

# Fruit Detection and Calorie Measurement

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**Abstract:** To develop an artificial intelligence which detect fruit calorie from image by camera. The system contain local feature sensing scale features builds transform on color space builds dictionary of thousands words and then finally classified food image with machine classifier. Food monitoring plays leading road in health related problems it is becomes more useful in our day to day lives. Our system in this paper aims to improve accuracy of dietary assessment by the fruit image. In this paper, we study taking images of fruit for the purpose of calorie detection. The AI Technology can automatically detect fruit from image to reducing both the burden of data processing and privacy concern.

**Keywords:** Calorie measurement, Android studio, Java.

## 1. Introduction

In the current age people are more conscious about their diet to avoid existing diseases. Accurate caloric intake is important for to maintain good health. This project known as image calories app to count calories of fruit from the photos.

In this paper we have learn to calculate the calories. Due to the use of low cost imaging device like smart phone cameras, and more application being developed, among which recognition of fruit image gained much attention.

In this project android studio is used. The purpose of android studio to accelerate the development and help to build the highest quality apps for the android device. For android development java is the official language supported by android studio. The ultimate goal of research paper is to develop technical solution to improve dietary intake. The methodology we using is unique because it sensor data captured at the time photos are taken.

In our project we use smart phone as a monitoring tool which is very easy to use. This puts our app properly within the context of instrumentation and measurement analysis, ends up for fruit recognition system. Smart application is capable of balancing the fruit habit of users and also warn them about unhealthy fruit. Research on various fruit classification is focused on real time application which capture image and control machine learning model very fast.

## 2. Proposed work

The task fruit detection system is initiated with some fruit. The image was classified with size, shape, texture, color and other features. Among this huge selection many have proposed to improve dietary estimate. There are some steps involved in

fruit detection. At the first stage pictures are captured by users with mobile device. Then, at the segmentation steps every image are analyzed to abstract various segments of fruit portion. We used color and texture segmentation tools.

We are going to show how ever fruit detection can take place with use of above steps for every detected fruit portion, a feature extraction method must be used. Later the research has concentrate on collecting the data set which helps to monitor diets. The set of local features are also extracted on using the classifiers. It is shows that every image goes from filtering operation. To calculate surface area for fruit portion we formed to superimpose a grid of squares on to the image segment so each square contains equal no. of pixel and, equal number of area.

In this paper we make a measurement method that measures the amount of calories from fruit image by measuring the volume of fruit portion from image and nutrition facts table.

In this paper we proposed artificial intelligence to address the fruit image recognition problem. Specifically, we proposed convolution neural networks based algorithm. In this classification of framework that takes advantages of the user speech input to increase the fruit recognition process. In this paper we involved machine learned features with deep learning based method to achieve a much higher accuracy.

## 3. Proposed methodology

The proposed flow diagram is as shown in the figure. Each block of the proposed flow diagram is clearly explained in this section. The proposed fruit recognition system consists of two stage fruit image classification and fruit image description.

The design and development of both the stages involve testing. During testing the system recognizes fruit types from the unknown images.

### A. Android studio

For the Food detection an app is used for calorie measurement of fruits. Android studio is software based on Java programming. The purpose of the android studio to build an android app for android device which is based on java language.

The requirement of android studio is 8,4 GB RAM is recommended. Microsoft Windows 7/8/10(32 or 64 bit). The android emulator supports only 64 bit windows.

The features of android studio is,

1. Beautiful UI.

2. Connectivity.
3. Storage.
4. Media support.
5. Multi-touch.
6. Multi-tasking.
7. Resizable widgets.
8. Google Cloud Messaging (GCM).
9. Wi-Fi direct.
10. Android beam.

The project is based on java programming. In this we used different classes are as follows.

1. Background class we will implemented. The searching optimization.
2. Permission required.
3. Launching activity.
4. Calorie finder and saved.
5. Image Recognition.
6. Image recognize with finder.

Regarding the use of electronics devices, there are many mobile applications available on the market to measure and recognize the nutrition value for any fruit, but most of the application require high interaction each time they are used. Most of these application require internet connection because they cannot measure any fruit that is not store in the data.

Therefore, it is necessary to know that a high level of accuracy is not a key demand of our system because it is impossible to estimate exact amount of calories in any fruit by just looking at it or even by use any electronics device.

*B. Camera review*



Fig. 1. Camera activity of the phone

**4. Result**

In this paper first the image captured by using camera then scan the image and can automatically detect the fruit and their calorie.

**5. Conclusion**

In this paper we made a system that detect the calories from fruit image. Accurate estimation of dietary intake is important for good health. The experiments were conducted fruit image data set with different fruit classes. Moreover, the enhancement of visual data set with more images improve classification. As a final stage fruit volume will be estimate by using reconstruction. The performance of the system is high and it is accepted by the user. The CNN Net high performance computing machine in order to experiment on multimedia data set. The calorie can be calculated based on the camera vision result. In the feature, we plan to improve performance of the system into a real word mobile device. Which can be enhance the accuracy.

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**References**

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