

PROJECT REPORT
on
BIO-SPECKLE ASSESSMENT OF BRUISING IN FRUITS
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CHAPTER 1

INTRODUCTION

1.1 ABSTRACT:

Apple bruises are of great concern to the apple industry and the retailer because they lower the quality grade of the fruit and can cause significant economic losses. Bruising normally happens to the tissue beneath the fruit skin. After the fruit tissue is damaged, its cells are initially filled with water and turn brownish. As time elapses, the damaged cells start to lose moisture and eventually become desiccated. It is a challenging task to detect bruises on the fruit because of the presence of fruit skin and because detection accuracies are affected by factors such as time, bruise type and severity, apple variety, and fruit pre and post-harvest conditions. A number of techniques have been researched for automated detection of bruises on apple fruit. Machine vision is widely used in the fruit industry to sort fruit for size and color. However, sorting for defects such as bruises using machine vision is still a challenging issue. Commercial defect-sorting systems have become available recently, but their capability for detecting such subtle defects as bruises is still a problem.

In order to conclude on the quality of the fruit we conduct four tests namely pH, colour, size and pressure. The pH gives the acidic content of the fruit which in turn gives the water content of the fruit, the colour test is concluded to confirm on the colour of the fruit, the size tests is conducted for package purpose and the pressure gives the hardness of the fruit which again is a very important parameter in the package side of the fruit.

An external circuit is provided which concludes on the quality of the fruit by producing a high on all the led's which is produced only when all the parameters are satisfied. The desired output is produced in less than 10 seconds hence enabling for fast results.