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AI Based Real-time Vegetable/Fruits Quality and Price Prediction for Bajarsamiti

Ms. V. D. Vaidya[1], Mr. S. R. Tribhuvan[2], Kurhe Akshay Kishor[3], Ranmare Rohit Rajendra[4], Ghune Abhishek Eknath[5], Sayyad Furkan Dilawar[6]

[1, 2, 3,4,5,6] Department of Cloud Computing and Big Data

Padmashri Dr. Vitthalrao Vikhe Patil Institute of Technology and Engineering (Polytechnic), Pravaranagar

Abstract: *Agricultural markets such as Bajarsamiti play a vital role in determining the quality assessment and pricing of perishable commodities like fruits and vegetables. However, traditional methods of quality grading and price determination rely heavily on manual inspection, which is time-consuming, subjective, and prone to inconsistencies. This paper presents an AI-based real-time vegetable and fruit quality assessment and price prediction system that leverages computer vision and machine learning techniques to automate these processes. The proposed system captures real-time images of agricultural produce and applies image preprocessing, feature extraction, and segmentation techniques to analyze visual attributes such as color, texture, and shape. Deep learning models, including Convolutional Neural Networks (CNN), are used to classify produce into quality grades, while regression and Long Short-Term Memory (LSTM) models are employed to predict market prices dynamically based on quality, historical trends, and demand patterns. The system provides real-time outputs through a dashboard, enabling transparent and data-driven decision-making for farmers, traders, and Bajarsamiti officials. Experimental results demonstrate that the proposed approach improves accuracy, reduces human error, ensures fair pricing, and enhances operational efficiency in agricultural markets. This work contributes to the digital transformation of the agriculture sector by promoting intelligent, automated, and scalable market systems.*

Keywords: Artificial Intelligence, Machine Learning, Computer Vision, Fruit and Vegetable Quality Assessment, Price Prediction, CNN, LSTM, Image Processing, Smart Agriculture, Bajarsamiti

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