S M SHAHNEWAZ SIDDIQUEE

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Daegu, South Korea

RESEARCH INTEREST

- Smart Grid
- Energy Management in Buildings
- Energy Economics
- Energy Storage System
- Renewable Energy Systems

EDUCATION

Master of Science in Electrical Engineering — August 2018
Kyungpook National University, South Korea — CGPA 4.00 /4.30

Bachelor of Science in Electrical & Electronic Engineering — July 2014
International Islamic University Chittagong — CGPA 3.887 /4.00

THESIS

Master Thesis:

"Dynamic Control of HVAC for Building Energy Management"

Description:

- A real-time dynamic operation and control strategy is proposed for residential HVAC to achieve energy and cost efficiency whiles considering BESS operation and Korean Energy Tariff System.
- A Non-Linear Auto-Regressive model (NARX) neural network was used to forecast the indoor desirable temperature. From the forecasted desired temperature, the required energy for HVAC is estimated. This estimated energy gives the hourly operational energy profile of HVAC from where the peak demand can easily be checked. An optimal operation scheduling model using Particle swarm optimization (PSO) has been developed to optimize the BESS schedule for total energy cost reduction of HVAC.

Undergraduate Thesis:

"Optimization, Simulation & Control Strategy of Hybrid Renewable Power System for a Base Transceiver Station (BTS) In Bangladesh"

Description:

- Modeling, Control and Energy management of Renewable energy-based power generation system for telecom industry
- Economic Analysis of the system with application proposal to Telecom Companies for Powering BTS

RESEARCH EXPERIENCE

Research Assistant August 2018 - Present

Power System and Smart Energy Network Lab, KNU

Major Projects:

1. Neural Network and K-Means Based Ensemble Algorithm for Short time Building Demand Forecasting.
2. Grid Impact Analysis of EV integration for ADB member countries (Vietnam, China, Bangladesh, Fiji, India).
3. Machine learning Approach for Battery Anomaly Detection.
4. Analysis of V2G potential for Ancillary Service to the Grid.

PUBLICATIONS

1. **S.M. S Siddiquee**, MS. Alam, MK. Islam, MH Reza, MI Arafat, "**Optimized Hybrid Renewable Energy System for efficient Industrial Electrification**." 2nd International Conference on Electrical Engineering and Information Communication Technology (iCEEiCT 2015), Dhaka, Bangladesh. IEEE XPLORE DOI: 10.1109/ ICEEICT.2015.7307379.

2. MS. Alam, **S.M.S Siddiquee**, MK. Islam, MH Reza, IM. Arafat, "**Implementation and Control of Low voltage Dynamic Voltage Restorer Using Park's Transformation for Compensating Voltage Sag** ", 2nd International Conference on Electrical Engineering and Information Communication Technology(iCEEiCT'2015) Dhaka, Bangladesh. IEEE XPLORE DOI: 10.1109/ ICEEICT.2015.7307394.

3. MM Hasan, AA Tanvir, **S.M. S Siddiquee**, A.Jubair, "**Efficient Hybrid Renewable Energy System for Industrial Sector with Off-Grid Time Management System**." 3rd International Conference on Green Energy Technology (ICGET'2015), University of Dhaka. IEEE XPLORE DOI: 10.1109/ICGET.2015.7315111

4. MM Hasan, Abu Hamja, MK Islam, AA Tanvir, **S.M.S Siddiquee. "Hybrid Renewable Energy Systems with Optimal Designing of Gas Generator and Grid-Connected System integrated with Photovoltaics for Industrial Areas of Bangladesh: A case study from Narayanganj Industrial Area** ". Proceedings of 3rd International Conference on Mechanical Engineering and Renewable Energy (ICMERE'2015), Chittagong, Bangladesh.

5. Aasim Ullah, **S.M. S Siddiquee**, ME Hossain, "**Optimization of Hybrid Renewable Energy System for a Base Transceiver Station (BTS) in Bangladesh** ",3rd International Conference on the Development in Renewable Energy Technology (ICDRET'2014), Dhaka, Bangladesh, IEEE DOI: 10.1109/ICDRET.2014.686169.

MAJOR COURSES

- Advanced Smart Grid Engineering
- Intelligent System Design
- Sensor Systems
- Introduction to Soft computing
- Power System Protection
- AI Applications
- Signal and Systems
- Power System Stability and control
- Robust Control Theory

INTERNSHIP & TRAININGS

1. Engineering Intern (14th August 2013 – 7th September 2013)
   BSRM Iron & Steels Co. Ltd, Bangladesh

2. Industrial Trainee (1st December 2013 – 28th December 2013)
   Technical Institute for Chemical Industries (TICI), Bangladesh
   Training Title: Industrial Technology on Electrical Engineering & Instrumentation

WORK EXPERIENCE

Assistant Engineer (September 2014 – April 2016)

Engineering Division

E-Tec Limited (A Subsidiary of Berthold Technologies, Germany)

1188/A Miazi Villa, CDA Avenue, Chittagong, Bangladesh

Responsibility:

1. Work with technical team to develop and implement preventative maintenance processes for client industries.
2. Ensure safety standards & quality standards in the respective Process Control Unit

COMPUTER SKILL

Design: Simulink, PSCAD, Power-world, PSPICE, PSIM

Programming: C++, Python, R, MATLAB

Machine Learning Library: Tensor-flow, Keras, Pandas, Sci-kit

TEST SCORES

IELTS: Band 8 (Listening: 8, Reading: 8.5, Speaking: 8.5, Writing: 6); Test Taken: Dec 15 2018

Seminar and Workshop

1. Presented, "Modeling and Optimization of HVAC System with Deep Neural Networks", Joint Workshop on Smart Cities and Smart Grid, University of Tokyo. Jan 16, 2019

SCHOLARLY ACTIVITY

Reviewer (Power and Renewable Energy Track)

International Conference on Innovations in Science, Engineering, and Technology (ICISET-2018), IIUC, Bangladesh

HONORS & AWARDS

1. Kyungpook National University International Graduate Scholarship (KINGs)
2. University Merit Scholarship, IIUC (2010-2013) Recipient

REFERENCES

Available Upon Request