



Food Nutrition Recognition Using Deep Learning Neural Networks

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Abstract — As individuals over the globe are ending up more keen on watching their weight, eating more beneficial and maintaining a strategic distance from fatness, a framework that can measure calories and nutrition in consistently dinners can be extremely valuable. In this paper, we propose a food calorie and nutrition opinion construction that can help patients and dietitians to measure and oversee every day sustenance admission. Our framework is based on sustenance picture preparing and grouping utilizing simulated neural system utilizes dietary destinies tables. As of late, there has been an expansion in the utilization of individual portable improvement, for example, cell phones or tablets, which patrons communicate with them for all intents and purposes constantly. By means of an uncommon adjustment strategy, our framework utilizes the inherent camera of such cell phones and records a take pictures of of the nutrition before, then after the fact eating it to quantify the utilization of calorie and supplement parts. Our outcomes demonstrate that the precision of our framework is satisfactory and it will greatly improve and encourage current manual calorie estimation procedures.

Keywords- Food Recognition, calories meter, SIFT, ANN, distance calculation.

I. INTRODUCTION

we have built up a portable framework that can measure the calories of the food from that sustenance's picture taken by the client's cell phone. Once the client catches the picture of the sustenance thing on the plate, the picture is sent to the cloud for nourishment acknowledgment and calorie calculation. Nourishment acknowledgment is done by profound getting the hang of running in the cloud: the picture is perceived and the calorie subtle elements coordinating the picture are gotten from the database that likewise exists in the cloud. The outcome is then provoked back to the client's telephone. In our framework, for alignment, the client needs to put his/her thumb close to the nourishment when the sustenance picture is taken. The segments of our framework are indicated engineering. 1, where we have utilized Scale invariant element change (SIFT) for picture preparing, and ANN for classification and Volume count and finger alignment for calorie computation.

II. PROBLEM STATEMENT

In this theory, we concentrated on numerous viewpoints that add to building a portable e-health application that would give instruments to screen calorie admission and help clients to guarantee a solid eating routine. The framework can perceive the sustenance object on the client's plate and decide its calorie content. We will additionally talk about a portion of the issues with the current methodologies below. The patient's dietary data enables specialists to pick up the data they have to analyze issues, for example, heftiness and weight related issues. In the current approach, patients report their day by day eating routine to a dietician. The issue with this approach is that it gives an incorrect measure of the sizes of sustenance parcels, which disregards the essential purpose behind irregularities in calorie count while keeping up dietary information.

III. LITERATURE REVIEW

1. **Measuring Calorie and Nutrition from Food Image (Aug 2014)**

Authors: P.Pouladzadeh, S.Shirmohammadi, and R.Almaghribi,

As individuals over the globe are ending up more keen on watching their weight, eating more solid, and maintaining a strategic distance from heftiness, a framework that can quantify calories and nourishment in consistently dinners can be exceptionally valuable. In this paper, we propose a nourishment calorie and sustenance estimation framework that can help patients and dietitians to gauge and oversee day by day nourishment admission. Our framework is based on nourishment picture handling and uses wholesome reality tables. As of late, there has been an expansion in the utilization of individual versatile innovation, for example, cell phones or tablets, which clients convey with them for all intents and purposes constantly. By means of a unique alignment strategy, our framework utilizes the inherent camera of such cell phones and records a photograph of the nourishment previously, then after the fact eating it to quantify the utilization of calorie and supplement parts. Our outcomes demonstrate that the precision of our framework is worthy and it will enormously enhance and encourage current manual calorie estimation strategies.

2. **Using graph cut segmentation for food calorie measurement (2014).**

Authors: Pouladzadeh, Parisa, Shervin Shirmohammadi, and Abdulsalam Yassine.

Calorie estimation frameworks that keep running on advanced mobile phones enable the client to take a photo of the sustenance and measure the quantity of calories naturally. With a specific end goal to distinguish the nourishment precisely in such frameworks, picture division, which parcels a picture into various areas, assumes an essential part. In this paper, we show the usage of Graph cut division as a methods for enhancing the precision of our sustenance grouping and acknowledgment framework. Chart cut based technique is notable to be effective, strong, and equipped for finding the best shape of articles in a picture, proposing it to be a decent strategy for isolating sustenance divides in a nourishment picture for calorie estimation. In this paper, we give the examination of the Graph slice calculation as connected to sustenance acknowledgment. We additionally play out various analyses where we utilized outcomes from the division stage to the Support Vector Machine (SVM) order demonstrate. The outcomes demonstrate a change in the precision of nourishment acknowledgment, particularly blended sustenance where exactness increments by 15% contrasted with our past work.

3. **Mobile cloud based food calorie measurement. (2014, July)**

Authors: Pouladzadeh, P., Kuhad, P., Peddi, S. V. B., Yassine, A., & Shirmohammadi, S.

Portable based applications have turned out to be pervasive in numerous parts of individuals' lives in the course of recent years. Tackling the capability of this pattern for human services purposes has turned into a point of convergence for scientists and industry, specifically planning applications that can be utilized by patients as a major aspect of their health, anticipation, or treatment process. En route, versatile distributed computing (MCC) has been acquainted with be a potential worldview for portable wellbeing administrations to beat the interoperability issues crosswise over various data designs. In this paper, we propose a versatile cloud-based nourishment calorie estimation framework. Our framework furnishes clients with helpful and savvy instruments that enable them to track their nourishment admission and screen their calorie check. The nourishment acknowledgment strategy in our framework utilizes cloud Support Vector Machine (SVM) preparing instrument in a distributed computing condition

4. Measurement of food volume based on single 2-D image without conventional camera calibration (2012).

Authors: Yue Y, Jia W, Sun M.

Nourishment divide estimate estimation joined with a database of calories and supplements is critical in the investigation of metabolic issue, for example, corpulence and diabetes. In this work, we introduce an advantageous and exact way to deal with the estimation of sustenance volume by measuring a few measurements utilizing a solitary 2-D picture as the info. This approach does not require the traditional checkerboard based camera alignment since it is oppressive by and by. The main earlier prerequisites of our approach are: 1) a round compartment with a referred to measure, for example, a plate, a bowl or a glass, is available in the picture, and 2) the photo is taken under a sensible suspicion that the camera is constantly held level as for its left and right sides and its focal point is tilted down towards nourishments on the feasting table. We demonstrate that, under these conditions, our approach gives a shut shape answer for camera alignment, permitting helpful estimation of nourishment divide measure utilizing advanced pictures.

IV. PROPOSED SYSTEM

We propose a sustenance calorie and nutrition estimation framework that can help patients and dietitians to gauge and oversee every day sustenance allow .Our framework is based on sustenance picture handling and uses nutritious certainty tables additionally SIFT is utilized for picture include extraction and for classification we use ANN algorithm . Our outcomes demonstrate that the exactness of our framework is satisfactory and it will extraordinarily enhance and encourage current manual calorie estimation systems. In our framework, for alignment, the client needs to put his/her thumb close to the sustenance when the food picture is taken.

A. SYSTEM ARCHITECTURE.

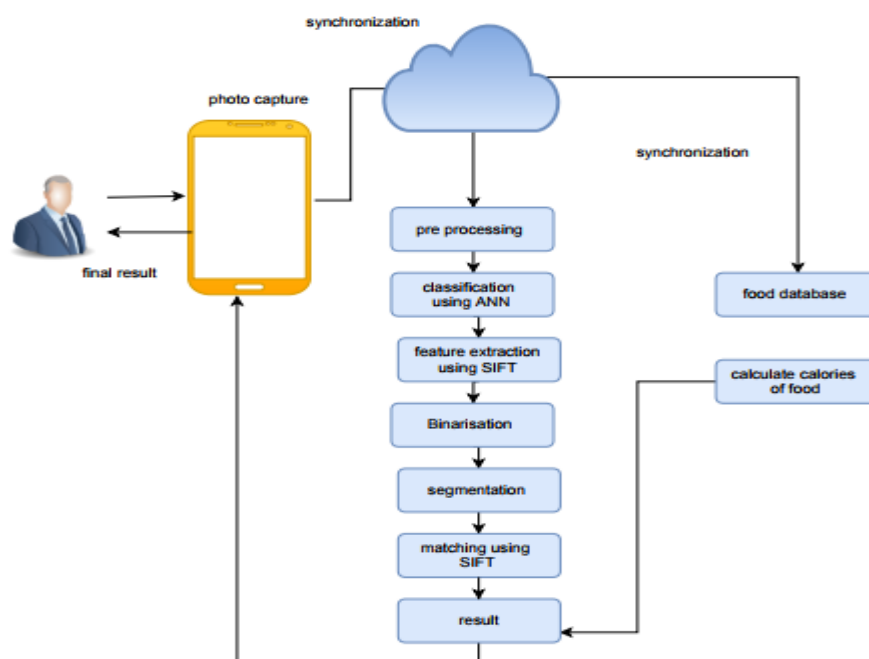


Figure 1.1. Architecture

C. HARDWARE AND SOFTWARE REQUIREMENT.

Software requirement:

- Operating system : Windows XP Professional/7/LINUX.
- Coding language : JAVA/J2EE, Android
- IDE : Eclipse Kepler, android studio
- Database : MYSQL

Hardware requirement:

- System : Intel I3.
- Hard Disk : 40 GB.
- Monitor : 15 VGA Colour.
- Mouse : Logitech.
- Ram : 4 GB.
- Mobile : android

V. ADVANTAGES

- Our system is built on food image processing and uses nutritional fact tables.
- Required less time.
- Increase Efficiency.
- improve the accuracy.
- We perform a detailed security analysis and performance evaluation of the proposed data .

VI. APPLICATION

Detect calories at crowded areas such as hospital, food market where in by calories meter techniques With this software every person can major the calories in particular food. Also this is beneficial to farmer to check the calories of particular food. According to that farmer can sell his food or any fruit.

VII. CONCLUSION AND FUTURE SCOPE

This paper concentrates on building up a mechanized recognize food calories. It spares time and exertion, In this paper, we have proposed another strategy for measuring the calories of the sustenance question. With then right blend of portable and distributed computing we could acquire the assessed remove from the cell phone also, utilized it to process the picture in the cloud. This empowered us to process every one of the pictures from a similar scale and further empowering us to decide the calorie estimation of the sustenance protest. Utilizing profound learning we could separate the highlights of the sustenance question and further group it accurately. We additionally examined the connection between the range and edge of the sustenance protest against the calorie esteem, with territory being more precise in deciding the calorie value.

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