Sagar Kumar Das

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RESEARCH INTEREST

Power Electronics	Charging of Electric Vehicle (EV)	Battery
Wireless Power Transfer(WPT)	Renewable Energy	Transportation Electrification

EDUCATION

Bangladesh University of Engineering and Technology(BUET) June 2022 – Present(Def.in Dec/Jan)
M.Sc. in Electrical and Electronic Engineering CGPA: 3.75/4.00

Bangladesh University of Engineering and Technology(BUET) February 2017 – May 2022
B.Sc. in Electrical and Electronic Engineering CGPA: 3.17/4.00

EXPERIENCES

- Research Fellowship at the Department of NCE,BUET funded by DBL Ceramics (July'23-June'24)
- Research Fellowship from ICT Division, Bangladesh (Jan'23-Dec'23)
- Teaching Assistant at the Department of EEE, BUET (May'23-October'23)
- Teaching Assistant at the Department of EEE, BUET (November'22-April'23)

RESEARCH EXPERIENCES

Postgraduate Research — BUET

- Design of low-cost 3-decibel waveguide-based microwave plasma reactor (Experimental and Simulation) to melt and vaporize quartz powder under supervision of Dr. Md. Fakhrul Islam, Dr. A.S.M.A. Haseeb and Dr. Nadim Chowdhury. Currently Working as a Research fellow funded by DBL Ceramics.
- GaN based Inverter and PCB design under supervision of Dr. Cheng Zhang(Lecturer,EEE, University of Manchester) and Dr. Nadim Chowdhury.
- Research on wireless charging of EV and smart phone under supervision of Dr. Nadim Chowdhury.

Undergraduate Research — BUET

- Conducted an undergraduate thesis on Wireless Charging of Electric Vehical under supervision of Dr. Mahbub Alam.

PUBLICATIONS

JOURNAL PUBLICATIONS: Q1

- M. Yuan et al., "Enhancement-Mode GaN Transistor Technology for Harsh Environment Operation," in IEEE Electron Device Letters, vol. 44, no. 7, pp. 1068-1071, July 2023, doi: 10.1109/LED.2023.3279813.
  Link.

CONFERENCES:

- "SmartChargeNet: PCA-Enhanced Attention-LSTM for Wireless Electric Vehicle Charging Optimization" In 2023 10th International Conference on Power System (ICPS 2023), doi: 10.1109/ICPS60393.2023.10428982
  Link.
- "SolarNet- An efficient multi-model ensemble approach for Solar Power Forecasting based on Artificial Intelligence", 6th International Conference on EICT 2023, doi: 10.1109/EICT61409.2023.10427929
  Link.

NOTABLE PROJECTS

- Performance Evaluation of MRC and SMFIR for Enhanced Wireless Power Transfer -
  - This work conducts a comparative analysis of Magnetic Resonance Coupling (MRC) and Shaped Magnetic Field in Resonance (SMFIR) methods for wireless power transfer to electric vehicles (EVs), focusing on series-series and series-parallel topologies.
- Inverter design using GaN transistor and Gate Driver - **Link**.
  - In this work, half bridge and full bridge inverter with gate driver has been desiged. Later PCB design of the circuit has been done.
- Wireless Charging System for Smartphone- **Link**.
  - The contribution involves the design and integration of an efficient inductive charging system for smartphones, ensuring proper alignment and user-friendly experience.
- Charging of cell phone by the rotational energy of bi-cycle.
  - The contribution involves the design and integration of an efficient inductive charging system for smartphones, ensuring proper alignment and user-friendly experience.
- Remote control home appliance
  - In this project remote control switching of home appliances has been designed by using arduino.

RELEVENT COURSES

Power Semiconductor Circuit	Solar Photovoltaic Circuit
Heterostructure and Compound Semicondutor	Testing VLSI Circuits
Power Electronics	Electric and Magnetic Properties of Material
Digital Electronics	Electrical and Electronic Circuits
Power System	Communication

SKILLS

Programming Language	: MATLAB, C, C++.
Simulation Software	: Ansys Electronic Desktop, LTSpice, PSpice, AutoCAD, Simulink, KiCAD, EasyEDA.
Office Application	: LaTeX.
Soft Skills	: Organizing, Collaborating, Writing.

REFERENCES

Dr. Nadim Chowdhury,
Assistant Professor,Department of EEE,
BUET, Dhaka.
Email: nadim@eee.buet.ac.bd

Dr. Md. Fakhrul Islam,
Professor, Department of NCE,
BUET, Dhaka.
Email: fislam@nce.buet.ac.bd

Dr. A.S.M.A Haseeb,
Professor, Department of NCE,
BUET, Dhaka.
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