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

III. LITERATURE REVIEW
Our proposed system is Diet management application using image processing. In our system we use SVM i.e. support vector machine algorithm for training the dataset and FCTH and CEDD for extraction of data through image. In our system the user has to enter their body details such as weight , height, glucose content which helps the system to suggest diet to specific user. Here, the user has the provision to upload the food image which in return provides with the calorific value of the food item. Various existing techniques and algorithms are described in following table.

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Paper Title</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Food Recognition System For calorie measurement</td>
<td>Accuracy 89 percent reasonable accuracy.</td>
<td>Results are not always optimal as expected</td>
</tr>
<tr>
<td>2</td>
<td>Modelling restaurant context for food recognition</td>
<td>Helps tracking of food items</td>
<td>Images will not be uploaded.</td>
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### IV. CONCLUSION

We have studied about 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.

### REFERENCES


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