

Dietary Application through Image Processing for Calorie Management

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Abstract: “Support Vector Machine” (SVM) is a supervised machine learning algorithm that can be used for both classification or regression challenges. However, it is mostly used in classification problems. In the SVM algorithm, we plot each data item as a point in n -dimensional space (where n is a number of features you have) with the value of each feature being the value of a particular coordinate. Then, we perform classification by finding the hyper-plane that differentiates the two classes very well. Support Vectors are simply the coordinates of individual observation. The SVM classifier is a frontier that best segregates the two classes (hyper-plane/ line).

Keywords: Support Vector Machine (SVM), Image Processing, Fuzzy Color and Texture Histogram (FCTH), Color and Edge Directivity Descriptor (CEDD)

I. INTRODUCTION

Image Processing (IP) is a computer technology which is applied to image that help us process, analyze and extract useful information from them. We need a daily proper diet to live day to day life. The food we consume gives our body nutrients to function properly. If we do not calculate our daily nutrient intake or do not monitor, it can causes severe health issue. A unbalanced and not calculated diet can create many problem in human life like negative weight gain, diabetes, obesity so it is necessary to manage our daily food item intake.

II. RELATED WORK

1. Paritosh Pandey, built an food net recognizing food system using an ensemble of deep networks.
2. Xin Wang, proposed recipe recognition with large multimodal food dataset.
3. Alessandro Ortis, proposed Recognition of food type and calorie estimation using neural network
4. Ya Lu proposed Food TM an artificial intelligence system for dietary assessment.

III. MOTIVATION

Due to the modern lifestyle of the people, there are more chances to cause the health issues like extreme weight gain , blood pressure, obesity, diabetes or many more , that may put individual’s life in danger. People’s weight is directly related to the number of calories they consume. When people consume more calories than they burn, their bodies store the excess as fat. In Many of the existing food tracking applications, users need to enter food names to get the nutrition information about the food. Even though the people can record their meal and discuss it with doctors or experts, it is not so convenient and they cannot know the number of calories before the meal. The proposed system is an effective way to measure and manage the daily food intake of the user. From the input food images, the users can understand the amount of calories they will take in each meal by using the Support Vector Machine (SVM) algorithm.

IV. PROBLEM STATEMENT AND OBJECTIVES

To implement a system i.e. “My dietitian-Monitoring of Dietary Habits by Maintaining Calories Count through Image Processing” that helps to detect the type of food by capturing food image and provides total calorie content of that food using calorie content database with diet suggestion

V. SYSTEM ARCHITECTURE

System architecture is a conceptual model which specifies the overview of the whole process of the project. It describes each step in the project making with the help of a flow. It specifies each and every step descriptively. The system architecture is as follows: The main aim of this paper is to present a system that detect the type of food by capturing an image and provides total calorie content of that food using calorie content database.

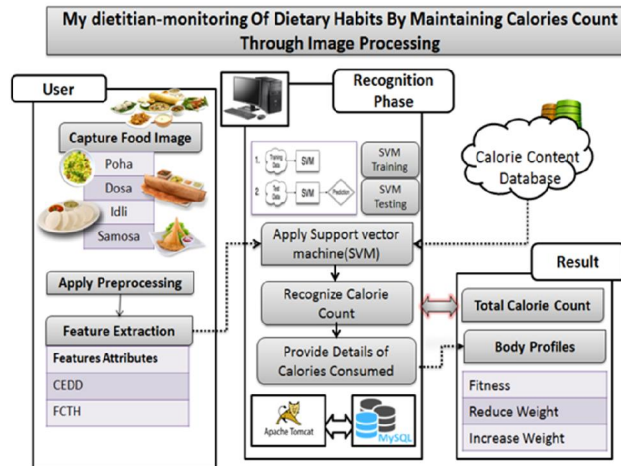


Figure 5.1: System Architecture

VII. IMPLEMENTATION

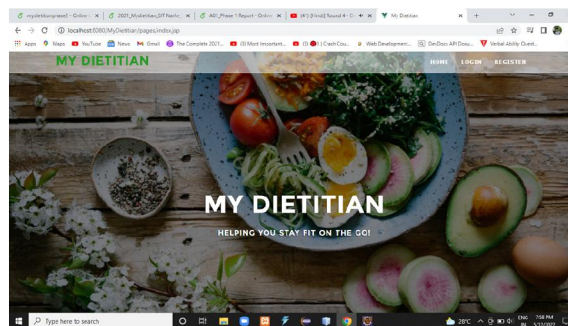


Figure: Home Page

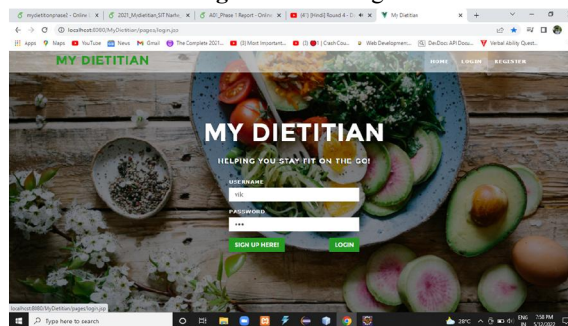


Figure: Login page

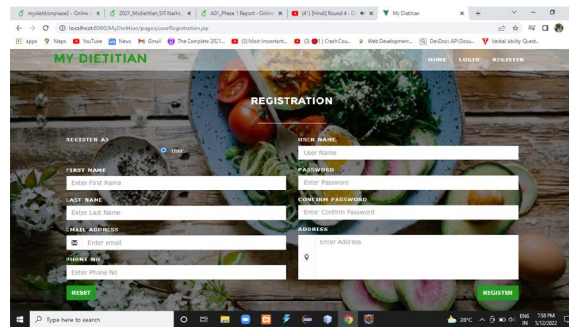


Figure: Register page

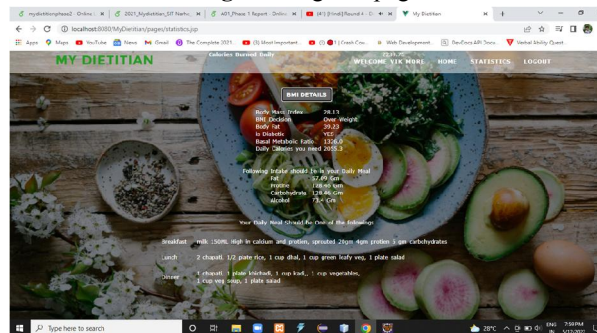


Figure: User Statistics

VIII. FUTURE WORK

In proposed system, we can classify the food type like poha, upma or idli. In future we can extends with different kind of food along with calorie count.

IX. CONCLUSION

We have studied Support Vector Machine (SVM) for training the dataset and FCTH and CEDD algorithm for image data extraction. This project can be helpful for calculating daily calorie intake as well as monitoring food type.

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