

recognition, presents experimental results, discusses food databases, introduces tried-and-true methods, and ends with recommendations for more research..

6.CalorieCaptorGlass: Food Calorie Estimation Based on Actual Size using HoloLens and Deep Learning[6]

With wearables tracking health metrics like heart rate and exercise-related data, the integration of device-based healthcare has drawn a lot of attention. But monitoring the number of calories consumed during meals is still difficult. While smartphone apps such as DepthCalorieCam and AT DeepCalorieCam V2 try to make this process easier, they still need human intervention and are not very good at identifying food items. The current emphasis is on investigating AR/MR glasses, such as HoloLens, which can reduce user obstacles by automatically managing dietary calories from meal images.

Apart from providing assistance to users, these wearables also provide valuable environmental data that enhances the precision of calorie estimate. The accuracy of meal area identification has improved as deep learning technology has advanced. This presentation uses AR/MR glasses together with deep learning to propose a system that calculates meal calorie consumption based on the real size of items. This shows the possibility of merging these technologies for a wide range of applications.

7.Food Calorie Estimation Using Convolutional Neural Network[7]

This paper emphasizes the need of monitoring calorie intake to maintain a healthy weight and prevent obesity. It acknowledges that keeping track of food consumption can be challenging, particularly in light of the scarcity of nutritional information and the requirement for manual data entry. The paper discusses how to use item recognition and classification—which is made possible by technologies like Support Vector Machines—to improve the accuracy of nutritional evaluations.

Considering just two food photos and a coin, a machine learning-based technique is proposed to predict meal volume and calorie content. The study aims to simplify the calorie monitoring procedure while acknowledging that direct calorie estimation yields more accurate results. A healthy lifestyle requires deep learning and convolutional networks because of their improved object categorization and detection skills. In order to increase the accuracy of nutritional assessments, the study looks at various network topologies and concentrates on deep learning-based fruit picture recognition.

8.Refined Image Segmentation for Calorie Estimation of Multiple-dish food items[8]

In recent times, more and more people these days are voicing concerns about their health because they understand how much food decisions affect their general health. This change is partly due to changing cultural norms and greater awareness made possible by social media. Nearly 20 percent

of fatalities globally have been attributed to unhealthy diets, which is a sizable percentage of deaths related to bad eating habits. In America alone, poor eating habits account for about 700,000 deaths every year. Another concerning trend is the rise in the prevalence of obesity, which affects around 30% of the world's population and is a major cause of over 3 million deaths annually.

Some individuals are looking for techniques to monitor and comprehend the nutrients they eat better in order to address these health difficulties. The fundamental issue is that a lot of people don't know how much protein, fat, and carbohydrate (as well as micronutrients like vitamins and minerals) are in the meals they eat. Conventional approaches to calculating calories, such self-reporting or manually weighing meals and using calorie tables, are frequently unreliable and unsustainable.

Using computer vision-based solutions is one practical alternative. With the help of these apps, users may take a picture of their meals, which the system uses to calculate its calorie content. Although there are now some computer vision systems available that can accomplish this, they have limitations such as poor generalizability, excessive expenses, and sustainability problems.

III. PROPOSED WORK

We assess the meal's calorie and nutritional content using the convolutional neural network (CNN) strategy. Convolutional neural networks are one form of a deep learning algorithm that is widely used for image identification tasks like food classification and calorie calculation.

Data Collection:

By compiling a wide range of food images and the accompanying nutritional information, a complete dataset representing a range of food products may be created.

Preprocessing of Data:

To guarantee that the input size for the model is consistent, resize and normalize the images. Resolve any discrepancies or missing information to tidy and prepare the data.

Model Choice:

Select a deep learning model designed specifically for image recognition tasks, such as a Convolutional Neural Network (CNN). From the input images, the CNN will be skilled at extracting pertinent features.

Instruction:

Train the selected deep learning model using the assembled dataset. By means of the training procedure, the model acquires the ability to recognize and categorize food items