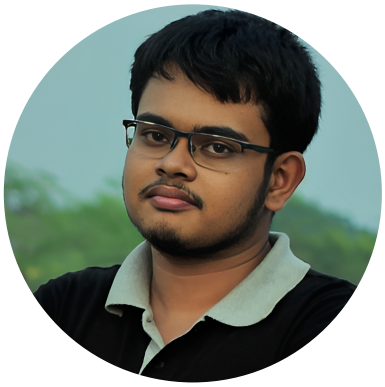
MD. MAHBUB ALI

mdmahbubali@outlook.com +4591980957
Aggersundvej 25, Aalbog East, 9220 alimahbub
github.com/Md-Mahbub-Ali orcid.org/0000-0002-8674-5710



CAREER OBJECTIVE

Aim to be placed in an organized research and development sector where my engineering skills can be utilized and implemented through electrical knowledge and applications. Currently, looking for a part-time job position as a research assistant, student worker, and apprentice.

WORK EXPERIENCE

Volunteer Research Assistant

Energy Research Group, Department of Electrical and Electronic Engineering (EEE), BRAC University

2020 (February) - 2023 (July)

The Energy Research Group is a power and energy assessment research team in the EEE department comprising undergraduate and graduate students who are supervised by professors and lecturers for working on their thesis projects.

- Conducted academic research on the performance and feasibility analysis of photovoltaic systems under the supervision of my thesis supervisor and a lecturer.
- Attended a couple of virtual workshops as an instructor on photovoltaic system design and assisted three undergraduate thesis teams in developing methods and assessing cumulative solar energy.

Research and Development Intern

Aqualink Bangladesh Limited

2022 (January - July)

- Researched and developed a few protection circuit designs and applied them to various advanced electronics system designs.
- Experienced with installing and operating an IoT-based I/O controller device on the panel board to control the exhaust centrifugal fan using a variable frequency drive (VFD).

Junior Electrical Engineer

Vendy.Ltd

2021 (February - September)

- Designed a compact circuit using AUTODESK EAGLE for the vending machines' main-board containing Node-Mcu, shift register, DF-player, RIFD module, OLED, Buzzer, LED along with DC-DC converting feature.

EDUCATION

Masters of Science, Energy Engineering

Aalborg University

2023 – Current Aalborg East, 9220, Denmark

B.Sc in Electrical and Electronic Engineering

BRAC University

2016 – 2020 66, Mohakhali, Dhaka-1212

RESEARCH PROJECTS

Design and Simulation of a Cost-Effective Solar-Powered Street Lighting System for Rural Areas 2022 (July-December)

- Figured out the optimum LED and pole-to-pole distance for street lighting in Haripur Upazilla (Rangpur Division).
- Evaluated the photovoltaic system with a battery backup system, considering the effect of clouds and the most plausible night hours in that area.

Design of a Standalone Photovoltaic System-based Electric Vehicle Charging Station
2021 (July-December)

- Evaluated the size of PV arrays and batteries based on designated locations and the number of electric vehicles anticipated.
- Analyzed the reductions of carbon emissions based on grid dependence.

PROJECTS

BRACU Mongol Tori (Group) 2017-2019

An astronaut assistant rover featured with both remote and automated system.

- Compact circuit setup maintaining lower impedance.
- Designed custom 60A power switch using relay mechanism.
- Custom built power distribution system.

IoT Based Rooftop Environment Quality Monitor and Plant Irrigation System
2019

- **Monitored the soil moisture from the plant soil and control irrigation system with objectifying the limit.**
- **Stored real time environmental air temperature, humidity, gas data to Adafruit.io through MQTT protocol.**

Home Automation 2017

- **Interfaced with all the relevant basic featured sensors using Arduino.**
- **Saved electrical energy based on day-light along with observed the room temperature.**
- **Alarm feature focused for gas leakage and theft issues.**

AC - DC Converter 2017

- Converter could supply 3A and voltage could be regulated from 0V to 13V.
- Developed with battery overcharge and reverse polarity protection.

PUBLICATIONS

Design of A PV-Based Irrigation & Water Management System: A Bangladesh Perspective
DOI:10.1109/PECon54459.2022.9988852 2022

- Designed a standalone 6.9 KW PV system to power up the 6750 W DC submersible pump, considering water flow rates and solar insolation hours.

Feasibility Analysis of An Islanded Microgrid: A Study on Dublar Char
DOI:10.1109/ICEPE56629.2022.10044887 2022

- Assessed the theoretical maximum solar and wind energy output on Dublar Char Island (Khulna Division).
- Determined the optimal ratio of PV modules and wind turbines in terms of power generation and life-cycle cost analysis.

Performance Assessment of A Residential Building Integrated Photovoltaic (BIPV) System in Dhaka City.
DOI:10.1109/PVSC48317.2022.9938802 2022

- Calculated the energy-focused outcome of a pre-built residential Building Integrated Photovoltaic system considering cloud impact.
- Designed a Photovoltaic system to reduce carbon emissions and grid dependence while observing the energy payback period.

Performance Investigation of Bifacial Module Based Time Varying Multilevel Solar Panel System.
DOI:10.1109/PVSC43889.2021.9518456 2021

- Observed the effectiveness of multilevel Bi-facial PV panels in urban areas, which occupy 33% less area than the conventional system.
- Utilized the ASHRAE clear-sky solar flux model to evaluate the theoretical performance of the proposed designed system's accumulated solar energy.

SKILLS

Proficient in:

- Software: **Proteus, Autodesk-Eagle, Matlab**

Worked with:

- Software: **Altium, Arduino IDE, Scilab, SketchUp, LabVIEW, Microwind, Quartus**
- Programming Language: **Embedded C++, Java**
- Other Tools: **HTML, CSS**

EXTRA CURRICULAR

Team Lead of Electronics Department

BRACU Mongol Tori

2018 (June) - 2019 (December)

- Learned team-work strategy under the supervision of the Professor and the seniors.
- Applied certain leadership quality while working with the juniors.

Director of R & D Department

BRAC University Electrical and Electronic Club

2019 (February) - 2020 (February)

- Conducted a workshop as an instructor of fundamental electronics.
- A couple of DIY showcase projects (Real-time temperature and humidity monitor, Arduino-controlled 8x8 matrix LED) had been developed.

Executive of Human Resource Department

BRAC University Robotics Club

2017 (February) - 2017 (June)

- Learned and applied certain skills related to human resource management using Microsoft Office and Google editors.
- Guided the newly recruited members to keep a detailed database of club members to contact them when needed.

ACHIEVEMENTS

Participated in University Rover Challenge (Mongol Tori)

2019 Utah, USA

13th Place out of 36 International Teams in University Rover Challenge (Mongol Tori)

2018 Utah, USA

Participated in Robowars (Battle-bot)

Techfest-2017-2018

2018 IIT BOMBAY, INDIA

REFERENCE

Dr. Md. Mosaddequr Rahman
Professor & Chairperson, EEE Department
BRAC University

66 Mohakhali, Dhaka 1212

+880-2-9844051-4 (Ext: 4196)

mosaddeq@bracu.ac.bd

Dr. Md. Khalilur Rahman
Associate Professor, CSE Department
BRAC University

45 Mohakhali, Dhaka 1212

04478444112 (Ext: 5117)

khalilur@bracu.ac.bd