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Abstract

There has been much research and various attempts to apply new Data science & analytics technology to agricultural areas. However, Data science & analytics for the agriculture should be considered differently against the same areas such as industrial, logistics. This paper presents analysis of agricultural production system for stabilizing supply and demand of agricultural products while developing the environment sensors and prediction system for the growth and production amount of crops by gathering its environmental information. Currently, the demand by consumption of agricultural products could be predicted quantitatively, however, the variation of harvest and production by the change of farm's cultivated area, weather change, disease and insect damage etc. could not be predicted, so that the supply and demand of agricultural products has not been controlled properly. To overcome it, this paper designed the Data science & analytics based predictive system to analyze crop environment, and the method to improve the efficiency of decision making by analyzing harvest statistics. Therefore, this paper developed the decision support system to forecast agricultural production using IoT sensors for gathering real time data. This system was also a unified system that supports the

processes sowing seeds through selling agricultural products to consumers. The Data analytic-based agricultural production system through correlation analysis between the crop statistical information and agricultural environment information has enhanced the ability of farmers, researchers, and government officials to analyze current conditions and predict future harvest. Additionally, agricultural products quality can be improved because farmers observe whole cycle from seeding to selling using this Data science & analytics based decision support system.

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Index Terms

Computer Science

Information Sciences

Keywords

Sensors, decision support, agriculture monitoring, statistics, data science, machine learning