AgroPro: Optimizer for Traditional Agricultural System in Sri Lanka

M. R. U. M. Senevirathna[1], I. D. I. Balasuriya[1], A.G.S.P.Deshapriya[1], G.A.D.K.M.Gadiarachchi[1], G. M. T. K. D. S Suriyawansha[1], and D. I. De Silva[1]

[1]Department of Computer Science and Software Engineering, Faculty of Computing, Sri Lanka Institute of Information Technology.
udaramadhu128@gmail.com,dinisurubalasooriya@gmail.com, shanukaprabodha1262@gmail.com, kavishkam1@gmail.com, dilshan.i@sliit.lk, kushnara.s@sliit.lk

Abstract

Today, in many countries around the world, big data analysis and machine learning methods are used for industrial development. However, such techniques are rarely used in Sri Lankan agricultural industry. The success of agriculture depends heavily on the selection of the right crop. Choosing the right crop depends primarily on predicting future yields. Machine learning methods can be used very successfully to make future predictions about crop yields. Crop prediction mainly depends on the soil, geography, and climate of the growing location. Hence historical data with agricultural facts such as temperature, humidity, pH, and rainfall are used to predict yield as parameters in the machine learning function. Sri Lanka uses a traditional approach to distribute fertilizers among farmers. Not having an organized way to distribute fertilizers to the needed areas leads to many abnormalities along the way. As a result, the country is facing economic losses and resource wastage. Having an optimized distribution network is the key to overcoming those abnormalities. This research assesses the efficiency of the fertilizer distribution system and consists of time-series predictions on fertilizer usage to gain future value. The aim is to identify performance gaps in distribution management that lead to delayed fertilizer distribution affecting agricultural productivity.

Keywords

Fertilizer, Crop, Prediction, Yield, Machine Learning, Optimization