IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 2, May 2024

Crop Yield Prediction using Machine Learning

Mr. V. Shanmugam[1], I. Sriteja[2], K. Sai Dathu[3], K. Raju[4], S. Sai Kumar[5], G. Karun[6]
Assistant Professor, Department of Computer Science & Engineering[1]
UG Students, Department of Computer Science & Engineering[2,3,4,5,6]
Christu Jyothi Institute of Technology & Science, Jangoan, Telangana, India

Abstract: Weather profoundly impacts agricultural outcomes, making accurate crop prediction vital for farmers' decision-making. This abstract presents a comprehensive overview of weather-based crop prediction, emphasizing its significance, keycomponents, and methodologies. The process begins with the collection and analysis of historical weatherdataencompassing variables such as temperature, precipitation, humidity, and sunlight. Utilizing Python programming and data visualization libraries like Pandas and Matplotlib facilitates the exploration and visualization of this data, revealing trends and patterns. Machine learning algorithms, including regression and ensemble methods, are employedto develop predictive models. These models leverage historical weather data to forecast future crop yields accurately. Python's extensive libraries, such as Scikit-learn and TensorFlow, offer robust tools for model development and evaluation.Incorporating advanced technologies like remote sensing and satellite imagery further refines the prediction process. These tools provide real-time insights into crop health and growth, enhancing the precision of forecasts. Ultimately, weather-based crop prediction serves as a valuable decision support tool for farmers, enabling informed choices regarding planting, irrigation, and harvesting practices. By harnessing historical weather data, machine learning algorithms, and innovative technologies, stakeholders can optimize agricultural productivity, mitigate risks, and contributeto global food security.

Keywords: Agriculture, KMeans Clustering, Logistic regression Algorithm, Crop yield prediction, Machine learning method