Sustainable Development Report 2020
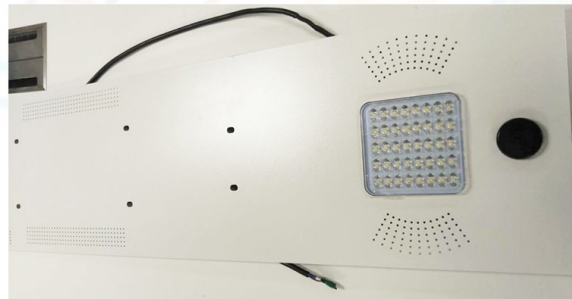**Responsible Consumption and Production**

Responsible Consumption and Production ■

Prince Sultan University took efforts on bringing down the environment pollution and contribute in the fight against climate change. As an important stakeholder, PSU contributes towards the achievement of sustainable cities and communities through various events, practices, and research. It regularly organizes events and exhibitions for students and employees to promote responsible consumption and production.
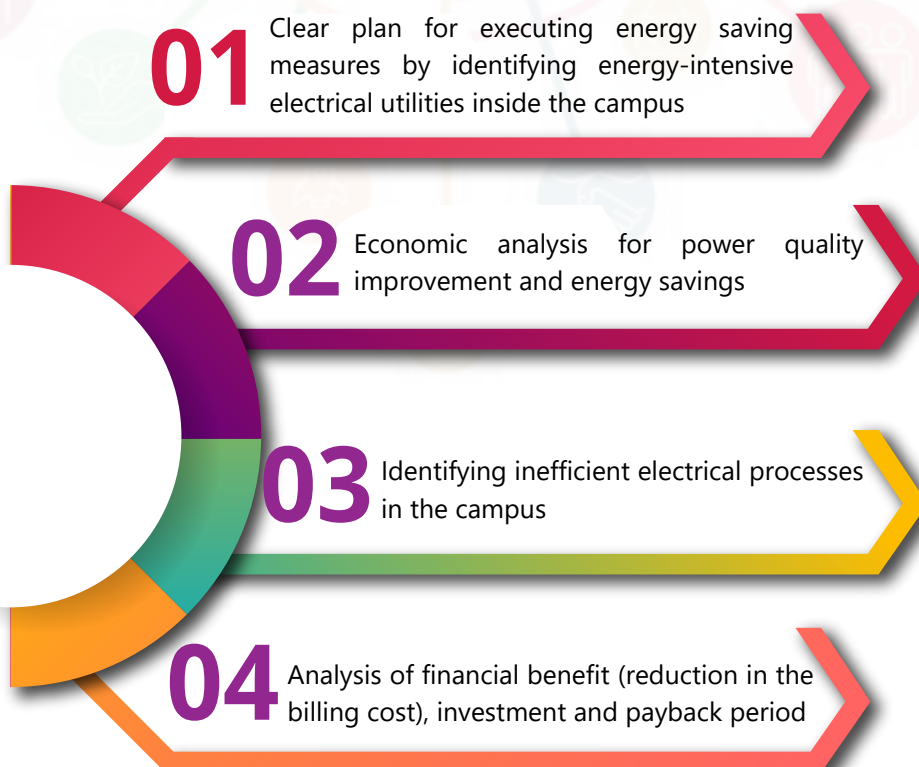
The strong commitment can be witnessed from the type of support provided in events related to E-waste and the sustainable practices followed in PSU campus that promote responsible consumption and production, research contribution, etc. Moreover, the integration of consumption and production as an important topic is endorsed in our curriculum and outreach.

Impact example

Prince Sultan University is involved in several industrial collaborations that are leading the way in search for alternative energy sources. One such example is our Renewable Energy Lab's association with Power and Telecom Technologies Co., KFB Holding Group, Riyadh for a collaborative consultancy project on minimizing electricity cost and feasibility study of self-sustainable campus.

The main objective of the project is to study PSU Lighting electricity network to provide Strategic solutions as per the sustainable development goals (SDG 12, 13, 17)

01 Clear plan for executing energy saving measures by identifying energy-intensive electrical utilities inside the campus

02 Economic analysis for power quality improvement and energy savings

03 Identifying inefficient electrical processes in the campus

04 Analysis of financial benefit (reduction in the billing cost), investment and payback period

Metrics ■

**Research on Responsible Consumption and Production**

1227 Number of views

4.03 Citations Per Paper

The commitment towards encouraging researchers is high at Prince Sultan University which results in high productivity across the department. PSU's scholarly output researches related to SDG 12 – responsible consumption and production in the past academic year has 1227 views and 4.03 citations per paper.

Research ■

Renewable Energy lab, PSU is showing a serious commitment to encourage its researchers to increase their productivity in this field.
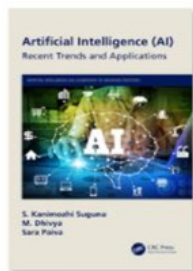
Chapter

Application of Machine Learning for Fault Detection and Energy Efficiency Improvement in HVAC Application

By Umashankar Subramaniam, Sai Charan Bharadwaj, Nabanita Dutta, M. Venkateshkumar

Book	Artificial Intelligence (AI)
Edition	1st Edition
First Published	2021
Imprint	CRC Press
Pages	16
eBook ISBN	9781003005629

Share

The technology augmenting the human civilization in a significant stage is none other than artificial intelligence which has adopted human thinking level power and working as per level of the human brain, sometimes more than that also. From this point of view, the birth of machine learning and deep learning happens which are part of AI and which are basically the tool where machine learns from a human being based on data, pattern, and images. Sometimes it is very difficult for the human being to handle a huge amount of data manually, then the importance of machines is realized.

Cybernetics approaches in intelligent systems for crops disease detection with the aid of IoT

Cybernetics approaches in intelligent systems for crops disease detection with the aid of IoT

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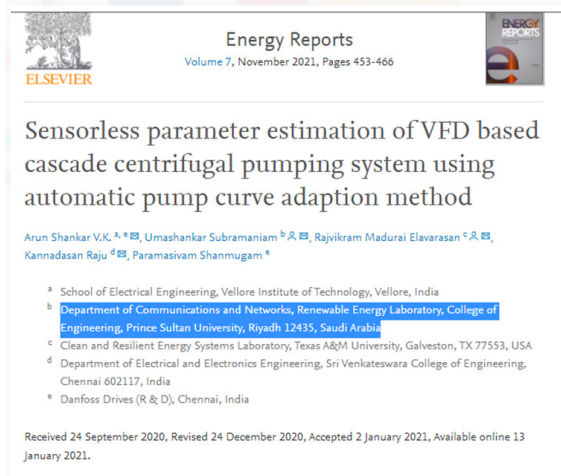Email: padmanathanindia@gmail.com

Abstract
Detection of crop diseases is imperative for agriculture to be sustainable. Automated crop disease detection is a major issue in the current agricultural industry due to its cluttered background. Internet of Things (IoT) has gained immense interest in the past decade, as it accumulates a high level of contextual information to identify crop diseases. This study paper presents a novel method based on Taylor-Water Wave Optimization-based Generative Adversarial Network (Taylor-WWO-based GAN) to identify diseases in the agricultural industry. In this method, the IoT nodes sense the plant leaves, and the sensed data are transmitted to the Base Station (BS) using Fractional Gravitational Gray Wolf Optimization. This technique selects the optimal path for data transmission. After performing IoT routing, crop diseases are recognized at the BS. For detecting crop disease, the input image acquired from the IoT routing phase is then forwarded to the next step, that is, preprocessing, to improve the quality of the image for further processing. Then, Segmentation Network (SegNet) is adapted to segment the images, and extraction of significant features is performed using the acquired segments. The extracted features are adapted by the GAN, which is trained by Taylor-WWO. The proposed Taylor-WWO is newly devised by integrating the Taylor series and WWO algorithms. The

Sensorless parameter estimation of VFD based cascade centrifugal pumping system using automatic pump curve adaption method

The Sustainable Development Goal 7 necessitates efficient energy utilization and aligning energy efficiency targets to industrial machines would pave a way for prospective developments. Pumps are inevitable in commercial and industrial sectors and they contribute to nearly 22% of the global industrial energy utilization. Attesting the fact, this paper focuses on the energy-efficient operation of a pumping system by governing the speed using Variable Frequency Drives (VFDs).

Sensorless parameter estimation of VFD based cascade centrifugal pumping system using automatic pump curve adaption method

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Quality Management Practices of food manufacturers: a comparative study between small, medium and large companies in Malaysia

Quality Management Practices of Food Manufacturers: A Comparative Study between Small, Medium and Large Companies in Malaysia

Ng Kim-Soon [1,*], Salama A. Mostafa [2,*], Mohammad Nurunnabi [3,*], Lim Hui Chin [1], Nallapaneni Manoj Kumar [4,5,*], Rabei Raad Ali [2] and Umashankar Subramaniam [6]

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check for updates

Abstract: Quality management (QM) has been intensively studied from the perspective of quality management practices (QMP) and market performance in the food manufacturing industry. However, in Asian countries, studies as regards to the sizes of food manufacturing companies are being neglected. Hence, this quantitative study investigates several aspects and focuses on the extent and level of QMP implementation among small, medium, and large food manufacturing

Educational Events

Recent Trends in EV and Battery Charing Infrastructures

5:30 PM, November 17, 2020

EV Charging technology is a rapidly growing market these days, but currently it is limited to pilot projects only. Though few key players are in the market, small scale industries dominating in this competition who are mainly power electronic firms manufacturing products like power panels, battery chargers, rectifiers etc and they entered into EV chargers market due to huge demands. This presentation covers the details of the EV and battery chargers and key players in the market both plugin and wireless charging technologies. Also, it explains the contribution of smart grids, smart buildings and smart cities to drive the EV charging market.

International Virtual Conference on Electrical Energy Systems (ICEES 2021)

Renewable Energy Lab (REL), College of Engineering, Prince Sultan University is organizing International Virtual Conference on Electrical Energy Systems (ICEES 2021) on February 11-13,2021 as a partner Institution. SSN College of Engineering, Chennai, India is hosting this conference.

The Virtual Conference is a platform for researchers, academicians as well as professionals from all over the world to present, discuss and promote the knowledge, research and practice in the field of Power Electronics, Smart Grid, Renewable Energy Sources, Energy Storage, and Electric Vehicle Charging. ICEES 2021 is offering a fantastic opportunity to attend a global scientific forum from the convenience of your desktop. The conference is online, from paper submission, including reviewing, conference discussion, and post-conference processing. All papers will be referred to the double tier approval process, single-blind peer-review, and regular check. The online conference is a smart and affordable manner of presenting research results.

Selected papers will be published in IEEE Xplore at the discretion of IEEE.

PSU's commitment to SDG 2030

PSU is committed to United Nations Sustainable Development Goals (SDGs) through effective institutional resource management, innovative teaching and learning, research, national and international partnerships, continuous studies, and outreach. PSU shall undertake the following activities: form higher and steering committees, evaluate each SDG, formulate and develop related SDG policies, conduct awareness campaigns to the PSU community, establish a sustainability office, identify the SDGs related to each college, program, and course, and lab centers at PSU, and implement sustainability-related initiatives.

Vision

Prince Sultan University strives to support Saudi Arabia's Vision 2030 and the United Nations Sustainable Development Goals (SDGs) by paving the way for higher education in KSA and Middle East.

Mission

Supporting the Saudi Arabia's Vision 2030 and the PSU's strategic directions, PSU aligns its mission with SDGs by providing quality education, sustainability initiatives, lifelong learning, scientific research, and community service.

P.O. Box No. 66833, Rafha Street, Riyadh 11586, Saudi Arabia.