

Statement of Research Proposal

I chose engineering because of my love with science and technology, as well as my deep interest in the ever-evolving world of technology. I chose Electrical Engineering as my major because I have a strong desire to learn more about this fascinating area. During my undergraduate studies, I studied the principles of electrical engineering, which were reinforced by practical course work.

I've always been interested in mathematics, science, and research in general, ever since I was in elementary school. This fundamental curiosity drove me to major in Mathematics, Physics, Chemistry, and Biology in both secondary and higher education. This interest made me to take Electrical Engineering.

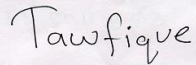
During the course of my undergraduate study, I was exposed to various courses with applications like Electromagnetic field, *Control systems*, *Power electronics*, Electrical Drives, *Electrical measurements*, Linear Integrated Circuits, Electronics, Pulse and digital circuits, instrumentation, *Power systems*, High voltage engineering, *Utilization of electrical energy*, *Renewable energy system* enhanced my subject.

During my B. Tech. final year project titled “*DESIGN AND IMPLEMENTATION OF AN IMPROVED MAXIMUM POWER POINT TRACKING TECHNIQUE FOR SOLAR PV MODULE*” (<https://cutt.ly/znvA3GY>), I've reviewed numerous literatures regarding MPPT techniques. Also implemented conventional MPPT techniques in SIMULINK using the state flow block (SFB). The SFB helped me realize the working of the algorithm visually. Based on the project I, along with my project partners wrote a conference paper under the guidance of our supervisor having the topic “**State flow Realization and Performance Evaluation of Selected MPPT techniques**” has been published in ICRP 2020 at BGSB University, Rajouri, J&K, India (https://doi.org/10.1007/978-981-33-4080-0_59) This work presents the state flow model implementation of Fractional Open Circuit Voltage (FOCV) and Fractional Short Circuit Current (FSCC) MPPT, and Perturb and Observe (P&O). MPPT techniques implemented using SFB are compared with the conventional method in Simulink.

My college experience inspired me to continue my education and pursue a career as a professional researcher. Living in India for my education, I've always believed that I should apply to IITs for greater exposure, which would help me improve my knowledge and expertise of the subject. This solidified my understanding of the value of a supervisor. As a result, I truly hope that I will be given adequate supervision and a conducive research atmosphere at your department.

My future work will be in those fields I had already worked on, such as renewable energy system, power electronics converters, etc. According to my former experiences on these fields, I consider *Renewable Energy System, Power Electronics and Power System* as my research area. Additionally, I have accumulated some knowledge and abilities on them through previous work.

I am clear as to my carrier aspiration. Education I believe is a lifelong process. I therefore wish to pursue a master degree therefore combine research and teaching as carrier. I am fully aware that your curriculum requires that I summon all my resources and I aver that I have the necessary commitment, intelligence and stamina to look forward to do it all. I am convinced that my research at your department would be meaningful and rewarding experience. I look forward to have a long and profitable association with your esteemed Institute. I especially thank you for giving me the opportunity given me to express about myself and my interest.



Signature: Sheikh Tawfique Elahi

Date: June 05, 2021

Place: Panchagarh, Bangladesh
