GRADING OF ARECANUT USING MACHINE LEARNING

ABSTRACT

This system's major goal is to come up with a way to anticipate the various grades of arecanut based on their color, size, and texture. Several Indian states regularly cultivate arecanut, also known as betelnut. Most farmers now use human labour for sorting and Arecanut quality grading, which takes a lot of time and requires a lot of labour, leads to categorization irregularity. Since no tools or cutting-edge technologies are available. The creation of machine vision-based technologies could be useful for arecanut grading a benefit for farmers and assistance to society. Color, size, and shape are used to characterize the arecanuts carefully evaluated according to texture. These factors have a significant impact on how customers shop. For the quality grading of several categories of arecanut, image processing and machine vision have been utilized to extract exterior attributes like color, size, form, etc.

INTRODUCTION

An essential part of marketing is the grading of arecanut. By examining several traits, it permits the classification of the produce into various homogeneous categories. This makes it easier for the producer to get pricing that reflect the produce's quality. Grading as a language is a useful tool for producers, merchants, or both to translate customer wants into action. In India, areca nuts are a common nut that are consumed by all demographic groups, regardless of caste, class, region, religion, age, or gender. Arecanuts have been used since the Vedic time and are a necessary component of many religious and secular ceremonies. The main producer of arecanuts is India, and Karnataka is the country's most important arecanut-producing state.

A substantial quantity of arecanut stock is managed by distributors, who can also use the grading equipment. The arecanuts are hand assessed according to their color and texture categories. These factors have a significant impact on customers' purchasing habits. For the purpose of rating the quality of arecanuts, image processing and machine vision have been utilized to extract exterior attributes including color, size, and shape. In this research, we divide arecanut into various grades using a machine learning technique.

OVERVIEW

The main goal of the solution is to simply divide arecanuts into two grades—Grade1 and Grade2—based on their color, texture, and size, with Grade1 having better quality features than Grade2 and vice versa. Ordinarily, grading arecanuts is a labor-intensive and time-consuming manual operation. As a result, the suggested technique improves grading accuracy while reducing grading time for arecanut.

CHALLENGES

We encountered a number of issues, one of which being software failure. The number of software requirements was too high.

OBJECTIVES

The arecanuts identification. the process of grading arecanuts according to attributes like size, color, and texture. Automate the traders' labour so they can quickly grade the arecanuts based on quality. Reduce the amount of human involvement.

CONCLUSION AND FUTURE ENHANCEMENT

To determine the best algorithm for categorization, a thorough assessment of the literature has been done in this study. There was no conclusive proof that one algorithm was the best classification strategy. As a result, a collection of algorithms was selected that includes classification based on various criteria. The arecanut images were used to train the chosen algorithms. Each algorithm is trained using a data set containing thousands of images of arecanut in order to assess the accuracy of machine learning models. The trained algorithms were evaluated using accuracy performance metrics.

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