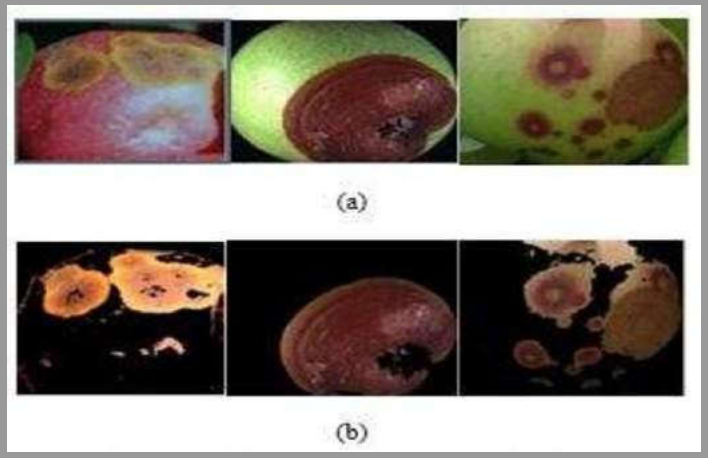
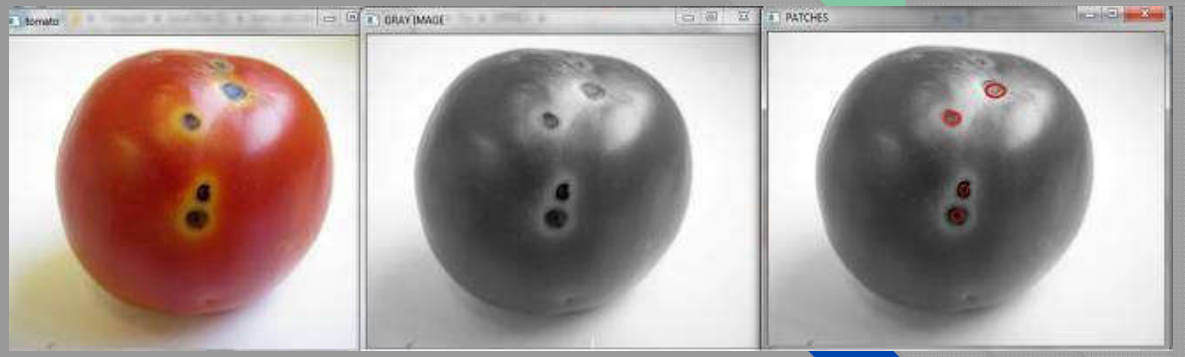
# An Automated Fruits Quality Detection Framework Using Colour Spectrography



# CONTENTS





# ABSTRACT

An automated fruit quality detection system for sorting and grading of fruits and defected fruits detection discussed here.The hardware prototype also created by using low power microcontroller.

The main aim of this system is to replace the manual inspection system. This helps in speed up the process improve accuracy and efficiency and reduce time.

The system design considers some features that includes fruit colours and size, which increases accuracy for detection of fruits pixels.

Then color spectograph is done to get required features of fruits such as texture, color and size. Defected fruit is detected based on color detection is done based on thresholding and size detection is based on binary image of fruits. Sorting is done based on color.

color spectograph offers solution for the automated fruit size grading to provide accurate, reliable, consistent and quantitative information apart from handling large volumes, which may not be achieved by employing the human graders.

# INTRODUCTION

An automated fruit quality detection system for sorting and grading of fruits and defected fruits detection discussed here.

The main aim of this system is to replace the manual inspection system.

This helps in speed up the process improve accuracy and efficiency and reduce time.

“color spectograph” offers solution for the automated fruit size grading to provide accurate, reliable, consistent and quantitative information apart from handling large volumes, which may not be achieved by employing the human graders. The hardware prototype also created by using low power microcontroller.

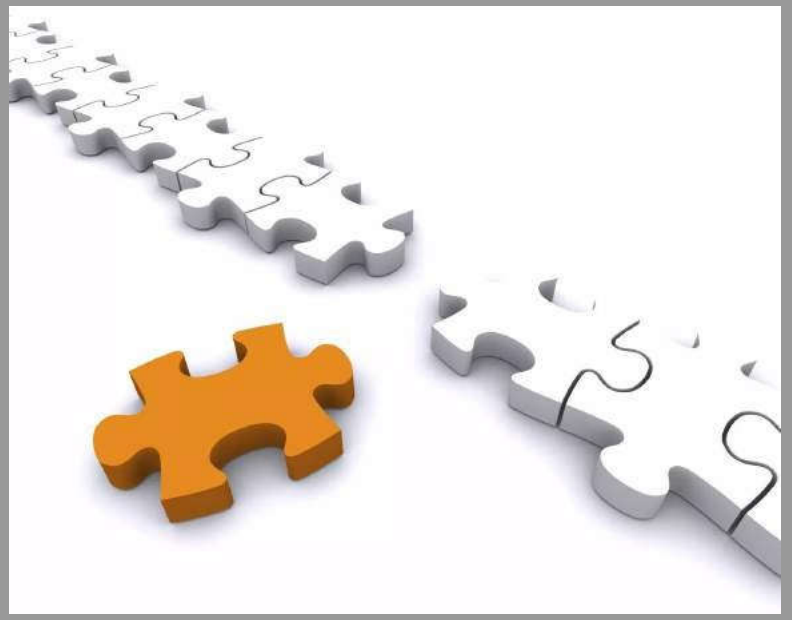
Fruit size estimation is also helpful in packing planning, transportation and marketing operation.

# LITERATURE REVIEW

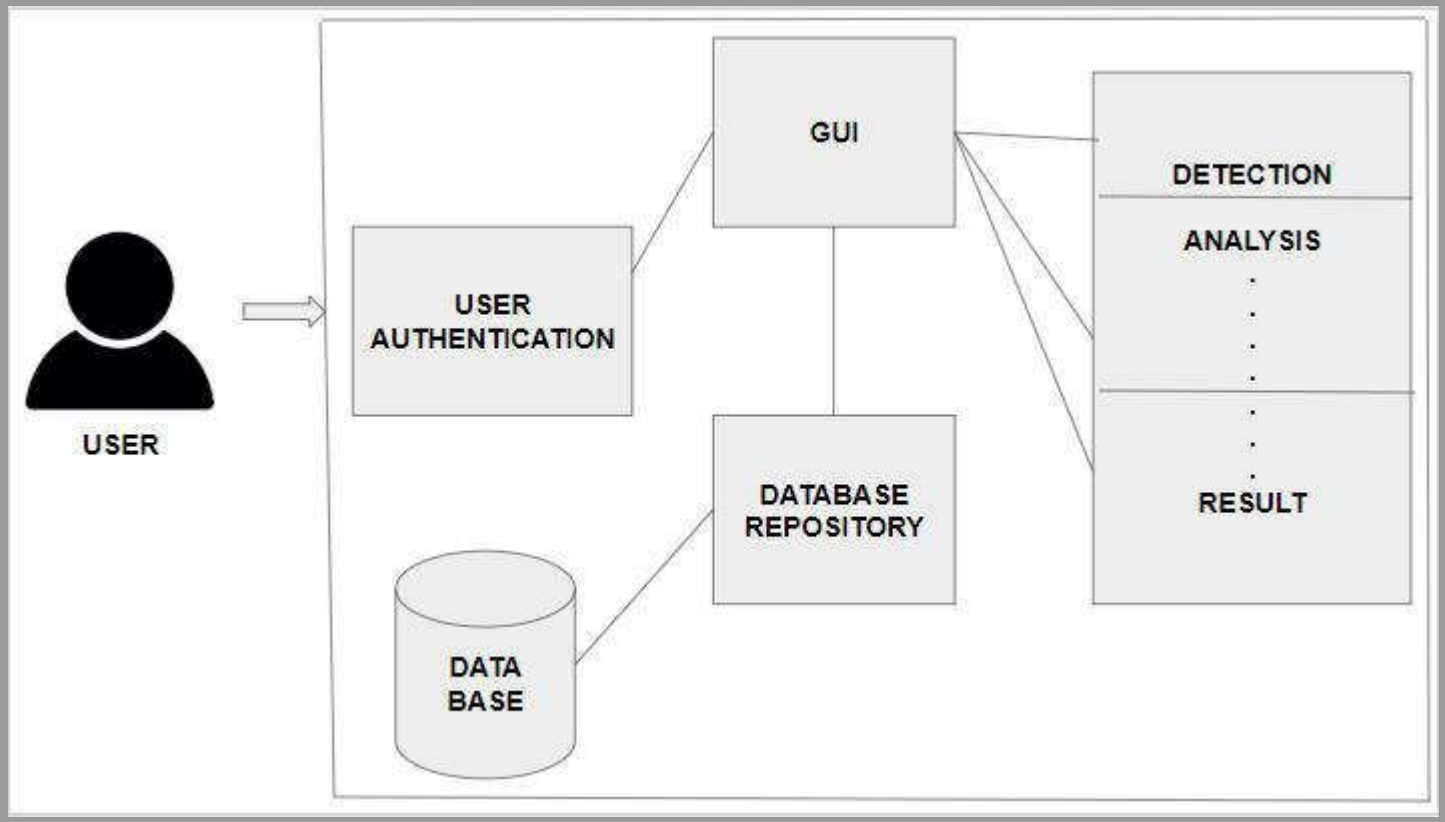
| SR NO | TITLE OF PAPER | AUTHOR | PUBLICATION | METHODOLOGY | LIMITATION |
|---|---|---|---|---|---|
| 1. | Hybrid Approach Of Fruit Detection | Bhavani J .S | IEEE(2016) | Random Forest classifier | Not Accurate |
| 2. | Color Based Fruit Analysis Using Raspberry Pi | Ms.P.R Chavan | IEEE(2018) | Raspberry Pi & Color Image Processing | Costly & More Complex Hardware |
| 3. | Fruit Quality Inspection System | Manali R.S | IEEE(2017) | RGB Image Processing | Non Effective For Large Scale |

# PROBLEM STATEMENT

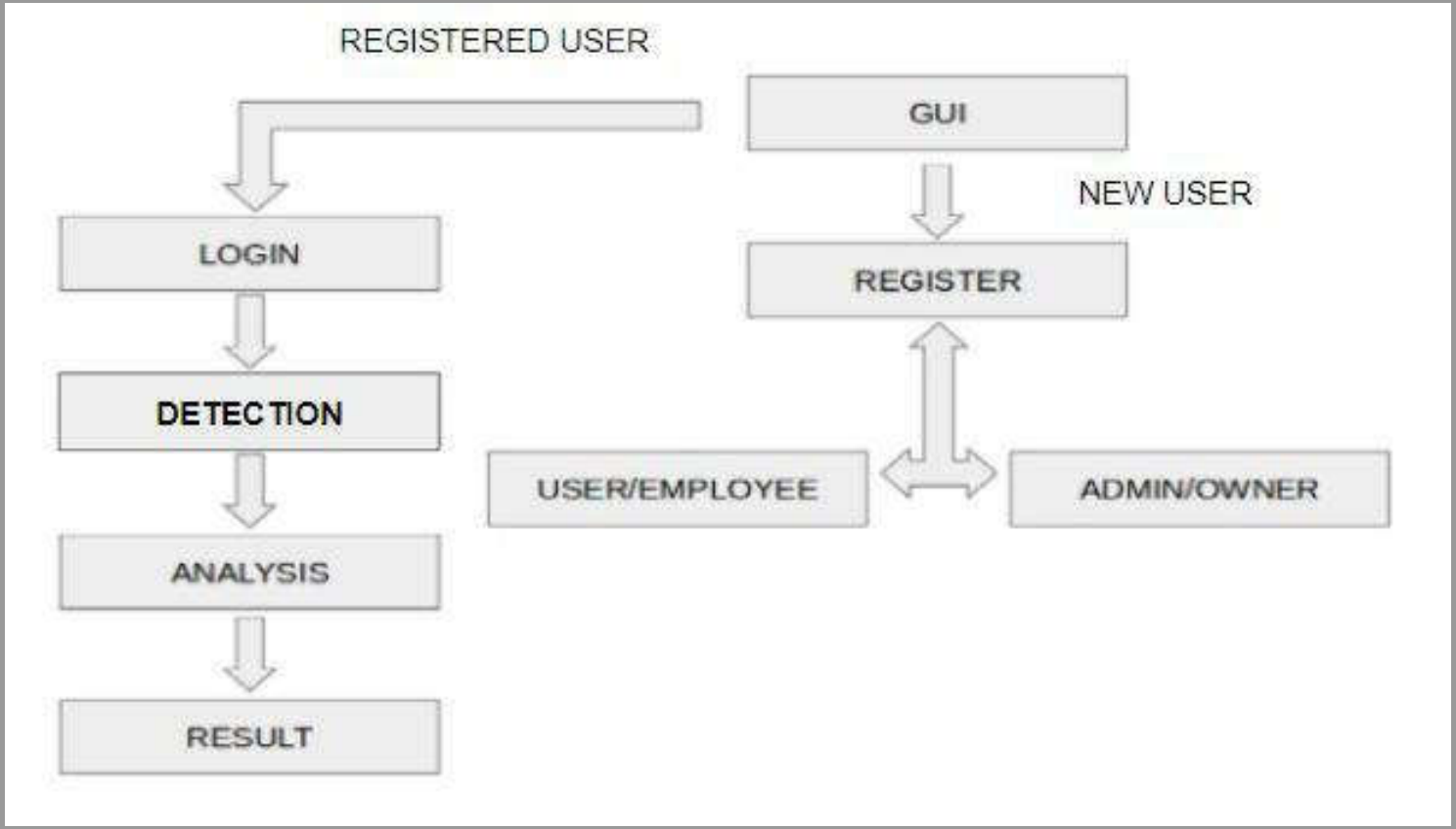
1. Quality
2. Saves Man-power
3. Grading Of Fruits
4. Effective Costing Of Fruits



# USE CASE DIAGRAM



# ARCHITECTURE



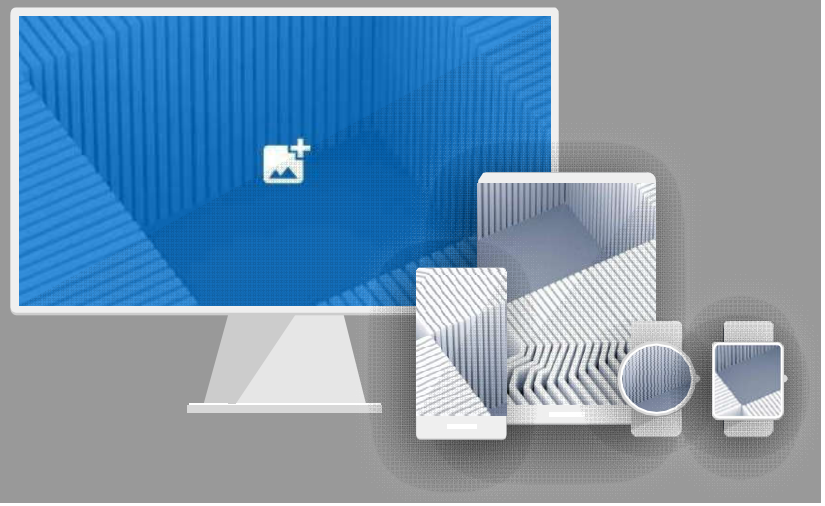
# PROJECT FUTURE PLAN

1.Artificial Object.

2.Vegetables.

3.Cloud Based Analysis Using AI.

4.Effective Billing System.



# SUMMARY

The initiated system is a demo version. In future, for the great volume of production the number of web cameras and length of conveyor system can be changed according to our needs.

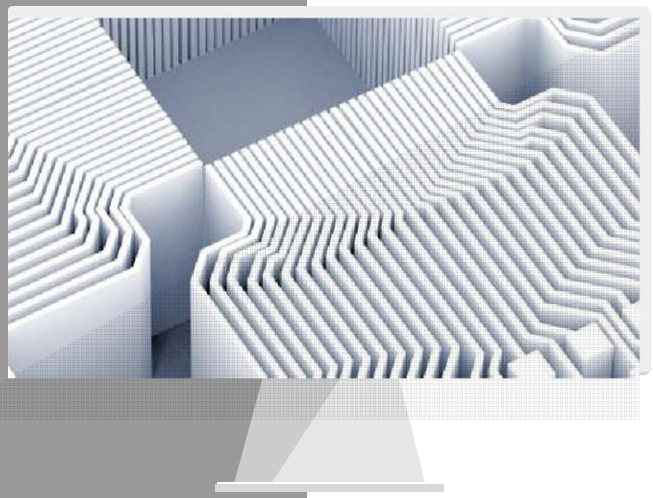
This paper presents new integrated techniques for sorting and grading of different fruits.

Generally image capture is a big challenge as there is a chance of high uncertainty due to the external lighting conditions, so the advantage of gray scale image is taken into account, which are less affected to the external environment changes as well as beneficial for finding the size of a fruit.

# REFERENCES

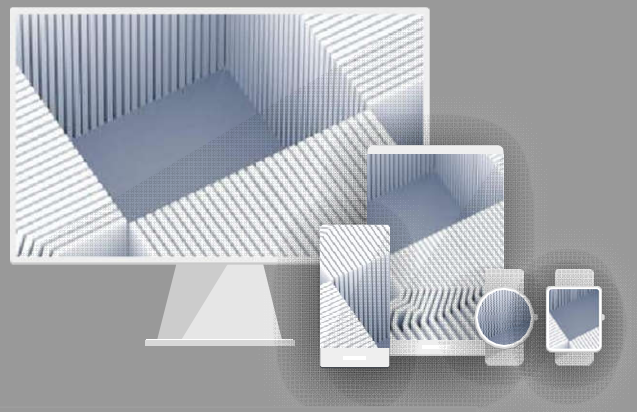

Hybrid approach for apple fruit diseases detection and classification using random forest
classifier.Bhavini J. Samajpati ; Sheshang D. Degadwala 2016 International Conference on Communication and Signal Processing (ICCSP)

Color Based Fruit Analysis Using Raspberry Pi using image Processing.Ms.P.R Chavan
2018 International Conference on Communication and Signal Processing (ICCSP)


Fruit Quality Inspection System using RGB image.Manali R.S 2017 International Conference on Communication and Signal Processing (ICCSP)

# THANK YOU!



**PROJECT GUIDE: PROF. RAHUL AMBEKAR**

| GROUP MEMBER | MOODLE ID |
|---|---|
| SURAJKUMAR YADAV | 15104022 |
| BARUN ROY | 16024023 |
| KHAN MOHD SHOEB | 16204029 |
| AJAYKRANTI VISHWAKARMA | 14104022 |