IDEATION PHASE

LITERATURE SURVEY

Date	19 September 2022
Team ID	PNT2022TMID39906
Project Name	AI-POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS

1. TITLE : Fruit detection from images and displaying its nutrition value using Deep Alex Network

AUTHORS : B.Divya Shree, R.Brunda and N.Shobha Rani

Abstract:

This paper presents a simple and efficient approach to perform fruit detection and predict nutrition information of the fruits using deep Alex networks (DAN).The datasets employed for analysis are acquired from fruit 360 database of image processing challenges. Fruit categories include apples, berries, banana, grape, papaya, peach, avocado, and multiple flavors of apple. And also, the experimentations are carried out on various other fruit samples collected from multiple Web repositories. The network architecture is as usual comprised of to five convolution layers and three fully connected layers including the max pooling, RELU layers.

Drawbacks:

The drawback of this paper is it takes more time to detect the nutritional values. The accuracy is also less.

2. TITLE : Fruit recognition system for calorie management

AUTHORS : Vishnu, B.Sindhushree, A.punith, Aishwarya

Abstract:

Fruits contain important vitamins, minerals and fiber. A diet comprising mainly of fruits and vegetables can help prevent cancer, diabetes and heart diseases. In this paper we execute in an effective type of recognize, fruit recognition is carried out using CNN algorithm. A set of fruit image is trained in a CNN model for recognition a standard nutrition table is referred to measure calorie since using an image to measure calorie is an arduous task. the image is captured by the raspberry pi through the webcam.

Drawback:

These applications often require the user to enter information such as fruit categories and size or volume, which render it cumbersome owing to subjective evaluation.

3.TITLE : Object detection using convolutional neural network in the application of supplementary nutrition value of fruits.

AUTHORS : Anita Chaudhari, Shraddha More, Sushil Khane, Hemali Mane, Pravin Kamble

Abstract:

Object image detection is unique most auspicious claims of visual object recognition, since it will help to estimate nutrition calories and improve commons ingestion habits. The robotic fruit harvesting system is developed with the help of fruit detection algorithm using multiple structures identical intensity, color, alignment and edge of the fruit images. With the help of improved multiple feature based algorithm the detecting effectiveness is attained up to 90% for various fruit items.

Drawback:

It provides 80% of accuracy.

4.TITLE   : Deep learning based fruit recognition

AUTHORS : Qian Yu , Dongyuan Mao, Jingfan Wang

In this research paper, authors proposed a CNN-based fruit recognition method on the fruit recognition problem: the transfer learning and the fine-tuning on the whole architecture based on the Inception-ResNet and Inception V3 model. Here, algorithm is performed on the Fruit-101 dataset and obtained impressive recognition results: Inception-ResNet converges much faster and achieves top-1 accuracy of 72.55% and top-5 accuracy of 91.31%.

5.TITLE   : Deep fruit : Deep learning - based fruit image recognition for computer-aided dietary assessment.

AUTHORS   : Chang Liu, Yu Cao, Yan Luo, Guanling Chen,

VinodVokkarane, Yunsheng Ma

In this paper, authors have proposed a new deep learning-based approach to address the fruit image recognition problem. Deep learning, aims to learn multiple levels of representation and abstraction that help interpreting knowledge from data such as images, videos, audio, and text, is making astonishing gains in computer vision, speech recognition, multimedia analysis. Specifically, authors proposed Convolutional Neural Network (CNN)-based algorithms with a few major optimizations, such as an optimized model and an optimized convolution technique.

6.TITLE   : Fruit Calorie Measurement Using Deep Learning Neural network

AUTHORS : Parisa Pouladzadeh, Pallavi Kuhad, Sri Vijay

Bharat Peddi, AbdulsalamYassine, ShervinShirmohammadi

In this paper, authors proposed an assistive calorie measurement system to help patients and doctors succeed in their fight against diet-related health conditions. Proposed system runs on smartphones, which allow the user to take a picture of the fruit and measure the amount of calorie intake automatically. In order to identify the fruit accurately in the system, authors used deep convolutional neural networks to classify 10000 high-resolution fruit images for system training. Results show that the accuracy of this method for fruit recognition of single fruit portions is 99%. The analysis and implementation of the proposed system are also elaborated in this paper.

7.TITLE : Fruit Image Classification with Convolutional Neural Network

AUTHORS : MdTohidul Islam, B.M. NafizKarimSiddique,

SagidurRahman, TaskeedJabid

In this paper authors tried to classify fruit images using convolutional neural network. Fruit classification is very difficult task because there is high variance in same category of fruit images. Authors developed a convolutional neural network model to classify fruit images in fruit-11 dataset. Authors also used a pre-trained Inception V3 convolutional neural network model to classify fruit images.

References:

[1] A food portion size measurement system for image based dietary assessment, in Proc. IEEE 35th Bioeng (Apr.2009)

[2] Zhang, Weishan, et al. "Food image recognition with convolutional neural networks." 2015 IEEE 12th Intl Conf on Ubiquitous Intelligence and Computing and 2015 IEEE 12th Intl Conf on Autonomic and Trusted Computing and 2015 IEEE 15th Intl Conf on Scalable Computing and Communications and Its Associated Workshops (UIC-ATC-ScalCom). IEEE, 2015.

[3] Pouladzadeh, Parisa, Pallavi Kuhad, Sri Vijay Bharat Peddi, Abdulsalam Yassine, and Shervin Shirmohammadi. "Food Calorie Measurement Using Deep Learning Neural Network." 2016 IEEE International Instrumentation and Measurement Technology Conference Proceedings, 2016.

[4] Banot, S., Mahajan, P.M.: A fruit detecting and grading system based on image processing-review. Int. J. Innov. Res. Electr. Electron. Instrum. Control Eng. 4(1), 47–53 (2016)

[5] Suresha, M., Shilpa, N.A., Soumya, B.: Apples grading based on SVM classifier. In: National Conference on Advanced Computing and Communications, Apr 20123.

[6] Sagare, S.N.: Kore, fruits sorting and grading based on color and size. Int. J. Emerg. Technol.Comput. Appl. Sci. (IJETCAS), 12–3334.

[7] Paulraj, M., Hema, C.R., Pranesh, R.K., SitiSofiah, M.R.: Color recognition algorithm using a neural network model in determining the ripeness of a banana (2009)

[8] Yao, B.Z., Yang, X., Lin, L., Lee, M.W., Zhu, S.C.: I2t: image parsing to text description. Proc.IEEE 98(8), 1485–1508 (2010)

[9] Wang, H., Li, G., Ma, Z., Li, X.: Image recognition of plant diseases based on backpropagation networks. In: Image and Signal, Oct 2012

[10] Arivazhagan, S., Shebiah, R.N., Nidhyanandhan, S.S., Ganesan, L.: Fruit recognition using color and texture features. J. Emerg. Trends Comput. Inf. Sci. 1(2), 90–94 (2010)