NUTRITION ASSISTANT APPLICATION

ABSTRACT

Good nutrition is essential to keeping current and future generations healthy across the lifespan. However, when healthy options are not available, people may settle for foods that are higher in calories and lower in nutritional value. Most people don't eat a healthy diet and consume too much sodium, saturated fat, and sugar, increasing their risk of chronic diseases.

To overcome the above issue, the Cloud based "Nutrition Assistant Application" has been proposed. Software applications used on the mobile devices are a novel technology that can be used to deliver brief health behaviour change interventions directly to individuals with potentially favourable cost-utility.

This project aims at building a web App that automatically estimates food attributes such as ingredients and nutritional value by classifying the input image of food. Our method employs **Clarifai's AI-Driven Food Detection Model** for accurate food identification and Food APIs to give the nutritional value of the identified food. Nutritional information of the analysed image is returned to the app for display. The above-mentioned application is used in real time applications.

LITERATURE SURVEY

s.no	Title	Abstract	Reference
1	Deep Food: Food Image Analysis and Dietary Assessment via Deep Model	Nowadays new dietary assessment and nutrition analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. In this paper, we develop a deep model based food recognition and dietary assessment system to study and analyze food items from daily meal images (e.g., captured by smartphone). Specifically, we propose a three-step algorithm to recognize multi-item (food) images by detecting candidate regions and using deep convolutional neural network (CNN) for object classification	**https://ieeexplore .ieee.org/stamp/stamp. jsp? arnumber=8998172**

2	Mobile cloud based system recognizing nutrition and freshness of food image	As people across the globe are becoming more interested in watching their weight, eating healthier and avoiding obesity, a system that can measure calories and nutrition in every day meals can be very useful. As well as mobile-based applications have become ubiquitous in numerous aspects of people's lives over the past few years. Along the way, mobile cloud computing (MCC) has been introduced to be a potential paradigm for mobile health services to overcome the interoperability issues over distinctive information formats	**https://ieeexplore.ieee.org/document/8389528**

3	Effectiveness of Game-based Learning of a National Health e-Learning Network for nutrition education in elementary school	This research intended to study the effects of utilizing games in health e-learning network on teaching third graders in elementary schools about nutrition. The studied groups of this research were 2 classes of 33 third graders; the two classes were separated into experimental and control group. The experiment was implemented in a four-week duration. The experimental group learned the knowledge of nutrition based on game playing on a national health e-learning network, whereas the control group was lectured with multi-media slide shows.	https://ieeexplore.ieee.org/document/5406187
4	A Diet control fitness assistant application using Deep Learning based image classification.	With more and more attentions paid on health, people begin to care about healthy diet options created by experts on nutrition. However, it will take a long time to observe the effects by taking healthy diet. This causes great difficulty for users to follow the healthy diet strictly. Most existing applications are not user-friendly in inputting information to the application. Then it becomes difficulty to track for exact health status.	https://www.academia.edu/43016077/A_DIET_CONTROL_AND_FITNESS_ASSISTANT_APPLICATION_USING_DEEP_LEARNING_BASED_IMAGE_CLASSIFICATION
5	Enhancing cloud and Big Data Systems for healthy food and information systems Practice	Cloud Computing is a kind of virtualization technology based on internet. In cloud computing, central remote server plays an important role for healthy data management and applications. It offers handsome efficiency in the field of Computing as well as Information Technology for providing centralized storage, money, processing, and bandwidth.	https://www.researchgate.net/publication/322152435_Enhancing_Cloud_and_Big_Data_Systems_for_healthy_Food_and_Information_Systems_Practice_A_Conceptual_Study

6	Digital Nutrition Consultation among Hand-Held Device Users During COVID-19 Pandemic	Nutrition and clinical dietetic services provide evidence-based support which has become essential for maintaining healthy lifestyle and avoiding malnutrition among population. National health with digital technology integration is gaining importance in the current COVID-19 pandemic scenario. Digital health technologies offer valuable means for community to create and share information about healthcare.	https://www.researchgate.net/publication/357303031_Digital_Nutrition_Consultation_among_Hand-Held_Device_Users_During_COVID-19_Pandemic
7	Real-Time Detection of Body Nutrition in Sports Training Based on Cloud Computing and Somatosensory Network	To more comprehensively grasp the physical function, body shape, and physical fitness of athletes, many researchers have conducted extensive research on the real-time detection of human body nutrition. *is study is mainly supported by cloud computing and somatosensory network technology, and the real-time detection of human body composition in sports training is the main research object. In the experiment, two methods of human body composition detection were tested: the BIA method and the body composition analysis method based on the electrochemical sensor of body sweat. It designed a human nutrient composition detection system based on the BIA method.	https://downloads.hindawi.com/journals/cin/2022/9911905.pdf

8	New calculation of calorie content and determining nutritional level from day-to-day intake of food using Image Processing	One of the most urgent necessities of all individuals is food. Nowadays people mainly focus on diet because of diabetes, and obesity problems. When we have a healthy diet, it leads to a healthy life span .So, this paper gives a solution for this type of common problem. In this paper, we calculate nutritionally and calorie content utilizing image processing, display in the food segmentation and classification process, etc. This is very useful for dieticians despite the reality Ordinary people can benefits from this as well by manipulating their routine food patterns	https://www.researchgate.net/publication/362741068_New_calculation_of_calorie-content_and_Determining_nutritional_level_from_day-to-day_intake_of_food_using_Image_Processing
9	Ingredient based nutritional information	Nutritional information of a recipe is gathered to determine a nutritional value table of a food recipe. A computing device may extract and analyze unstructured text of a food recipe to obtain a plurality of ingredients and a quantity of the plurality of ingredients. The computing device may access dietary preferences of a user. The nutritional information of the food recipe may be calculated using the nutritional value of each of the ingredients and complied into a nutritional value table. The recipe may be determined if the recipe corresponds with the dietary preferences of the user. If a recipe does not correspond with the dietary preferences, then an ingredient causes the recipe to not correspond with the dietary preferences is removed from the recipe creating an altered recipe. The nutritional value table of the altered recipe is displayed to the user.	https://patents.google.com/patent/US20170031966

10	Development of a cloud based solution for effective Nutrition Intervention in the Management of Lifestyle Diseases	A web based tool is being planned for therapeutic nutrition prescriptions in clinical settings. The cloud based system would have the ability to calculate the nutritional requirements and to guide first line nutritional management to patients and clients automatically. Also, it serves as an electronic medical and dietetic record, and personalised nutrition consultation approach can be client can converse to his/ her personal dietitian at their own convenient setting.	https://www.researchgate.net/publication/346411010_DEVELOPMENT_OF_A_CLOUD_BASED_SOLUTION_FOR_EFFECTIVE_NUTRITION_INTERVENTION_IN_THE_MANAGEMENT_OF_LIFESTYLE_DISEASES