

# **VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

JNANA SANGAMA CAMPUS, BELGAVI-590018



## **PROJECT REPORT**

On

### **“DETECTION LACK OF NUTRIENTS IN COFFEE AND BANANA USING IMAGE PROCESSING”**

Submitted by

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In partial fulfillment of the requirements for the degree of

**BACHELOR OF ENGINEERING**

In

**INFORMATION SCIENCE AND ENGINEERING**

Under the Guidance of

**Mr. PRADEEP NAYAK**

Assistant Professor



**DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING  
ALVAS INSTITUTE OF ENGINEERING AND TECHNOLOGY**

**Moodbidri-574225, Karnataka**

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ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY  
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DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING  
**CERTIFICATE**

Certified that the project work entitled "**DETECTION LACK OF NUTRIENTS IN COFFEE AND BANANA USING IMAGE PROCESSING**" is a bonafide work carried out by

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in partial fulfilment for the award of BACHELOR OF ENGINEERING in **INFORMATION SCIENCE AND ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM** during the year 2020-2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

  
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## ABSTRACT

The main Aim of this project is to help the coffee and banana growing farmers to classify and recognize the nutrient deficiency in coffee and banana. Presently farmers taking help of the experts to take decision but it is again problem for the farmers because of consultancy fees and unavailability of experts. The project proposed farmers to take time to time decision. There are different nutrients, lack nutrient like Boron & Magnesium in Banana and Calcium and Phosphorous in Coffee can be detected and providing required nutrients to plants which will help in improving quality of the products.

The project proposed website, which the farmer can directly access. Front End consists of upload photo (testing data) & predicted result and Back End consists trained model, preprocessed testing data and compared both trained model and testing data.

To trained the model, Mobile camera is used to collect the images which is training datasets. The datasets were collected from Coffee and Banana farms. For Coffee Calcium & Phosphorous nutrient deficiency images were taken and for Banana Boron & Magnesium deficiency were taken. The system uses the image processing technique to trained model, Image processing is done by several process such as Collecting the training datasets, Pre-processing data & converting the image data to array by OpenCV, Stored the array to Pickle module and Trained the model by CNN algorithm. Then the model will stored in tensorflow.keras.model.

The farmers need to captured the photo and upload to the website. Then the upload image will be converted into array & preprocess. After preprocess the image will compare with trained model by tensorflow.keras(predict). And the result (about lack nutrient and correct measures) will be display in same page.