**CHAPTER 1**

**1**  **INTRODUCTION TO PROJECT TOPIC**

**1.1 Introduction to Project:**

Today, many food companies around the world get help from computer-aided programs and use certain technologies in their operations in order to save time and cost. Classification of fruits and plants according to their types and characteristics is one of the applications that can make serious contributions to the profit rate of such businesses.

Classification of fruits and plant according to their types and characteristics is usually done by hand and eye. This method can cause great losses in terms of time, cost and labor. Such problems can be eliminated by using pattern recognition methods. One of the biggest challenges in developing a fruit detection and recognition system is the limited differences between the two fruits in the image.

Many academicians in the world and in our country have conducted a lot of research on the classification of fruits to increase the productivity of companies. Although the main goal in these researches is to increase the productivity of companies, preparations for new systems are also made with effort.

**1.2 Motivation behind Project Topic**

There may be a variety of applications of fruit recognition in agricultural work when we are to recognize thousands of fruit images in a less amount of time. It can also be applied in automating the billing process at a fruit shop where the model can recognize the fruit and calculate its.

The objective of Fruit Recognition using image processing is to design an incremental model to recognize the fruits based on size, shape and color of the fruit ignoring external features like environment, noise and background. This just focus the image of particular fruit and identify the fruit.

**1.3 Problem Statement and Objectives**

**Problem Statement: -** The proposed project is able to recognize the fruit based on the features like shape, color, and texture. This increases the knowledge of common people about some rare and unknown fruits. The project is mainly concentrating on reducing human effort and making human life easier. Fruit recognition will be able to reduce the current ongoing problems.

**Objectives: -** The **objective** of **Fruit** **Recognition** using image processing is to design an incremental model to recognize the fruits based on size, shape and colour of the fruit ignoring external features like environment, noise and background. This just focus the image of particular fruit and identify the fruit.

**1.4 Scope of Project**

The proposed fruit recognition system analysis classifies and identifies fruits successfully up to 90% accuracy. This system also serves as a useful tool in a variety of fields such as **education, image retrieval and plantation science.**

**CHAPTER 2**

**2. LITERATURE SURVEY OF Project Title /Topic**

Using Fruit recognition processing technique the food science field is increasing day by day. The image features are shape, color and texture which is used to classification and calorie estimation of fruits. This paper proposes an algorithm for fruit recognition and its calorie estimation based on the shape, color and texture along with the histogram of gradients and GLCM with the local binary pattern algorithms for texture segmentation scheme recognizing the fruits and area, major axis, minor axis, minor axis is calculated by using the shape feature to get more accurate calorie value. With the help of nutritional look up table these features are fed to multi SVM classifier for accurate classificatio real time database and pretend plastic fruit databases of MATLAB used for evaluation. Results obtained are very close to real calories of the fruit.