VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT

On

"DETECTION OF CHEMICALLY RIPENED BANANA FRUITS BASED ON IMAGE FEATURES USING MACHINE LEARNING"

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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

Dr. ROOPALAKSHMI. R

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DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

ALVAS INSTITUTE OF ENGINEERING AND TECHNOLOGY

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CERTIFICATE

Certified that the project work entitled "DETECTION OF CHEMICALLY RIPENED BANANA FRUITS BASED ON IMAGE FEATURES USING MACHINE LERNING" 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 2018–2019. 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

Fruits are one of the most nutritious as well as naturally available foods, which are generally consumed in raw form. However, in present competitive world, almost 80%fruits are ripened using hazardous chemicals such as Calcium carbide (CaC2) by greedy traders which cause serious health issues. Further, the regular consumption of fruits ripened using Calcium carbide can cause cancer due to the presence of traces of poisonous gases such as Arsenic and Phosphorous. On the other hand, in the existing literature, only less research is carried out towards identification of chemically ripened fruits using computer vision based techniques.

To solve this problem, this project proposes a new framework, which can identify the artificially ripened banana fruits by means of employing different visual features including color, shape and histograms in an integrated manner. The proposed framework is implemented on a real dataset of banana images using neural network based algorithm. The Experimental results in terms of accuracy, cross entropy and confidence level measures demonstrate the efficiency of the proposed system.