Perspective
Volume 15:10, 2022

Journal of Computer Science & Systems Biology

ISSN: 0974-7230 Open Access

Short Notes on Utilizing Machine Learning to Forecast Electrical Energy in Food Preservation

Lisa Andrew*

Department of Information Science, University of Manchester, Oxford Rd, Manchester M13 9PL, UK

Introduction

From crop harvesting to customer consumption, the use of industrial refrigeration technology for food preservation is known to be an efficient and widely used technology. To ensure optimal safety and high-quality shelf life, the transport systems that operate these cold chain systems must maintain optimal food storage temperatures. The sustainability of cooling systems is also becoming more important due to their excellent food preservation properties. When considering the sustainability of a cold chain system, a total cost approach is required. Maintaining lower temperatures for food preservation, for example, may require more energy consumption, but it can significantly extend shelf life and reduce waste, resulting in high energy costs but low environmental costs. As a result, it has the potential to lead to a sustainable system. To generate cold air, the technology used in long-running cooling storage systems is primarily based on a vapour compression cooling system. A significant amount of electrical energy is required for the vapour compression cycle method. Energy consumption rises in particular if an appropriate energy-efficient design is not implemented in the storage space.

Discussion

Refrigerators, which are important household appliances and are used as the most efficient method of storing food, account for a significant portion of electrical energy consumption in the home, accounting for 14-19%. As a result, in a world where resource depletion and global warming are escalating, refrigerator energy efficiency has emerged as a critical issue in the efficient management of electrical energy in the home [1-3]. According to the findings of the study, improving the energy efficiency of household refrigerators can result in significant energy savings, and it was estimated that if environmentally friendly recycling designs and energy label policies were successfully implemented, they could save 6 TWh of energy per year. External temperature, enclosure, insulation, door opening time, and so on were chosen as parameters that affect thermal energy gain, and energy consumption was simulated from the point of design of the cooling chamber in order to organise and implement the proper efficiency measurement method for cold storage production facilities. In addition, using the results, a methodology for optimising energy consumption was developed.

conserve energy Traditionally, a method of improving hardware, a method by structure design, a method of statistical data analysis and a method of reflecting it in design have been used, but recent research papers have reported a prediction method based on machine learning. In 2016, AlphaGo, developed by Google's (Menlo Park, CA, USA) Deep Mind, defeated Lee Sedol (9th Dan) in Go. Following the century's confrontation, all industries paid close attention to deep-learning-based artificial intelligence, and numerous experiments were conducted to apply it to industries in each unique field. This is also being attempted in the food storage and transportation cold chain industry. In the past, a mechanical method of simply controlling the frequency of the compressor to reduce power consumption was used to reduce energy consumption of cooling storage, but Kim presented a report that aimed to reduce the power consumption of refrigeration equipment by using machine learning techniques based on data obtained from the IoT and thus reduce the carbon energy footprint for food retailers [4,5]. The temperature measured by connecting digital sensors was transmitted to a cloud server via a wireless network to implement this method, and it was demonstrated that optimal operating conditions could be created through machine learning of cloud data.

Conclusion

Artificial intelligence will be capable of not only optimising energy consumption in food refrigeration stores, but also of maintaining food quality. Through a review of numerous papers, researchers investigated whether artificial intelligence could be used to solve the problem of microbial contamination that may occur during the cold chain process. Several techniques for obtaining cold chain system data were summarised in the review, and several suggestions about the possibility of using artificial intelligence in cold chain break analysis were made based on the data obtained in this method.

References

1. Feng, Qi, Debiao He, Huaqun Wang and Neeraj Kumar, et al. "White-box implementation of Shamir's identity-based signature scheme." *IEEE Syst J* 14 (2019): 1820-1829.
2. Visconti, Andrea and Federico Gorla. "Exploiting an HMAC-SHA-1 optimization to speed up PBKDF2." *IEEE Trans Dependable Secure Comput* 17 (2018): 775-781.
3. Sungheetha, Akey and Rajesh Sharma. "Fuzzy chaos whale optimization and BAT integrated algorithm for parameter estimation in sewage treatment." *J Soft Comput Paradig* (2021): 10-18.
4. Yin, Ming, Yangyang Zhu, Guofu Yin and Guoqiang Fu, et al. "Deep feature interaction network for point cloud registration, with applications to optical measurement of blade profiles." *IEEE Trans Ind Inform* (2022).
5. Light, Roger A. "Mosquitto: Server and client implementation of the MQTT protocol." *J Open Source Softw* 2 (2017): 265.

***Address for Correspondence:** Lisa Andrew, Department of Information Science, University of Manchester, Oxford Rd, Manchester M13 9PL, UK, E-mail: LisaAndrew99@gmail.com*

Received: 07 October, 2022, Manuscript No. jcsb-22-84878; **Editor assigned:** 08 October, 2022, Pre QC No. P-84878; **Reviewed:** 21 October, 2022, QC No. Q-84878; **Revised:** 26 October, 2022, Manuscript No. R-84878; **Published:** 03 November, 2022, DOI: 10.37421/0974-7230.2022.15.440

How to cite this article: Andrew, Lisa. "Short Notes on Utilizing Machine Learning to Forecast Electrical Energy in Food Preservation." J Comput Sci Syst Biol 15 (2022):440.