"AUTOMATIC FRUITS DETECTION USING ARTIFICIAL INTELLIGENCE"

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Abstract:

This project is used to identify the automatic fruits detection using Artificial Intelligence (AI). The main objective of this project is to detection of fruits and estimate calories using the image acquired by camera. It is used to study human diet and lifestyle, large sets of egocentric images were acquired using a wearable device like camera. It can also be detect shape, size, color etc. The identifying the fruits and calories from an image is quite an interesting field with various applications. Since fruit monitoring plays an important role in health-related problems, it is becoming more essential in our day-to-day life. For this purpose an recognition for fruit is presented by considering its shape, color, size and texture characteristics. In this paper our approach has been presented to recognize the image of fruit using convolution neural networks (CNN) based on fruit image recognition algorithms. The main goal of our research is to enhance and improve the accuracy of dietary assessment by analyzing the fruit images captured by using mobile devices (e.g. smartphone). It requires mobile application to have the internet connection, but it's independent from your programming language choice and resources limitations which is important for mobile device.
Keywords- Artificial Intelligence, Convolutional Neural Networks (CNN), Calorie measurement, Fruit image recognition.

I. INTRODUCTION

India is an agriculture country. Many quality factors like texture, shape, size and volume, and internal quality factors are taste, sweetness, nutrients, carbohydrates present in that fruit are considered for sorting and grading of fruits. An automatic fruit quality detection system for sorting and grading of fruit. The process is improved in such a way that it takes less time to complete. Automation is plays important role in day to day life. Their main source of income is agriculture. Exporting of fresh fruits is increase day to day from India. In this time the people are very serious about their health; they desired only for fresh and good quality fruit.

In this project has fruit detection and recognition calories app can count the calories of fruits from photos on 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, shape, size, color, texture etc. 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 smartphones 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.

II. AIM AND OBJECTIVE

Aim of the project

Aim of the Project is automatically detect the fruits using an Artificial Intelligence based on algorithm which can detect fruits items from image acquired by using camera.

Objective of the project

Objective of our project is to identify the fruits based on their quality. Our objective is to develop an efficient fruit processing system to calculate the calorie and nutrition of fruit. The system's main applications are:-

1. Eating a diet rich in vegetable and fruits as part of an overall healthy diet may reduce risk for heart disease.
2. Eating a diet rich in some vegetable and fruits as part of an overall healthy diet may protect against certain types of cancer.
3. Eating foods such as vegetables that are lower in calories per cup instead of some other higher calories food may be useful in helping to lower calories intake

III. RELATED WORK

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 tehnology 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 impeeved automation. In this project we are 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 recougnization.
6. Image recougnize with finder.

IV. OVERVIEW OF PREPOSED 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 of the fruit portion.
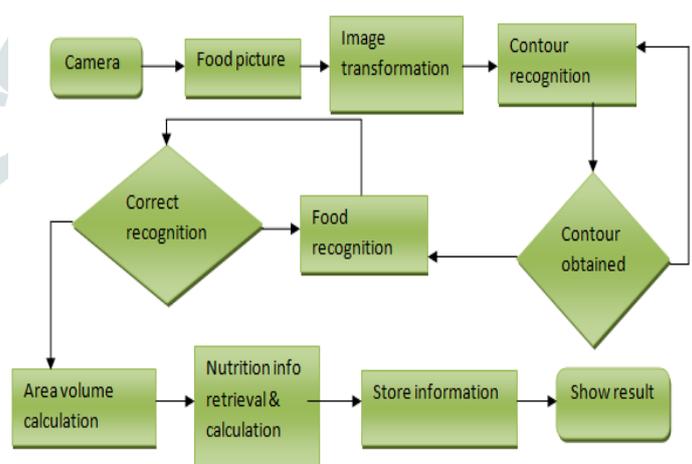
SYSTEM FLOWCHART

Fig1.: System Flowchart

In this project 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.)

V.TECHNOLOGY USED

In this project we are used the following technology:

1. Android
2. Java
3. Firebase

1. Android: Android is an open source and Linux-based operating system language for mobile devices such as smartphones 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.

2. 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.

3. Firebase: In this the firebase is only useful for Google account authentication in our application.
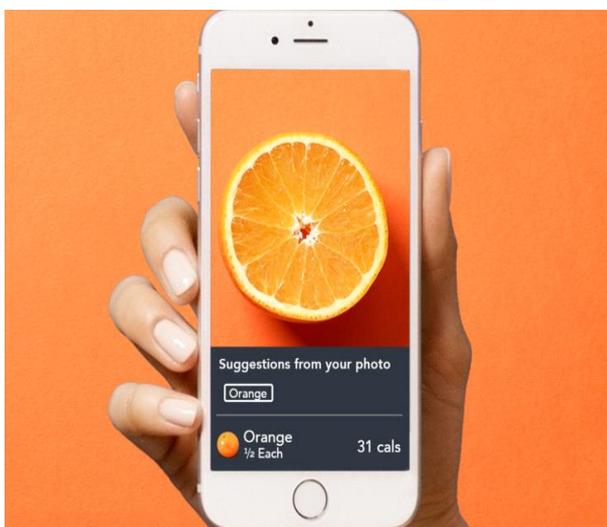
CAMERA REVIEW

Fig.2: camera activity of the phone

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

VI. IMAGE PROCESSING

In this paper the main aim of image processing is improvement of image so that the unwanted noise are suppressed and get a enhanced image. The image captured by camera is enhance by image processing and detect the fruit quality such as shape, size, color, and calories etc.

VII. CONCLUSION

In this paper we use 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.

VIII. REFERENCES

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