acquisition, Wi-Fi/MQTT transmission, a Node.js-to-Firebase data pipeline, and a browser dashboard for recent and historical readings.
- Mineceptor - Remote-controlled rescue robot project intended to deliver supplies and deploy fire-extinguishing balls in difficult-to-reach areas.

Diligite, IT and Business Incubator CUET

May 2024 - September 2024

R&D Specialist and Instructor

- Led field deployment and validation of a drone-assisted monitoring system for a public-sector client.
- Investigated communication failures, data loss and power drain through current measurements, log comparison, subsystem isolation and component substitution; revised components and code.
- Taught automation and IoT, and instructed participants preparing for **International Robotics Competition**.

Prosthetic Exo-Leg

April 2023 - April 2024

Independent Researcher

Independent project with guidance from my thesis supervisor and laboratory support from BRAC University.

- Translated patient and partner requirements into specifications for a robotic leg-suit for people with transfemoral amputation.
- Designed experiments, analyzed system performance, and refined the design for safety, manufacturability, cost and usability; co-authored the IEEE TENCON 2023 paper.

STEMON BD

April 2022 - March 2023

Robotics Instructor

- Designed Arduino and microcontroller courses comprising 30 hands-on projects; adapted instruction to participants with different skill levels.
- Instructed students preparing for the **Robotics Olympiad** and coordinated course materials, schedules and delivery.

BRACU Mongol Tori, BRAC University

May 2018 - June 2020

Electronics Team Lead

- Led rover electrical and embedded-system development and integration; the team placed third in the 2020 University Rover Challenge.
- Used current measurements and fault isolation to identify high-consumption subsystems and improve rover power efficiency by 30%.
- Implemented reverse-polarity protection and an emergency power cutoff.

BRAC University Robotics Workshop

April 2019 - August 2019

Program Coordinator and Robotics Instructor

- Coordinated development of a basic robotics course for university students and delivered hands-on workshops to more than 400 students.

ADDITIONAL ROBOTICS PROJECTS

- **Science Box for Mars (2019):** Autonomous system for soil and air testing and analysis; second place in the BRAC University robotics project showcase.
- **Minesweepers (2019):** Participated in an international humanitarian demining robotics competition; passed the first phase with 74 points.

HONORS AND AWARDS

- **Best Paper Award, IEEE Women in Engineering (WIE) | TENCON 2023 |** Prosthetic Exo-Leg.
- **First Runner-Up, Poster Presentation | ICEPE 2022 |** Prosthetic Exo-Leg.
- **Third Place |** University Rover Challenge 2020 | BRACU Mongol Tori, Electronics Team Lead.
- **Eleventh Place |** University Rover Challenge 2019 | BRACU Mongol Tori.
- **Third Place |** International Rover Challenge 2018 | BRACU Mongol Tori.
- **OIC-Funded Participation | International Robotics Competition 2019, Soccer Bot |** Led BRACU Expeditor, the only team from Bangladesh to participate in the competition, with full funding from OIC.
- **Second Place, Project Showcase |** BRAC University Robotics Competition 2019 | Autonomous Science Box.
- **Third Place, Soccer Bot |** BRAC University Robotics Competition 2019 | Team Leader.
- **Scholarships:** Government scholarships (2009 and 2012); Bangladesh National Cadet Corps scholarship (2016).

PUBLICATION

Prosthetic Exo-Leg: A Functional Robotic Leg Suit to Assist Patients with Transfemoral Amputation

2023 IEEE Region 10 Conference (TENCON) | Co-author

Best Paper Award, IEEE Women in Engineering (WIE)

LEADERSHIP AND ACTIVITIES

- **Secretary, Research and Development Department, Robotics Club of BRAC University:** Led organizing teams for robotics competitions involving more than 500 participants; established a research and project management department to mentor students.
- **General Secretary, Indoor Games Club of BRAC University (January 2019 - January 2022):** Managed logistics, scheduling and coordination for tournaments with more than 700 participants.
- **Cadet Corporal, Bangladesh National Cadet Corps (June 2014 - June 2016):** Trained under Bangladesh Army personnel in Romna Regiment and received a scholarship.