LITERATURE SURVEY

1) In year 2022, “An AI Fitness Coach Solution”.

AUTHORS: Vaibahav Singh, Atharava Patade, Gaurang Pawar, Dhanashree Hadsul.

Physical activity and exercise can have immediate and long-term health benefits. But when it comes to working out, form is the most important thing. Poor form places undue emphasis on muscles, tendons, and ligaments, leading to strains and sprains. Good form reduces overcompensation and the likelihood of injury. This is one of the many reasons why people work under the guidance of a trainer. Whether one wants to develop an individualised program, or simply feel that they would benefit from the additional accountability, a personal trainer can be a great resource. Online coaching and virtual training have emerged as a staple in the fitness industry. Owing to technological advancements, with a suitable application, one can get constant reminders and a much-needed drive to focus more on fitness and nutrition. Over the years, AI has spread its roots in almost every functional area of business. Pose estimation is among the most popular solutions that AI has to offer; it is used to determine the position and orientation of the human body given an image containing a person. Our goal is to implement an automated fitness coach solution which performs all the tasks of a physical personal trainer. The app obtains users’ motion data by the use of a webcam, and then applies human pose estimation assisted with repetition counting and form evaluation via voice based real time feedback.

2) In 2021, “Implementation of a personalized and healthy meal recommender system in aid to achieve user fitness goals.”

AUTHOR: Chamodi Lokuge, Gamage Upeksha Ganegoda.

Recent research implies that people's urge to stay healthy and fit has drastically improved and currently, many people are in need to maintain their physical fitness incorporating healthy food habits into their lives amidst hectic urban lifestyles. Thus, nutrition applications are mushrooming in the fitness domain to aid people to

improve their dietary intake, track weight-related elements, and generate meal plans. Considering the applications that are typically built for meal planning, it was apparent that personalized nutrition incorporated with healthy meal suggestions is not well addressed, and hence the need for a personalized meal recommendation system that assists the users to achieve their fitness goals is identified.

Learning users' food preferences and delivering food recommendations that plead to their taste and satisfy nutritional guidelines are challenging. Due to the lack of access to a proper meal planning application or without professional help most users follow ineffective, generic meal plans which hinder them from achieving their fitness goals and often cause long-term and short-term health complications. The proposed implementation aims to bridge the gap between the existing meal planning applications and the potential need for a personalized healthy meal plan. This paper succinctly presents the design and implementation of the proposed personalized and healthy meal recommendation system and further discusses the architecture and the evaluation of the design solution.

3) In 2020, "The Nutri-Mental -An Android Application For Personal Health And Nutrition Management."

AUTHOR: Sonakshi Khosla, Dhutima Malla, Ishank Dua, Deepa Bura, Pronika Chawla.

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.

4) In 2020, "Exploring Knowledge Domain Bias on a Prediction Task for Food and Nutrition Data".

AUTHOR: Gordana Ispirova, Tome Eftimov, Barbara Korousic Seljak.

Human understanding and knowledge about food and nutrition is constantly evolving, and has significantly improved recently, one of the main contributor to this is data. The possibilities of gaining knowledge from food and nutrition-related data are yet to be explored. One of the most important information about food is nutrient content, which is very relevant for patients suffering from various diseases, professional athletes, and slowly part of everyday life of many for health or fitness goals. In this paper, we explore the effect of domain bias in a predictive study in the food and nutrition domain. Having a machine learning pipeline for predicting nutrient values with learned vector representations from short text description of recipes, we introduce domain knowledge before the prediction algorithms are applied. On a large corpus of recipe data containing short description and nutrient values we introduce word and paragraph embeddings, learn concept representations for the textual descriptions, introduce domain knowledge for clustering the data, and apply machine learning algorithms for predicting the nutrient content of the recipes. We explore the impact of the domain knowledge by introducing two different criteria of clustering the dataset - using graph embedding of the FoodEx2 codes, and using the traffic light labelling system from the Food Standards Agency; at the end we compare the two different criteria.

5) In 2022, “Sports Nutrition Intervention for Athletes Based on Continuous Image Deep Learning”.

AUTHOR: Shengtao Yang.

Aiming at the problems of weak anti-noise ability, incompatibility of signal size and insufficient feature extraction in athlete sports nutrition intervention based on deep learning, a recognition method based on continuous image deep learning is proposed. Firstly, the time-varying signal is reconstructed into several continuous image frames to ensure that the input size is consistent; then a low-rank decomposition algorithm is designed to separate the key motion information annihilated by noise; at the same time, a depth model of time domain and spatial domain information fusion is proposed, Automatically capture the spatio-temporal characteristics of variable-length image sequences, and verify the proposed method on WiAR datasets and autonomously collected datasets. Experimental results show that the average recognition accuracy of the proposed method is 0.94 and 0.96, respectively, and has high accuracy and robustness in universal scenarios.