

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**"Jnana Sangama" Belagavi – 590018**



***Mini Project Report on***

**“CLASSIFICATION AND QUALITY ANALYSIS OF RICE GRAINS”**

***Submitted in partial fulfillment of the requirements for the award of degree***

**BACHELOR OF ENGINEERING  
IN  
ELECTRONICS & COMMUNICATION ENGINEERING**

**Submitted By**

<b>A S PAVITHRA</b>	<b>4AL21EC001</b>
<b>B VENNELA</b>	<b>4AL21EC009</b>
<b>MEGHANA L</b>	<b>4AL21EC050</b>
<b>VAISHNAVI S</b>	<b>4AL21EC104</b>

**Under the Guidance of  
Mrs. Vijetha T S  
Assistant Professor  
Department of E&C Engineering**



**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

**ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY**

**Accredited by NBA & NAAC with A+ Grade**

**MOODBIDRI – 574 225.**

**2023-2024**

# ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation® , Moodbidri)

"Shobhavana ", Mijar, Moodbidri - 574 225, D.K.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

## CERTIFICATE

This is to certify that the following students,

A S PAVITHRA	4AL21EC001
B VENNELA	4AL21EC009
MEGHANA L	4AL21EC050
VAISHNAVI S	4AL21EC104

has submitted Project synopsis on "CLASSIFICATION AND QUALITY ANALYSIS OF RICE GRAINS" for VI Semester B.E. in Electronics & Communication Engineering during the academic year 2023-24. The mini project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

ALVA'S  
Education Foundation®



Mini Project Guide

**Mrs. Vijetha T S**



Mini Project Coordinator

**Dr. Ganesh V N**



HOD

**Dr. Dattathreya**

**H O D.**

Dept. Of Electronics & Comm  
Alva's Institute of Engg. & Tech  
Mijar, MOODBIDRI - 5

## ABSTRACT

---

Rice stands as a favored and extensively consumed cereal grain in Asian countries, while also enjoying global accessibility. Within the rice market, the overarching determinant of milled rice lies in its quality, an attribute that assumes heightened significance in the context of import and export trade. Rice samples often harbor assorted extraneous elements such as paddy, chaff, damaged grains, weed seeds, and stones.

The principal objective of the proposed approach is to introduce an alternative avenue for quality control and analysis, characterized by reduced expenditure in terms of effort, cost, and time. Image processing emerges as a pivotal and technologically advanced sphere marked by significant advancements. Image processing maneuvers images to execute targeted operations, thereby refining and enhancing the desired outcome. Moreover, this technique enables the extraction of valuable insights from input images. This study strives to develop image processing algorithms with a specific focus on segmenting and identifying rice grains. By harnessing image processing algorithms, it becomes possible to efficiently analyze the quality of grains based on their size.

This furnishes a solution for the classification and assessment of rice grains, predicated on their dimensions and morphology, through the application of image processing techniques. While prior research has focused on the morphological attributes of grains, encompassing parameters such as area and shape, these endeavors often struggle to yield a generalized formula capable of classifying diverse rice varieties due to the considerable variance in shapes and sizes.

In a distinctive departure, this report enhances the analysis by incorporating Fourier features extracted from grain images, thereby significantly improving the accuracy of classification outcomes and refining the quality assessment.

**Key Words:** Agriculture, image processing, morphological operations, edge detection, quality analysis, object classification, deep learning, food quality detection