RAJALAKSHMI INSTITUTE OF TECHNOLOGY

AI –POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS

Team ID PNT2022TMID26505

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PROBLEM STATEMENT:

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.

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.).

ABSTRACT:

As the world grows more fitness-conscious with passing time, the demand for technological solutions to cater to this burgeoning demand is diversifying. Lately, a number of startups in India and worldwide are using predictive analytics artificial intelligence and natural language processing to help scores of fitness enthusiasts to track and monitor their nutrition and calorie intake.

LITERATURE SURVEY

BOOK/JOURNAL	YEAR OF PUBLICATIONS	AUTHORS NAME	OBJECTIVE
An Artificial Intelligence-Based System for Nutrient Intake Assessment of Hospitalised Patients/ 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)	July 2019	Ya Lu , Thomai Stathopoulou , Maria F. Vasiloglou , Stergios Christodoulidis	Regular nutrient intake monitoring in hospitalised patients plays a critical role in reducing the risk of disease-related malnutrition (DRM)
Date fruits classification using texture descriptors and shape-size features [10]	2015	Ghulam Muhammad et al.	In this study a suggested technique breaks down a visual image of a date into its component colours. The local texture descriptor, such as a Weber local descriptor (WLD) histogram is then applied to each component in order to encode the texture pattern of the date. To characterise the image, the texture patterns from each component are combined.

Artificial intelligence in food science and nutrition	April 2019	Kosmas Dimitropou los	ML algorithms are used here,that requires very little human supervision during training and can crunch huge amounts of data in a short time. As for their application in healthcare, ANNs are used to analyze medical imaging, biochemical studies.
Development of an Android Fitness App	December 2017	Aimilia,Kagkini	The surge in "smartphone ownership" has fashioned a foundation for fitness apps that can assist individuals in improving their health and stamina, by increasing motivation for physical exercise using gamification principles and wearables.
DeepFood:Food Image Analysis and Dietary Assessment via Deep Model	2016	Landu Jiang, BojiaQiu, Xue Liu, Chenxi Huang, Kunhui Lin	The model developed had a three-step algorithm to recognise food and then to create a dietary plan using a dataset available(UEC-FOOD100,UEC-FOOD256)
Verum Fitness: An AI Powered Mobile Fitness Safety and Improvement Application/ 2021 IEEE 33rd International Conference on Tools with Artificial Intelligence (ICTAI)	November 2021	Asia Flores , Brandon Hall , Luke Carter , Maxwell Lanum , Rishi Narahari , Garrett Goodman	At home fitness has rapidly risen recently due to the COVID-19 pandemic and stay-at-home-orders. This also produced a large set of first time users of gym equipment and structured exercise routines

A Comprehensive Study on Torchvision Pretrained Model for Finegrained Interspecies Classification	2021	Feras Albardi et al	This study attempts to investigate various pre trained models provided in the PyTorch library's Torchvision package. And look into how well they can classify fine grained photos.
Personalized Classifier for Food Image Recognition	2015	Shota Horiguchi,Sosuke Amano,Makoto Ogawa,and Kiyooharu Aizawa	They used a method of incremental learning using CNN to get output more personalized to the end user,to increase the accuracy.
Android Application for Personal Diet Consultant	2021	Garvita Gehlot	DietExpert is an android application is a provides a personalized diet to its users. It acts as a diet consultant similar to a real Dietitian.
A Computer Vision based Indian Food Detection and Nutrition CalculationAp	MAY 2022	Durgesh Samariya	Here AI algorithms help the food delivery systems to manage the orders accurately. It will reflect the customer's order to two different Easy to use Highly productive No more man power required Calculation cannot be accurate Software development is difficult Image processing can always not be correct delivery partners, one who is in the nearby location of the delivery address and the other who is in the nearby location of the restaurant where the customer has ordered the food