www.ijprems.com
editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
Vol. 02, Issue 05, May 2022, pp : 120-124

e-ISSN : 2583-1062
Impact Factor : 2.205

FOOD CALORIES DETECTION BY USING FOOD IMAGE

Atul Mane[*1], Snehal Jarad[*2], Kranti Shitole[*3] , Shweta Jadhav [*4]

[*1,2,3] Students, Computer Engineering Department, HSBPVT's GOI Parikrama College Of Engineering, Kashti , Maharashtra , India

[*4] Assistant Professor, Computer Engineering Department, HSBPVT's GOI Parikrama College Of Engineering , Kashti , Maharashtra , India.

ABSTRACT

Accurate Styles to measure food and energy input are pivotal for the battle against rotundity. Furnishing druggies/ cases with accessible and intelligent results that help them measure their food input and collect salutary information are the foremost precious perceptivity toward long- term forestallment and successful treatment programs. In this paper, we propose an assistive calorie dimension system to help cases and croakers succeed in their fight against diet- related health conditions. Our proposed system runs on smartphones, which permit the stoner to take an image of the food and measure the volume of calorie input automatically. In order to spot the food directly in the system, we use deep convolutional neural networks to classify 10000 high-resolution food images for system training. Our results show that the delicacy of our system for food recognition of single food portions is 99. The analysis and perpetration of the proposed system are also described in this paper.

Keywords: food recognition, segmentation, calorie measurement .

1. INTRODUCTION

Numerous people have formerly known that the food input could affect our health. There are numerous reports that epitomize about the respectable diurnal quantum of calories. Still, it is delicate to do it virtually. Health is one of the most important aspects of an existent's life. It takes some quantum of trouble from a person to stay in shape and maintain a healthy diet. The druggies, who warrant of knowledge about nutrition, might be unfit to know the quantum of calories in each mess. Although they will ask experts to spot the volume of calories, it's not accessible and that they couldn't conscious of the volume of calories before mess. We started to study about the druggies' geste to develop the suitable system for calorie analysis. Currently it's veritably delicate for a person to track the calories consumed by them. The input of calories plays a really vital part in one's healthy life. Before the druggies used to track their calories input with the help of maps or schedule. Or they used to maintain a strict diet where the food item which has to be consumed was fixed along with its volume. We've come up with a design to help the stoner track the number of calories which it takes in with the help of simple images of the food item. There are formerly numerous colorful apps and products available to try to an original. In these apps, the stoner inputs the constituents and their quantum which they are consuming. The apps also search them within their database and calculate the calories present in them with values present in the database. Computer vision is also used to estimate the quantum of calories present. The delicacy of these systems is determined by two factors, the delicacy of the object discovery algorithm and the system to calculate the volume. We use a really expansive dataset of thousands of images of colorful feathers of fruit for our design. This gives our model an edge over other similar systems. The delicacy of our model is also veritably high. We calculate the calories with the backing of segmented image using formulas and inquiry object whose confines are formerly known.

2. LITERATURE SURVEY

A .Paper Name: Food Calorie Discovery

Description: Currently, standard input of healthy food is important for keeping a diet to avoid rotundity in the mortal body. In this paper, we present a fully unique system supported machine literacy that automatically performs accurate bracket of food images and estimates food attributes. This paper proposes a deep literacy model conforming of a convolutional neural network that classies food into specic orders in the training part of the prototype system. The main purpose of the proposed system is to enhance the delicacy of thepre-training model. The paper designs a prototype system supported the customer garçon model. The customer sends a picture discovery request and processes it on the garçon side. The prototype system is meant with three main software factors, including apre-trained CNN model training module for bracket purposes, a textbook data training module for trait estimation models, and a serverside module. We experimented with a spread of food orders, each containing thousands of images, and through machine literacy training to achieve advanced bracket delicacy.

B. Paper Name Calories Analysis of Food Intake Using Image Recognition

Description: In recent time, healthy may be a content that folks concern. It's obviously that eating the food with high quantum of calories beget several problems to our health. Recording the volume of calories of the food input in each mess is one among the stretchy to unravel similar problem. Although the people can record their mess and ask croakers or experts, it's not so accessible and they can not know the volume of calories before the mess. This paper presents a way of image processing to admit images of food taken by druggies. From the input food images, the druggies can understand the volume of calories they are going to absorb each mess by using the proposed algorithm. Our system creates point vector using several features about texture and colour, also classify the food images using SVM. In this study, we concentrated on Thai food. To train the SVM, we group the illustration food images by food type and thus the quantum of calories. We conduct the trial to guages the performance of the proposed algorithm for both groups of illustration food.

C. Paper Name :Food calorie estimation using machine literacy and image processing

Description: In moment's world a healthy life may be a must for each individual and what they consume is of utmost signicance so as to realize an original. Our paper focuses on creating software which provides the calorie of the food which the stoner goes to consume. So as to realize this, the software will take two images as input from the stoner, the loftiest view and thus the view. The image will have a hunt object also which may be a coin whose volume are going to be known. The food item within the image are going to be detected with the backing of Faster R-CNN algorithm. We're using Faster R-CNN algorithm since it's the fastest among all the thing discovery algorithms. In Faster R-CNN we do n't use picky hunt algorithm on the point chart to spot the region proffers, we use a separate network is employed to prognosticate the region proffers. This makes it the fastest algorithm and therefore it are frequently used for realtime object discovery. Within the coming step, we'll member the image using the heist cut algorithm. It's demanded for focus birth with minimum stoner commerce. After segmentation of images, the volume of the food item is calculated using the given volume of the inquiry object. After the computation of volume, the mass of the food item is calculated with the backing of formulas also the calories of the food item are going to be calculated using the relation between mass and calories.

D. Paper Name Vision- Grounded Approaches for Automatic Food Recognition and Dietary Assessment A Survey

Description: Consuming the right quantum and right kind of food are the precedence of the numerous dieticians and healthcare conventions. In addition to physical exertion and exercises, maintaining a healthy diet is necessary to avoid rotundity and other health- related issues, like diabetes, stroke, and lots of cardiovascular conditions. Recent advancements in machine literacy operations and technologies have made it possible to develop automatic orsemi-automatic salutary assessment results, which may be a more accessible approach to examiner diurnal food input and control eating habits. These results aim to deal with the problems plant within the traditional salutary monitoring systems that suffer from imprecision, underreporting, time consumption, and low adherence. During this paper, the recent vision- grounded approaches and ways are extensively explored to stipulate this approaches and methodologies used for automatic salutary assessment, their performances, feasibility, and unaddressed challenges and issues.

E. Paper Name Deep Food Image Analysis and Dietary Assessment via Deep Model

Description Food is important for mortal life and has been the precedence of the numerous healthcare conventions. Currently new salutary assessment and nutrition analysis tools enable further openings to help people understand their diurnal eating habits, exploring nutrition patterns and maintain a healthy diet. In this paper, we develop a deep model grounded food recognition and salutary assessment system to review and analysed food particulars from diurnal mess images (e.g., captured by smartphone). Specifically, we propose a three- step algorithm to admitmulti-item (food) images by detecting seeker regions and using deep convolutional neural network (CNN) for object bracket. The system first generates multiple region of proffers on input images by applying the Region Offer Network (RPN) deduced from Faster R-CNN model. It also identifies each region of proffers by mapping them into point charts, and classifies them into different food orders, also as locating them within the original images. Eventually, the system will analysed the nutritive constituents supported the fashionability results and induce a salutary assessment report by calculating the volume of calories, fat, carbohydrate and protein. In the evaluation, we conduct expansive trials using two popular food image datasets-UEC-FOOD100 and UECFOOD256.We also induce a new kind of dataset about food particulars supported FOOD101 with bounding. The model is estimated through different evaluation criteria. The experimental results show that our system is in a position to admit the food particulars directly and induce the salutary assessment report efficiently, which will bennet the druggies with a clear sapience of healthy salutary and guide their diurnal form to enhance body health and heartiness.

F. Paper Name The Design and Perpetration of an Component- Grounded Food Calorie Dimension System Using Nutrition Knowledge and Fusion of Brightness and Heat Information

www.ijprems.com
editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
Vol. 02, Issue 05, May 2022, pp : 120-124

e-ISSN : 2583-1062
Impact Factor : 2.205

Description: To measure the calorie of food which are varied counting on its constituents and volume in each cuisine time, it's needed to smell and calculate calories of food before consuming. Supported nutrition knowledge, constituents that are factors of food naturally have different calories. This paper proposes how of component-grounded food calorie dimension using nutrition knowledge and thermal information. During this system, an image of the food is first honored as a kind of food, and constituents of the honored food are recaptured from the database with their nutrition knowledge and pattern of brilliance and thermal images. Contemporaneously, the image is segmented into boundaries of component campaigners, and each one boundaries are also classified into constituents using fine sense supported their heat pattern and intensities. The classified constituents from all boundaries are eventually calculated for total calories supported area rate and nutrition knowledge. The performance of the proposed system was estimated with ten kinds of Thai curry during which all constituents were complicatedly mixed, and therefore the results showed2.21 for software error and a couple of.28 for error,

3. MODELING AND ANALYSIS

PROPOSED SYSTEM

In this design we propose system grounded on machine literacy that automatically performs accurate bracket of food images and descry calories. This design proposes a machine literacy model conforming of a Support vector machine that classifies food into specific orders in the training part of the prototype system. Stoner upload food image and we submit image as input to our training module for food discovery. We also give alert to stoner for high calories food. We use food dataset and calories dataset for predication.

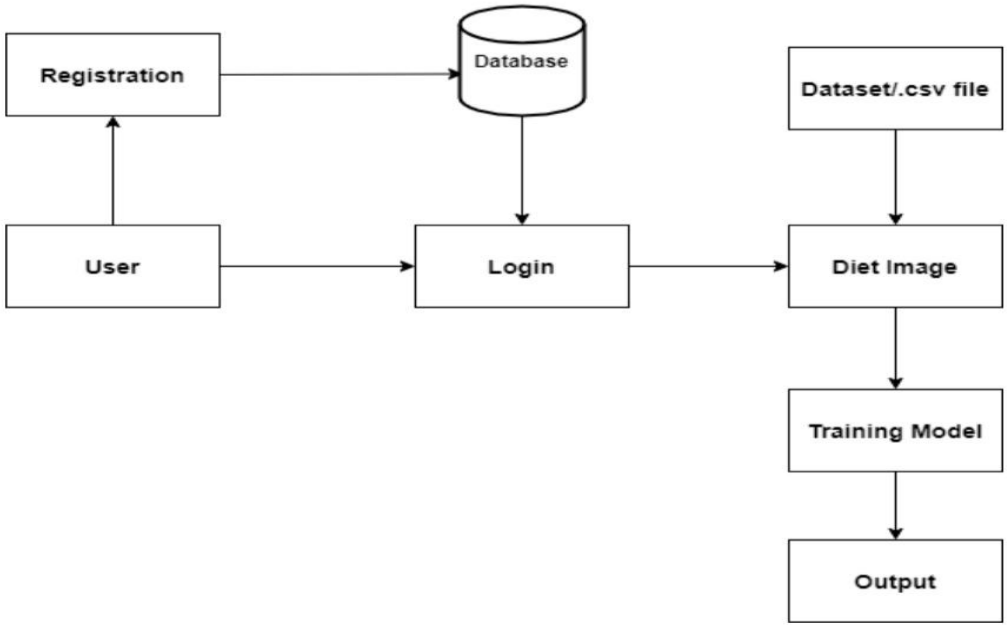

Fig: Architectural Diagram

Flow Of System

- We made a Web Application for this project.
- And it run in local network.
- And when data is saved in real time.
- Registration can be done using name and email id.
- Then after login age and weight values should be given by user.
- Then user will select an image.
- Then this data is saved in database.
- Then our system will authenticate it.
- From dashboard user will select food image.
- Then we make a trending model in which we implement Support Vector Machine algorithm which classify the image.
- Then from dataset calorie values detect and directly shows to the user according to age and weight.

www.ijprems.com
editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
Vol. 02, Issue 05, May 2022, pp : 120-124

e-ISSN : 2583-1062
Impact Factor : 2.205

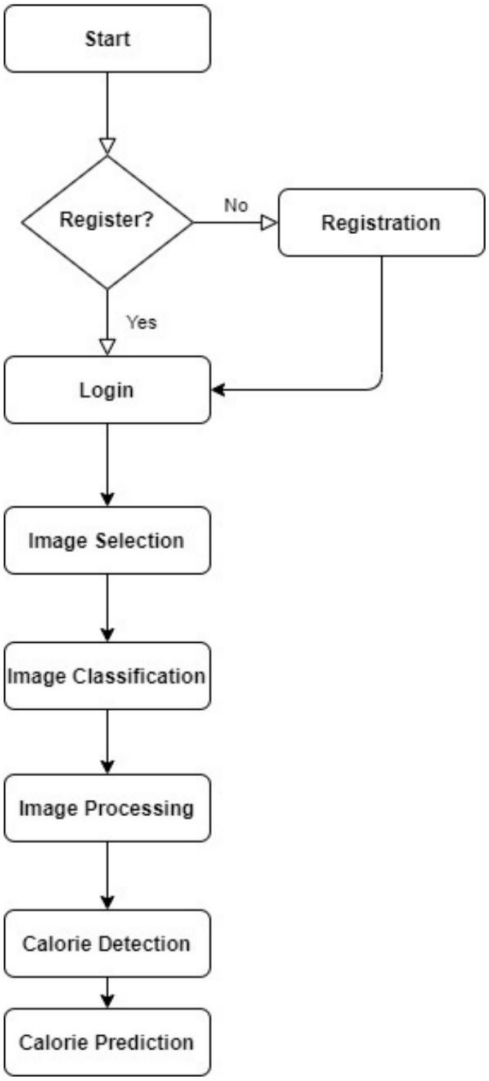

Fig: Flow Chart

4. CONCLUSION

In the perpetration of Food Quantity Analyzation system grounded on image recycling the relative study of colorful software scheme is done. We identify food image. And we proposed a dimension system that estimates the quantum of calories from a food's image and using nutritive data tables to measure the quantum of calorie and nutrition in the food. And calorie is shown in final results with approximate value. This the paper is designed to prop dieticians for the treatment of fat or fat people, although normal people can also profit from our system by controlling more nearly their diurnal eating without fear about gluttony and weight gain. This is simple and easy to use. Hence this system is veritably important in the field of biomedical, the factual program is clear and easy to understand.

5. REFERENCES

[1] " Wikipedia." (Online). Available https//en.wikipedia.org/wiki/Obesity#cite_noteWHO2015-1.

[2] The American Medical Association Annual Meeting (June 18, " No Title." (Online)) Available http//www.amaassn.org/ama/pub/news/news/2013/2013-06-18new-ama-policies-annual-meeting.page.

[3] P. Pouladzadeh,P. Kuhad,S.V.B. Peddi,A. Yassine, andS. Shirmohammadi, " Food calorie dimension using deep literacy neural network," in Conference Record-IEEE Instrumentation and Measurement Technology Conference, 2016.

[4] W. Jia,R. Zhao,N. Yao,J.D. Fernstrom,M.H. Fernstrom,R.J. Sclabassi andM. Sun, " A food portion size dimension system for image- grounded salutary assessment," in IEEE 35th Periodic Northeast conference on Bioengineering, 2009.

[5] " CNN Stanford University." (Online). Available http//cs231n.github.io/ convolutional- networks/. (6) " Center of Science in Public Interest." (Online). Available https//cspinet.org/eating-healthy/whygoodnutrition-important.

[6] P. Pouladzadeh,S. Shirmohammadi, andR. AlMaghrabi, " Measuring calorie and nutrition from food image," IEEE Trans. Instrum.Meas., 2014.

[7] " Data Augmentation Keras." (Online). Available https//keras.io/ preprocessing/ image/.

[8] " Spatial Motor Networks." (Online). Available https//arxiv.org/abs/1506.02025.

[9] " SVM Wikipedia." (Online). Available https//en.wikipedia.org/wiki/Support_vector_mac hine.

[10] " Installing Anaconda on Linux." (Online). Available https//www.digitalocean.com/community/tutorial s/ style-to- install-anaconda-onubuntu-18-04quickstart

[11] " Installation of Theano, Pygpu and Keras." (Online). Available https//medium.com/@xuweimdm/howtoinstall-theano-in-your-anacondaenvironment7fd78769c05f.

[12] P. Pouladzadeh,A. Yassine, andS. Shirmohammadi, " FooDD Food discovery dataset for calorie dimension using food images," in Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 2015.

[13] M. Farinella,M. Moltisanti, andS. Battiato, " Classifying food images represented as Bag of Textons," in 2014 IEEE International Conference on Image Processing, ICIP 2014, 2014.