

Tushar BARUA

Electrical Engineer | Instructor

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Power System Engineer with 2.5+ years of Experience as the Assistant Manager of POWERtrac BD. Proficient in GIS/AIS, HV/MV Switch-gear installation/ commissioning, Power System Protection, Solar System installation. Working on Transmission and Distribution system analysis to understand the impacts of distribution-connected renewable resources (DERs), OPF and Power System Analysis using Co-simulation language. Worked with different regression algorithms for supervised learning. Highly interested to research on decentralized, bidirectional, smart power system.

EDUCATION

January 2016	B.Sc in Electrical and Electronic Engineering, SOUTHERN UNIVERSITY BANGLADESH, Chittagong
January 2012	<ul style="list-style-type: none">> CGPA : 3.95/4.00> Major : Power System> Minor : Communications> Title : Implementation of Arduino Based Wireless ECG Sensor with Real Time Monitoring using IoT Server> Supervisor : Hadaate Ullah (SUB)> Co-Supervisor : Hrishi Rakshit (SUB)

RESEARCH AND PROJECTS

POWER FLOW ANALYSIS AND CO-SIMULATION

2020 - PRESENT

github.com/tusharbarua/CoSimulation

In this project I am working on the Optimum Power flow Analysis and Impacts of high penetration of Distributed Energy Resources (DERs) in different Bus Configurations proposed by IEEE.

OpenModelica Matlab MatPower

MACHINE LEARNING

2020 - PRESENT

github.com/tusharbarua/MachineLearning

The goal of this project is to create a probabilistic load curtailment algorithm in the event of unexpected anomaly in grid system and observe its accuracy performance and comparing it with the existing proposed model.

Octave python

PERFORMANCE ANALYSIS OF VERTICAL AXIS WIND TURBINE AND HORIZONTAL AXIS WIND TURBINE

2019 - PRESENT

github.com/tusharbarua/Wind

Performance Analysis of VAWT and HAWT with Variable Wind Speeds and Variable Swept Areas. Working on designing a retractable type Mechanism for Vertical Axis Wind Turbine.

QBlade SolidWorks

RENEWABLE ENERGY

2017-2018

The Green Power Symposium

Renewable Energy, potential and obstructions - Wind/Solar in Bangladesh. Presentation on Renewable Energy Symposium at Hotel Agrabad, Chittagong on March 2018.

SolarPilot SolTrace

WIRELESS ECG WITH IOT

2015 - 2016

<https://chart-studio.plotly.com/TusharBarua>

Developed a wireless ECG sensor and interfaced it with a microcontroller and Wi-Fi module to transmit signal for real time visualization using an IoT server. The signal was later analysed using Matlab.

Analog Filter LTSPICE Op-Amp Arduino ESP8266 Node.js Visualstudio Pot.ly Matlab Digital FIR Filter

AUTONOMOUS SOLAR IRRIGATION

2015 - 2016

Internet of Things

Developed an autonomous Irrigation project using Arduino, humidity sensor and GSM Module. An IoT platform was used for remote monitoring and sensor operation

DHT11 Arduino SIM800L ThingSpeak

HOSPITAL MANAGEMENT SYSTEM

2016

github.com/tusharbarua/HMS

Interactive Dynamic Web page and Web Application Development for a Hospital Management System. Used Laravel Framework and PHP for backend programming and MySQL for Database.

PHP LARAVEL MySQL HTML CSS JAVAScript

PROFESSIONAL EXPERIENCE

Present November 2019	Assistant Manager Inspection and Service, POWERTRAC, Dhaka, Bangladesh <ul style="list-style-type: none">> Medium Voltage (33/11KV, 33/0.415KV) power transformer and substation installation, testing, commissioning GIS/AIS.> Harmonics Analysis> Design and installation of BusBar Trunking system from 25A Lighting BBT up to 6300A Power BBT> Solar PV Cell installation - both On-Grid and Off-Grid with string and central type inverters> Troubleshooting of Low Tension(LT), High Tension(HT) and Power Factor Improvement(PFI) Switch-gear <p>PowerTransformer Substation SCADA Protection Distribution SF6 BusDuct Solar GIS AIS PLC</p>
November 2019 May 2018	Assistant Engineer Maintenance, AUTOMATION ENGINEERING AND CONTROLS LTD., Bangladesh <ul style="list-style-type: none">> Installation, testing and commissioning of 100KVA-5MVA, 11/0.415KV substation with both Oil Immersed and Dry Type (CRT) Transformers> Designing and installation of BusBar Trunking system (Furutech Busduct System)> Installed 'Power Factor Improvement Panel with Detuned Reactor' using both Magnetic Contactor/Thyristor controlled switching> Worked with Siemens S-7 200 and FUJI Programmable Logic Controller (PLC)> Troubleshooting and Maintenance of Variable Frequency Drive (FUJI) <p>Substation BBT VFD HarmonicsAnalysis PLC</p>

SKILLS

Programming and Scripting	Java, C++, Python, C, PHP, HTML, CSS, TeX
Simulation Tools and Language	OpenModelica, MATLAB, GNU Octave, MATPOWER, Simulink, QBlade, SolTrace, DIALux Evo
CAD Tools	AutoCAD, Solidworks
Frameworks	CodeIgnitor, LARAVEL
IoT Platforms	Plotly, Ubidots, Temboo, ThingSpeak
Hardware	Arduino Uno, Raspberry Pi, Arduino Wi-Fi/ Ethernet/ GSM Shield, ESP 8266, SIM 800L/900 GSM, AVR, PIC, PLC, Variable Frequency Drive

HONORS AND AWARDS

2013 - 2016	Scholarship awarded by Southern University Bangladesh for outstanding Academic Performance
2016	Best Project Award for Hospital Management System by BASIS Institute of Technology (BITM)
2015	Participation in the Inter-University Math Olympiad at IIUC, Chittagong Tech Fest

OUTREACH AND VOLUNTEERING

2020	Relief Distribution and Fund Raising on behalf of Switchgear Inc. due to COVID-19 outbreak
2019 - Present	Arrange awareness programs with Switchgear, Inc. to aware people of the Lightning Protection System and the use of RCBO (Residual current Circuit Breaker with Overcurrent Protection) to prevent 'Electrical Shock Related injury'
2015	Additional Project Director of 'Juddhodolil, 1971' (A digitized version of the collection of facts and information of our liberation war, 1971)
2016 - Present	Member of Blood donating foundation 'Chittagong Blood Bank'

May 2018 March 2016	Lecturer Instructor for EEE Undergrad , ISOBAR CARE CENTER, Chittagong <ul style="list-style-type: none"> > Differential and Integral Calculus (Limit, Continuity and differentiability, Differentiation of explicit and implicit function, Significance of derivatives, Leibnitz's theorem) > Ordinary and Partial Differential Equations (Standard integrals, 1st order and 2nd order linear differential equations, Laplace Transform) > Energy Conversion 1 and 2 (Transformer, Induction Motors, Alternator, Synchronous Motors, 3-Phase Motors, Motor Controls, DC machines) > Power System Protection (Electromechanical, electronics and digital Relays, Basic protection modules, Trip circuits, Protection schemes, Transmission and distribution lines) <div> Calculus Transformers Synchronous Machines DC Machines Protection Relays Transmission and Distribution </div>
July 2016 January 2009	Private Mentor Instructor Secondary, Diploma and Higher Secondary , RANGUNIA, Chittagong <ul style="list-style-type: none"> > Mathematics and Higher Mathematics (Calculus, Permutations, Combinations, Geometry, Polynomial, Probability, Complex and Real Numbers, Binomial Expansions, Trigonometry) > Electrical Circuits – II, AC Machine (RLC Parallel circuits, Series resonance, Parallel resonance, Poly phase system – 3-phase interconnection, Star and Delta connected system, Balanced and Unbalanced power system) > Physics (Motion, Properties of Lights, Sounds, Fluids, Induction, Conduction) <div> Calculus Geometry Matrices Complex Numbers Statistics Power System </div>

TRAININGS AND CERTIFICATIONS

2019	Protection of HV, MV GIS/AIS Substation and Solar PV Cell Installation By POWERtrac, Dhaka, Bangladesh
2018	Estimation, Design and Installation of Bus Bar Trunking System (Up to 6300A) By Automation Engineering and Controls Ltd, Boropole, Chittagong
2018	Operation, Maintenance and Troubleshooting of FUJI Inverter (Variable Frequency Drive) By Automation Engineering and Controls Ltd, Boropole, Chittagong
2017	Web App Development Using PHP and LARAVEL By Basis Institute of Technology and Management (BITM), Mehediabag, Chittagong
2016	Training on Speed Control of AC/DC Motor and Operation of Programmable Logic Controller, Industrial Process Automation By Idea Engineering, VIP Tower, Kazir Dewri, Chittagong

REFERENCES

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Atiqur Rahman

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