

Measuring Calories From Fruit Image Using Artificial Intelligence

Vijay Chakole¹

¹Research Scholar (Electronics & Telecommunication Engineering),

G.H. Rasoni University, Amravati

Assistant Professor (Electronics Engineering),

KDK College of Engineering, Nagpur, Maharashtra, India

ABSTRACT

Artificial Intelligence based calories estimator and fruit recognition is the deep learning methodology which has been initiated to determine the calories of fruit image contains. In this we put the images as a dataset which includes the detail information rate of calories. The object detection is one of the significant techniques used in the calories processing techniques. Fruit intake being tracked and calorie count by android studio. This is used to identify the fruits from image is the interesting field with various application The main objective is to detection of fruits and estimate calories using the image acquired by camera. This study proposes a methodology for automatic fruit recognition and calorie measurement using artificial intelligence. Since fruit monitoring plays an important role in health-related problems, it is becoming more essential in our day-to-day life. In this paper our approach is to recognize the image of fruit using convolution neural networks (CNN) based on fruit image recognition algorithms. The objective is to improve and make strides the exactness of dietary evaluation by analyzing the natural product pictures captured by utilizing versatile gadgets (e.g. smart-phone). It requires portable application to have the web association, but it's autonomous from your programming diet choice and assets confinements which is imperative for portable gadget.

Keywords:Artificial Intelligence, Convolutional Neural Networks (CNN), Calorie measurement, Fruit image recognition.

1. INTRODUCTION

In today's lifestyle, people are moving towards achieving a fit and healthy body. This shift has changed the way of living in nearly each family. Now everyone craves for healthy and nutritious food to be placed on their plates. Hence, healthy eating and nutritious food have become an essential part of everyone's lifestyle to achieve a balanced and healthy life in such busy and hectic environment.

It is possible that the fruit detection and recognition calories app can count the calories of fruits from photos for people. The app that uses advance image recognition technology, it will able to establish any fruits qualities that capture in photos and associate a calorie quality to each items.

Recently, smart applications for mobile devices such as Android phones and iPhone, have increased tremendously. So in this we use android studio for detection of fruit quality and finding the calories from an image captured by using mobile camera which is act as a hardware part.

One of the major goal of fruit image processing is to retrieve calorie and nutrient information from the given fruit image. In addition, automatic fruit recognition is beneficial to health care related applications, such as obesity management. They are capable of processing a real time application. Since the present smart phones can handle the high fruit image quality and focused on developing real time applications which capture image then scan and automatically can detect the good quality of fruits.

2. OVERVIEW OF PROPOSED SYSTEM

This system is divided into hardware control and image processing. The image processing is done by software Android studio using a language java. The software is divided into two parts first one is image analysis and other for controlling hardware based on image processing result. In image preprocessing removing noise, normalizing image, image format conversion, image resizing and removing unnecessary features are carried out in the given image to improve the quality. In segmentation step, the image will be analyzed to extract various segments. The main aim is calorie estimation. The estimation of calories is play an important role in food industry. It can also detect the size of fruit detection.

3. REQUIREMENTS

1. The application will make use of its device's camera to take photos for analysis.
2. The application will correctly identify fruits in a given image.
3. The application will calories per serving of identified fruit.
4. The application will store user's food history and associated data.
5. The application will allow users to make accounts and securely sign in.

4. METHODOLOGY

Many papers have been presented to solve the problems of fruit recognition. The work done of fruit detection system is first initiated with many classes. The first related research area is technology solution for enhancing the accuracy of dietary measurement. we used the android studio software for fruit detection. By using the mobile app we can measure the calories of fruits. The several app have an improved automation.

Used the different classes which are as follows:

1. Background class we will implement the searching optimization.
2. Permission required.
3. Launching activity.
4. Calories finder and saved.
5. Image recognition.
6. Image recognize with finder.

5. SYSTEM FLOWCHART

The below fig.1 shows the system flow of app design. This flow chart is use for getting the information about user and store the result.

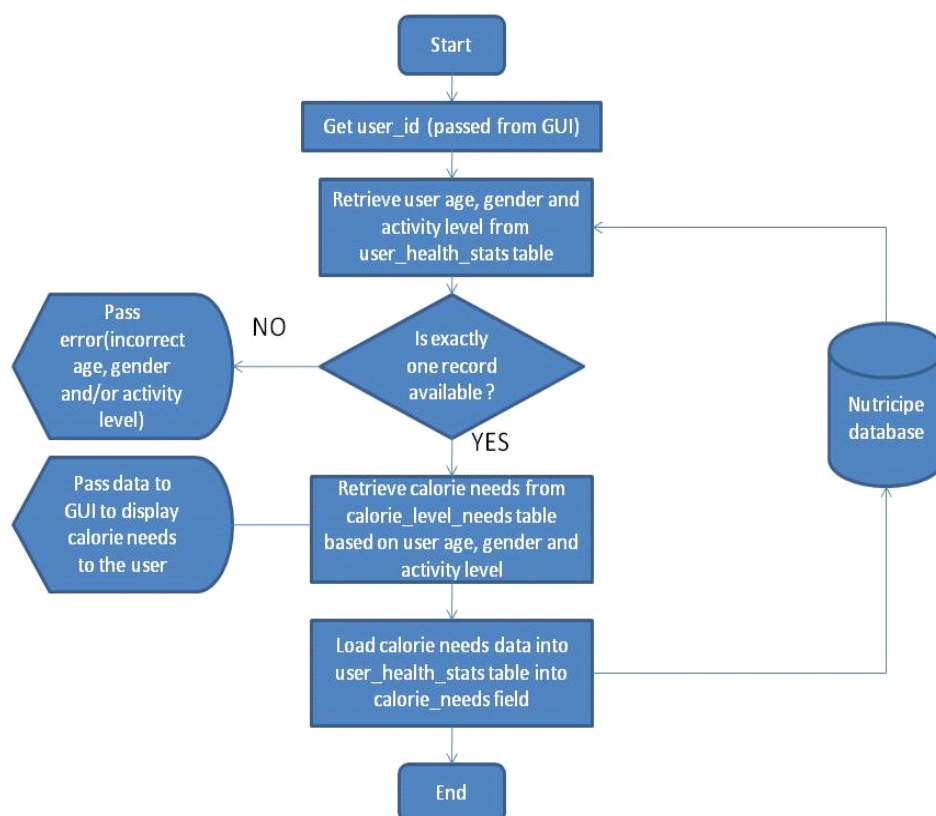


Fig1: System Flowchart

This system flowchart is used only for authentications. The main work of this system is to know the information about user. (e.g. user name, user id, user age, gender etc.)

6. TECHNOLOGY USED

The technology used are:

- i. Android
 - ii. Java
 - iii. Firebase
- i. Android: Android is an open source and Linux-based operating system language for mobile devices such as smart-phones and computers. It will be easy to develop an application on it. Hence in this project we are going to use android application for the front end.
 - ii. Java: We are developing an Android, java is one of the best language for application development. The official language for Android development is java. Most of the part of android is written in java. Hence java is a compiler language which can be used for back end.
 - iii. Firebase: In this the firebase is only useful for Google account authentication in our application.

7. IMAGE PROCESSING

Within the handle of natural product sorting and evaluating to work framework effectively appropriate picture procurement is exceptionally important. The image is captured with camera that image is with noise and its features are not clearly seen so image processing is done on that image. In this project the features required are color, textures and size. To get exact features processing is done on acquired image. The main aim of image processing is an improvement of image so that unwanted distortion are suppressed and enhanced image features which are important for further processing.

8. CAMERA REVIEW

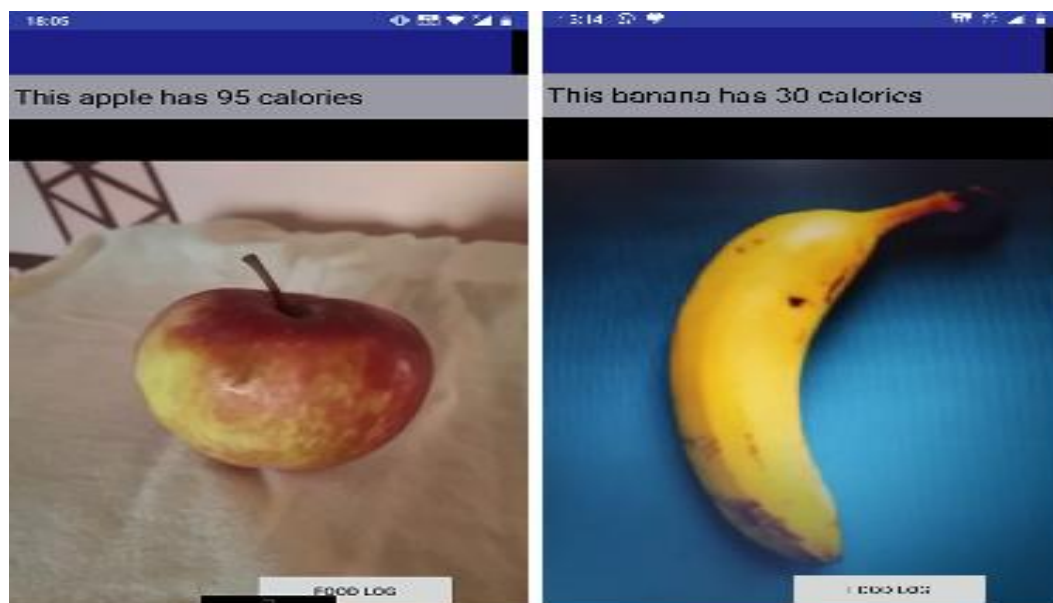


Fig.2: Camera activity of the phone.

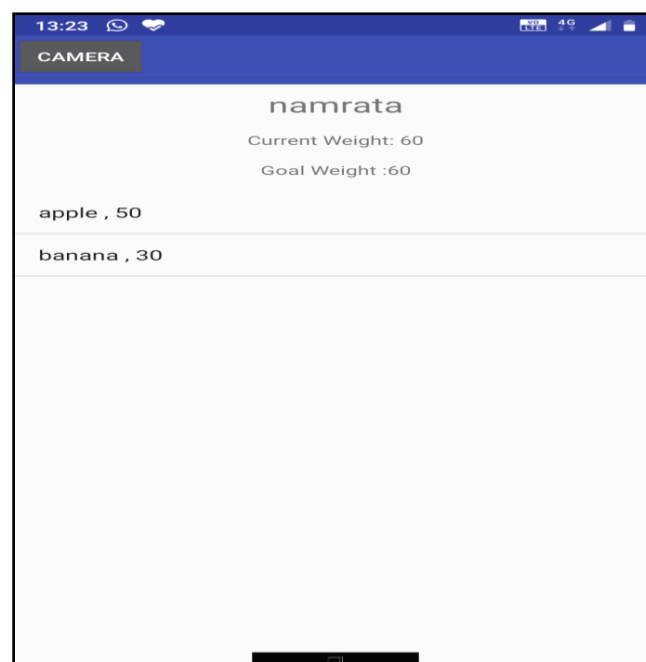


Fig.3: Fruit History

fig 2 shows the camera activity which detect the fruit and its calorie and fig.3 main menu of the application with 60,60 camera resolution and fruit history.

9. CONCLUSION

The AI technology which is automatically detect the fruit quality using the camera. With the help of camera the image can scan and then image processing is done and detect the fruits calories, shape, size, color texture etc.

REFERENCES

- [1] DipteeKumbhar, Sarita Patil, 'Mobile cloud based system recognizing nutrition and freshness of food Image', *Energy, Communication, Data analytics and Soft computing*, 2017, *IEEE conference on*, pp. 709-714.
- [2] P. Kamakshi Priyaa, S. Sathyapriya, L. Arockiam, 'Nutrition Monitoring and Calorie Estimation using Internet of Things (IoT)' *International Journal of Innovative Technology and Exploring Engineering (IJITEE)* 2019, ISSN: 2278-3075, Volume-8, Issue-11
- [3] AkshadaGade , Dr.AratiVyavahare, 'Dietary Assessment Methods Based On Image Processing: A Review', *International Journal of Innovative Research in Science, Engineering and Technology*, 2017, ISSN (Print): 2347-6710, Vol. 6, Issue 8
- [4] Kiran Ambhore, Prof. N.A. Dawande, ' Measuring Calories And Nutrition From Food Image', *IEEE* 2016,
- [5] MariosM.Anthimopoulos, LauroGianola, Luca Scarnato, Peter Diem, 'A Food Recognition System For Dibetic Patients Based On An Optimise Bag-Of-Features Model', *IEEE* 2014,