**Literature Survey**

**AI-powered Nutrition Analyser for Fitness Enthusiasts**

**Title**

A Simple, Low-Cost and Efficient Gait Analyzer for Wearable Healthcare Applications

**Published:** [IEEE Sensors Journal](https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=7361) ( Volume: 19, [Issue: 6,](https://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=8642889&punumber=7361) 15 March 2019)

# Link: <https://ieeexplore.ieee.org/document/8561201>

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# Abstract:

The aging population is projected to rise significantly due to continuous improvements in healthcare, personal and environmental hygiene, nutrition, and education. This large aging demographic may cause adverse socio-economic impacts in terms of the costs associated with healthcare and social services. In order to support the healthcare needs of the elderly in a cost-effective manner, affordable, non-invasive, easy-to-use, and reliable predictive diagnostic and monitoring solutions are required. Therefore, walking or gait, being a good indicator of our overall health status may be exploited as a simple, noninvasive, and reliable metric for health assessment. In this paper, we report on a simple, low-cost, and non- invasive gait analyzer that can quantitatively identify the healthy gait corresponding to gender and age, and can thereby evaluate an individual's gait with respect to the baseline characteristics of his/her peer group. Upon constructing a database of walking signals from 74 healthy subjects aged 18-65 years, we employed the computationally efficient discrete wavelet packet analysis method to extract a set of temporal, statistical, and energy features. The features obtained from the apparently healthy subjects were classified using the support vector machine, forming two distinct clusters in the baseline gait characteristics corresponding to gender and age. This simple and inexpensive gait analyzer can potentially be transformed into a portable and continual remote monitoring tool to evaluate and early diagnose the decline of the musculoskeletal or cognitive health of the user, thus facilitating healthy aging at home.

**Title**

Electronic Human Nutrition Analyzer for Managing Obesity (EHNAMO)

**Published:**ResearchGate - 2022

# Link:[https://www.researchgate.net/publication/362638703\_Electronic\_Human\_Nutrition\_Analyzer](https://www.researchgate.net/publication/362638703_Electronic_Human_Nutrition_Analyzer_for_Managing_Obesity_EHNAMO)

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# Abstract:

The bad eating habits in the Nigeria society is increasing and the Obesity rate is constantly increasing but to monitor the Nutritional status simply means booking an appointment with a nutritionist with long hours of waiting time to get answers. Another important factor is cost of getting an appointment this could be high to an average Nigerian giving the fact that seeing a nutritionist is not one-time bargain as one would continuously need to book an appointment on the long run. The developed is capable of allowing users to enter personal details such as height, weight, age, gender and other factors to efficiently monitor the user nutritional status. By calculating the B.M.I (Body mass index) the system easily identifies the nutrition status of the user and proceeds to recommend appropriate profile for the user such as gaining weight, maintaining weight and losing weight and also likewise calculating B.M.R (Basal Metabolic rate) of the user the system automatically knows the amount of calories needed to be present in the individual nutritional status based on the users profile. The web application was developed using Php7 and Mysql which can be deployed on to any web server for the application to be accessible to users. This web based nutrition analyzer allows users to generate their own diet/Nutritional Food-time table which can be followed to achieve a healthy Nutritional Status. The study gives room for nutritionist to user interaction in order to help boost user satisfaction, the system has the capabilities of generating reminder, alerts, exercise routines and constantly motivates the user to use the application and improve their nutritional habits.

**Title**

Food Image Analysis and Dietary Assessment via Deep Model **Published:**IEEE 2020

**Link:** [**https://ieeexplore.ieee.org/document/8998172**](https://ieeexplore.ieee.org/document/8998172)

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# 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. 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. The system first generates multiple region of proposals on input images by applying the Region Proposal Network (RPN) derived from Faster R-CNN model.It then indentifies each region of proposals by mapping them into feature maps, and classifies them into different food categories, as well as locating them in the original images. Finally, the system will analyze the nutritional ingredients based on the recognition results and generate a dietary assessment report by calculating the amount of calories, fat, carbohydrate and protein. In the evaluation, we conduct extensive experiments using two popular food image datasets - UEC-FOOD100 and UEC-FOOD256. We also generate a new type of dataset about food items based on FOOD101 with bounding. The model is evaluated through different evaluation metrics. The experimental results show that our system is able to recognize the food items accurately and generate the dietary assessment report efficiently, which will benefit the users with a clear insight of healthy dietary and guide their daily recipe to improve body health and wellness.

**Title**

“Nutri-Mental” ─An Android Application For Personal Health And Nutrition Management. **Published:**[2020- 5th International Conference on Communication and Electronics Systems](https://ieeexplore.ieee.org/xpl/conhome/9130794/proceeding) [(ICCES)](https://ieeexplore.ieee.org/xpl/conhome/9130794/proceeding)

# Link: <https://ieeexplore.ieee.org/document/9137890>

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# Abstract:

These days, people are getting more wellbeing cognizant and will, in general, keep a beware of the dietary addition from the stuffed sustenance things they use. The rising growth of Android in the field of Operating System's has brought many advancements and proficient things such as applications, games and many more but also it leads to many complexities such as Mobile Exploitation done through Kali Software. The rising growth of the Android in the field of Operating System's has brought many advancements and proficient things such as applications, games and many more but also it leads to many complexities such as Mobile Exploitation done through Kali Software. The growth of Applications is increasing day by day. In this paper, the android platform is looked at in much more detail and will understand the future scope of Android and will implement Text To Speech and Vice Versa. This paper proposes an innovative Fitness Tracking app using the Android platform. The app would help the users to maintain a healthier lifestyle and eat more nutritious food. The proposed app gives an insight into nutrition that a person should have by eating a properly balanced diet and will present an outline on further research and development of the application.

**Title**

Android Application for Personal Diet Consultant

**Published:**IJEAST – 2021

**Link:** [**https://www.ijeast.com/papers/202-205,Tesma512,IJEAST.pdf**](https://www.ijeast.com/papers/202-205%2CTesma512%2CIJEAST.pdf)

**Author:** Garvita Gehlot

# Abstract:

Diet Expert is an android application is a provides a personalized diet to its users. It acts as a diet consultant similar to a real Dietitian. This system acts in a similar way as that of a dietitian. A person in order to know his/her diet plan needs to give some information to the dietitian such as its weight, height, gender etc. Similar way this system also provides the diet plan according to the information entered by the user. The system asks all data from the user and processes it to provide the diet plan to the user. The project has a login page where the user is required to register his/her account and then they can use the app. Thus, the user does not need to visit any dietitian which also saves time and the user can get the required diet plan in just a click. The system will give more accurate results as it accepts the data entered by the user and processes it depending on some metrics already known to the application on the basis of which a diet plan is generated and ask the user if the user accepts the diet plan. If not accepted the system may also give and alternative diet plan. If a user wants to stay fit and eat healthy, he can surely follow the program provided to him. The Application also has a card for Health Facts on the home screen, which will provide all the general knowledge and some amazing facts on our human body and body parts. This Application can be a vital part of a user if he wishes to maintain his health and body perfectly and follow the diet plan & the workout plan provided to the user.