

# A NEW APPROACH TO ANALYSE LENGTH AND QUALITY OF RICE USING FLATBED SCANNER

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**ABSTRACT**--Rice, one of the major things which a human beings come across in day to day life, and rice one of the most favourable food items and most consuming food items for the human beings, measuring the quality of the rice is also important because its mostly consumed by the human beings. india is one among the countries like china and japan which produces rice, and rice is one of the major food item in india especially in the southern part. Many researchers have been done on the improvement of quality of the rice, today we are going to focus on the one the efficient ways to measure the quality of the rice. There are many researchers have been done on the measuring the quality of the rice with different algorithms. In this paper we are going to predict the quality of the rice by measuring the edges of the rice. In this paper we perform the experiment on different rice grains and check the quality of the rice grains by finding the edges of the rice grain.

**Keywords**-- rice quality, measurements.

## I. INTRODUCTION

Rice is the major aspect for many living organisms to sustain, mainly production of the rice is done in countries like India, China, Pakistan and Indonesia. All the countries competing with each other for the production of the rice, and these countries also competing with each other on improvement on the quality of the rice, so the need of measuring the quality of the rice is also required, many researchers have done many researches on measuring the quality of the rice. The many researches are based on many algorithms which are effective in one or another way, the main reason for the purpose of this paper is to find the measure the quality of the rice more effectively and efficiently than all other algorithms. Here in this paper we use an algorithm called CNN for the effective measurement of quality of the rice, the major use of this algorithm is to measure the quality of the rice more accurately and quickly.

The major difference between other algorithms and this algorithm is that the measure of the quality of the rice will be more accurate and the measure of the quality of the rice will be fast when compared with all the other algorithms. Here in this paper the function of the CNN algorithm is in such a way that firstly when the image of the rice is displayed it reads edges of the image and with the edges of the rice grain it checks the quality of the rice.

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With the help of the python programming and implementing CNN algorithm in it , we can find the quality of the rice. When you check the quality measure for different rice grains you can find the quality rice among them.

## II. LITERATURE REVIEW

This paper presents a low cost digital image processing system for quality assessment of Thai rice kernels. Nowadays, Thailand is the top country which export rice into the world market, according to the mention of the Rice Trader, the export volume is 9,883,288 tons in 2016 and export value is 154,434 million baht or 4,401 million dollars. Thai rice quality is controlled by rice department, ministry of commerce Thailand in order to guarantee the quality in market including prices base on grade of rice quality. Thence, quality assessment of Thai rice kernels is required. Quality assessment or grading of Thai rice kernels usually use manual operation by person in cooperating with equipment called micrometer to measure geometrical features such as length, width, and area of rice kernels. This method takes a long time and also gives uncertainty in results due to eye fatigue because size of rice kernels is very small. Therefore, an image processing technique is then applied to measure size of Thai rice kernels. Proposed system consists of flatbed scanner and image processing algorithm which correspond to measure of Thai rice kernels. The low cost system for quality assessment of Thai rice kernels can be delivered to Thai rice industry, the certainty of results and speed of quality assessment can be significantly improved.

Different types of foods are available in grain form, but rice is one of the important and most used cereal grains of Pakistan and all over the world. Quality inspection of rice grain is also important for both local as well as export purpose. It is necessary to propose an automatic solution to perform the quality analysis as well as to distinguish between different classes of rice. Main purpose of this paper is to present an image processing-based solution to classify the different varieties of rice and its quality analysis. An approach based on the combination of principal component analysis and canny edge detection is used for the classification. Quality analysis of rice grain is determined by morphological features of rice grains. These morphological features include eccentricity, major axis length, minor axis length, perimeter, area and size of the grains. Six different varieties of rice are classified and analyzed in this paper. A database is trained by feeding the 100 images of each variety of rice grains. Classification and quality analysis is done by comparing the sample image with database image. Canny edge detector is applied to detect the edges of rice grains. Eigen values and Eigen vectors are calculated on the basis of morphological features. Then by applying the PCA, different varieties of rice are classified by comparing the sample image with a database. Results obtained in terms of classification and quality analysis are 92.3% and 89.5% respectively. Proposed system can work well within minimum time and low cost.

Digital image analysis (DIA) was widely used to describe plant organ shape. However, the various types of shape descriptors that can be generated through the DIA were certainly applicable to identify different size of rice grain. In that, it helped the nice quality inspection more convenient and reduced fatigue from work. Concurrently, the results must be close to human work. As to the results from the experiment, it resealed grain size distribution according to the Agricultural Product Standards ACT, was averagely 5 percent error, and 0.031 percent error when increased against human performance and tools NIR-SC-5000-1/2In views of processing speed, the results of the hands-on experiment took an average of 5.20 minutes per 10 seeds. For a program developed at an average speed

of 19 seconds per 10 seeds, it was found that digital imaging was used to measure grain size. Phenotypic accuracy was no different from the expert. It also more resolution than that of the tools used now a day revealed.

### III. PROPOSED SYSTEM

In this proposed system, it is used to find the quality of the rice in group of different rice grains. CNN algorithm is used in this paper for quality check of the rice. Here in this paper we use CNN algorithm for the effective checking of the rice quality. CNN algorithm gives the results quicker and effective than the other algorithms

### IV. RESULTS AND DISCUSSION

Presently, rice type is identified manually with the aid of humans, that's time eating and errors prone. Therefore, there's a need to do this through device which makes it faster with greater accuracy. This paper proposes a deep studying based method for classification of rice types. We endorse two strategies to categorize the rice types. In the first method, we educate a deep convolutional neural community (CNN) the usage of the given segmented rice images. In the second one method, we train a combination of a pre trained VGG16 network and the proposed method, while the usage of transfer gaining knowledge of in which the weights of a pre trained network are used to achieve higher accuracy. Our method also can be used for classification of rice grain as broken or fine. We educate a 5-class version for classifying rice types using 4000 training pics and some other 2-class model for the classification of broken and everyday rice the usage of 1600 training snap shots. We look at that despite having wonderful rice photos, our architecture, Pre trained on Image Net facts boosts classification accuracy significantly

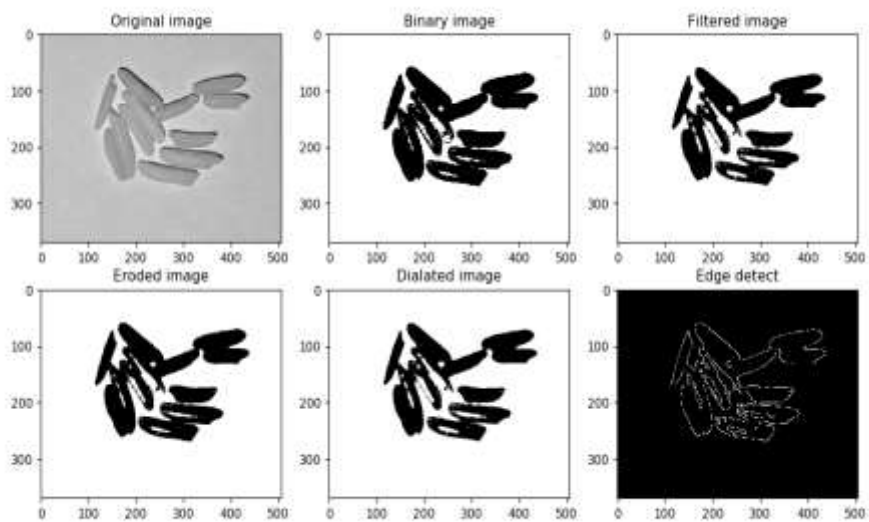
Use different rice samples as example and check the quality of the rice using cnn algorithm which is proposed in this paper,for example consider the following rice sample the output of the rice sample for quality checking is as follows:



**Fig (i)Rice sample**



**Fig(ii) running the CNN algorithm in python to check the rice quality**



**Fig(iii).the quality of the rice**

The above three steps are used for the quality checking of the rice grains in group of rice grains. CNN algorithm is the most effective algorithm used in this paper for the quick result.

## V. CONCLUSION

In this research article, we advanced an image processing set of rules to grade the rice on the basis of length, width, place and location of chalky and additionally worked at the color detection on the rice grain. From the effects obtained, it's miles concluded that a few rice are better on the basis of their length, some are higher on the idea of their width while a few can be termed properly in first-class on the premise of their vicinity and place of the chalky. However it's far not essential that all functions can be present in

the rice grain .More data can be obtained for further validation of our techniques .For in addition research, the moisture content within the rice grain can also be delivered to grade the overall satisfactory of the rice grain.

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