

AI-powered Nutrition Analyzer for Fitness Enthusiasts

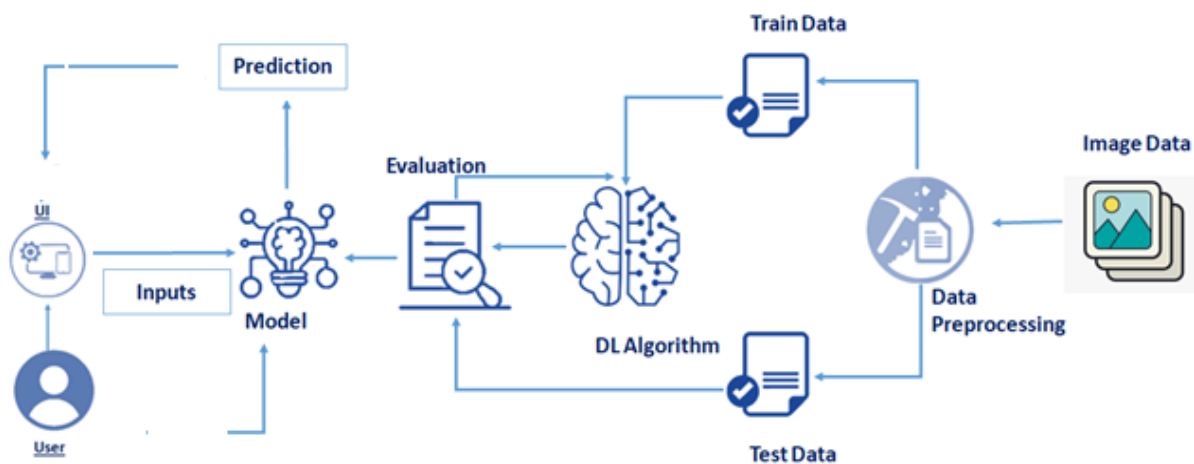
ABSTRACT

Food is essential for human life and has been the concern of many healthcare conventions. 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. Nutritional analysis is the process of determining the nutritional content of food. It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food.

PROJECT DESCRIPTION

The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc. Here the user can capture the images of different fruits and then the image will be sent the trained model. The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.).

Technical Architecture:



LITERATURE SURVEY:

In this article, we take a look at the top AI-based online platforms which make use of AI and other deep learning technologies to provide a real-time update about nutrition intake.

HealthifyMe: HealthifyMe is a leading Indian health and fitness app whose artificial intelligence powered virtual nutritionist, Ria, helps its users regarding their queries around fitness and nutrition in both audio and text in more than 10

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languages Ria uses key learning's obtained from HealthifyMe's 250 million tracked foods, workouts and 10 million message exchanges between coaches and clients. HealthifyMe supposedly owns the largest data set in this regard and are compatible with popular fitness wearables devices currently available in India

Neutrino: The platform provides nutrition-based data services, analytics, and technologies to its consumers and wants to turn itself into a leading source of nutrition-related insight platform. To enable individualised compilation of data, the platform uses NLP and mathematical models from the optimisation theory and predictive analysis.

Further, using **API** and **SDK** integrations, it enables its partners can purchase data regarding food, nutrition so as to help improve their product offering and services.

FitGenie: The app heavily relies on AI to produce customised data regarding calorie intake and make food suggestions accordingly. Their advanced diet analysis and combines tools of calorie counter with to make dynamic and adaptive macronutrient adjustments thus providing high-quality nutrient plan each week for its users which is generated from its 1+ million foods.

Calorie Mama: The app uses AI and image classification technology to identify the food correctly and accurately and also calculated the amount the calories just from the picture. Their proprietary API, called Food AI API has been trained to identify cuisines from across the world, thus making it the most culturally diverse food identification system in the world. Further, by connecting the API with diverse data sets, the food which is automatically recognised by the platform is paired with detailed nutrition information.

Bite AI: Is yet another online platform which uses deep learning and image recognition to analyse what the users eat and determine what is trending in terms of each popular dish that the user eats and consumption time. The machine learning facilitates provisions like recognition of past meals, make hierarchical predictions- that is detect high-level categories like beverages and soup as well as specific dishes and ingredients. It also integrates with their Food Knowledge Graph that contains a large set of commonly eaten foods, with nutrition facts, and hierarchical structure. The platform also further breaks down the nutrition information calories, macro and micronutrients as well as ingredie

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REFERENCE:

1. Ainoa: Low Carb Food Production Facilitator

Location: Chile,2020

Purpose: This startup uses AI to improve the food sector's R&D (research and development) processes. It allows manufacturers to produce new food, alter present techniques, or replace animal-based ingredients with plant-based sustainable ingredients. Plus, it promotes plant-based vegetation to overcome manufacturing costs and time.

2. Savormetrics: Food Quality Analyzer

Location: Canada,2017

Purpose: This analyzing tool uses artificial intelligence to measure food products' quantitative and qualitative properties without harming them. Its focus is on biophysical and biochemical metrics to detect food contaminants and decay curves to determine their shelf lives. Moreover, it predicts harvesting, ripening, and processing time to get an earlier estimation.

3. Doing Lab: Instant Multi-Food Recognition

Location: South Korea,2016

Purpose: It is an excellent food recognition solution offered by Foodlens that recognizes several food items in a single picture. It also correctly determines the distance between the food and the camera to estimate food quantities in each picture. It calculates food's nutritional content, cooking style, added sauces, and ingredients. Foodlens supports medical and health centers to deliver improved food solutions to patients and offer new insurance products.