iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VI **Month of publication:** June 2022

DOI: https://doi.org/10.22214/ijraset.2022.44418

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Android Food Diet Plan for Curing Diseases

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***Abstract:** In the healthcare industry, the patient's nutrition is a very important key factor in their treatment process. Every user has their own specific nutritional needs and requirements. An appropriate nutrition policy can help the patient's recovery process and possible symptoms. Food recommender systems are platforms that offer personalized suggestions of food diet plans to users. Moreover, there is a lack of usage of food recommendation systems in the healthcare sector. Multiple challenges in representing the domain of food and the patient's needs to make the user's life easy in using this android application. The present project aims to develop a platform for the users to provide meals, based on their health conditions.*
***Keywords:** Android application, chatbot, Artificial Intelligence, Firebase, Java, XML.*

I. INTRODUCTION

This system provides android application for user to get their specific diet plan (such as Thyroid, Diabetes, Cancer). There are many sources available which tells about good food and bad food but, as we are not expert in understanding the quantity and quality of nutrients intake through our food, so we need a system which provides us a complete diet plan and also provide a chat bot for user communication. As we all know health is important factor in everyone's life so we designed this application to maintain our health in good condition and fight against certain diseases.

II. LITERATURE SURVEY

In paper [1], This paper proposes the proper diet plan to the patients by considering personal details of the user which also saves the user time as it is a android based application the user need not visit hospitals and the application provides a user an option for changing the diet if they are not satisfied with the diet provided to them. This system does not maintain the records of all the users health and diet plans provided to the users.

In paper[2], This paper proposes a meal for a patient based on their daily essential basic needs and then it is macronutrient distribution of calories. This web-based application first calculates Total Daily Energy Expenditure (TDEE) to determine the number of calories, this TDEE is summassion of four factors like Basal Metabolic Rate (BMR), Thermic Effect of Food (TEF), Non-Exercise Activity Thermogenesis (NEAT) and Thermic Effect of Activity (TEA). BMR calculates the energy expenditure of a person. TEF is used for digesting food and nutrients of a person. NEAT is the energy expended for spontaneous activities. TEA is number of calories burned. This application provides a general diet plan not for specific diseases.

In paper[3], This paper proposes a image recognition of a food based on the ingredients along with calories are retrieved from the database by using fuzzy logic based on the heat pattern and intensities. Capturing of food images is done using built in camera of mobile devices. In this paper we understood why the calories calculation is so necessary and how to divide data based on similar characteristics and store them in the database. Calories are calculated based on ingredients contained in the food and by using temperature that are required for cooking and based on weight of ingredients added by specific gravity. It is only the image recognition it calculates calories only for curries and soups and does not provide any diet plan for the patients.

In paper[4], This paper proposes a personalized recommendation framework to provide appropriate diet plan and physical activities for thyroid patients. It is based on clinical data and personal choices. The system provides diet plan by using the five phases integrated into one framework like collection of patients information food items, Nutrition extraction phase, diet planning phase, Incorporating Intelligence from Nutrition Experts, Recommendation Generation Phase. It provides diet recommendation plan only for patients suffering from hypothyroid.

In paper[5], This paper proposes a system targeting young people in India for maintaining their health and it recommends the user what to eat and what not to be eaten and provides food facts, health tips for the users, provides the users about the food intake pattern by tracking their daily intake and maintain their calories and nutrients need by graphical representation of the proteins, nutrients. This application suggests the young stars about the proteins and nutrients that has to be in taken to maintain their health but does not provide any specific diet plan for diseases of any kind.

Sl.no	Published in Journal	Year of Publishment	Title of paper	Authors	Description	Drawbacks
1	International Journal of Recent Technology and Engineering (IJRTE), ISO	01-01-2020	Virtual Dietitian: An Android Based Application To Provide Diet.	Prajkta Khaire, Rishikesh Suvarna, Ashraf Chaudhary.	This paper provides the proper diet plan to the patients by considering personal details.as it is a android based application the user need not visit hospitals and saves the time.	The system does not maintain the records of all the user's health and the diet plan provides to the users.
2	Institute Of Electrical and Electronics Engineers (IEEE)	2019	Plan-Cook-Eat: A Meal Planner Application with Optimal Macronutrient Distribution of Calories Based On Personal Total Daily Energy Expenditure	Manuel B. Garcia	This paper proposes a meal for a patient based on their daily essential basic needs and calories. Total Daily Energy Expenditure (TDEE) to determine the number of calories	This application provides a general diet plan but not for a specific disease
3	Institute Of Electrical and Electronics Engineers (IEEE),	15-05-2018	The Design and Implementation of an Ingredient-Based Food Calorie Estimation System using Nutrition Knowledge and Fusion of Brightness and Heat Information	Sirichai Turmchokkasam and Kosan Chamnogthai	This paper proposes a image recognition of a food based on the ingredients along with calories Capturing of food images is done using built in camera of mobile devices calories are calculated by using the thermal temperature. and based on weight of ingredients added by specific gravity	This application is only the image recognition it calculates calories only for curries and soups and does not provide any diet plan for the patients
4	International Journal of Recent Technology and Engineering (IJRTE)	03-09-2019	Design of Personalized Diet and Physical Activates Recommendation Framework for Hypothyroid Patients	Vaishali S Vairale, Samiksha Shukla	This paper proposes a personalized recommendation framework to provide appropriate diet plan and physical activities for thyroid patients.	The system provides diet recommendation plan only for patients suffering from hypothyroid.
5	Institute of Electrical and Electronics Engineers	18-12-2020	Android Based Nutritional Intake Tracking Application for Handheld Systems.	Deepali Bajaj, Asha Yadav, Para Dholakia, Bhawna Jain, Diksha Sharma, Diksha Tewari, Danika Saxena, Disha Sahni, Preetanjali Ray.	This paper proposes a system targeting young people in India for maintaining their health and it recommends the user what to eat and what not to be eaten and provides food facts, health tips for the users, provides the users about the food intake pattern by tracking their daily intake and maintain their calories and nutrients need by graphical representation of the proteins, nutrients.	This application suggests the young stars about the proteins and nutrients that has to be in taken to maintain their health but does not provide any specific diet plan for diseases of any kind.

Table 1. Overview Of Referred Papers

III. PROBLEM IDENTIFICATION

As observed in the literature survey most of the projects implemented till date are all concentrated on the providing general diet plan to maintain good health and some exercise suggestions based on calories. So in order to extend this we have come up with the project which provides complete diet plan from the age of 5 for specific diseases the user suffering from. The project provide diet plan asking user food choice like for the snack, breakfast, lunch or the dinner.

IV. PROBLEM STATEMENT

To develop an android application that provides a food diet plan for users.

A. Features of Proposed System

To provide a food diet plan, exercise to the users which is assigned by the doctor.
To provide user the amount of water to be taken by sending the notifications to the user mobile.
To reduce the manual work involved in visiting the hospitals by taking the appointment and waiting for the doctor.

B. Objectives

To provide the users a diet plan by displaying different meal options for breakfast, lunch, snacks, dinner and displays the caloriesconsumed, burnt and required.
To provide the user for updating their recent health and physical history.To provide chat bot to the user for clarifying quires
To maintain the records of all the user details and the assigned diet.

V. METHODOLOGY

A. *System Architecture*

System architecture shows the overall flow of the project and how the one system component is connected to other component and also the role of each component in the project.

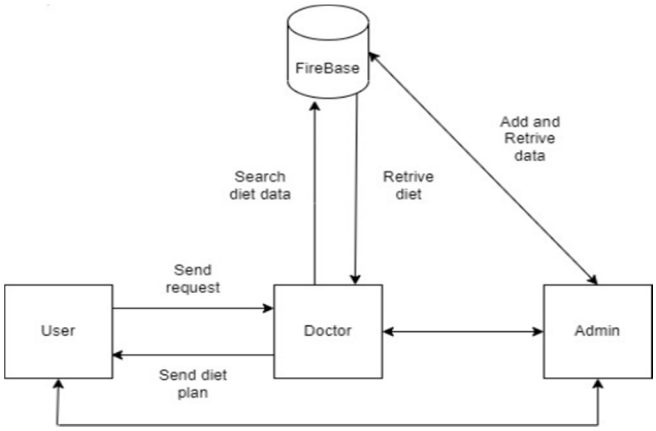

Fig 1. System Architecture

1) *Administrator:* The Administrator is the main head of the application. He/she can log in with the credentials given by the application developer. Each operation in the application will be under his observation. After login, he/she can add the specializations, after that he/she can add the doctors by uploading the following details like name, specialization, email, phone, password, experience, genderand about him. After that he/she can view the doctors. He/she can add the category, can add the food by uploading the followingdetails like food name, category, quantity, calories, and pictures. He/she can also view the food. He/she can add diet as per the age of the candidate, can add breakfast, lunch, snacks, dinner and by their details. He/she can view the user's and users' diets and can also clarify the quires using chat bot.

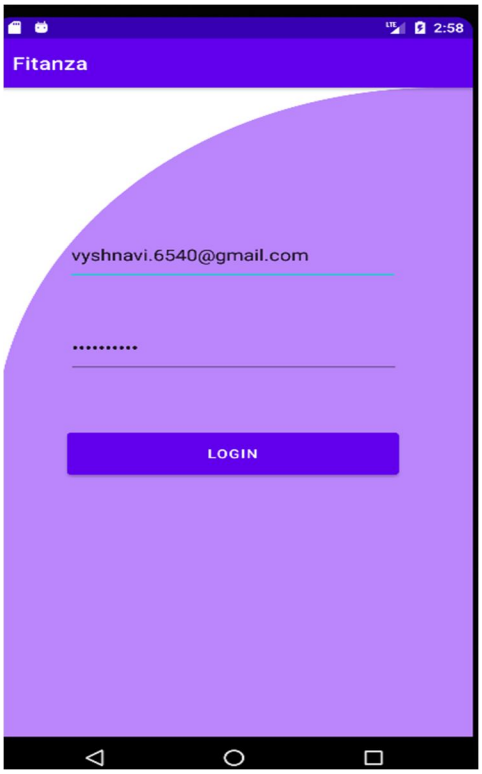

Fig 2. Admin Login

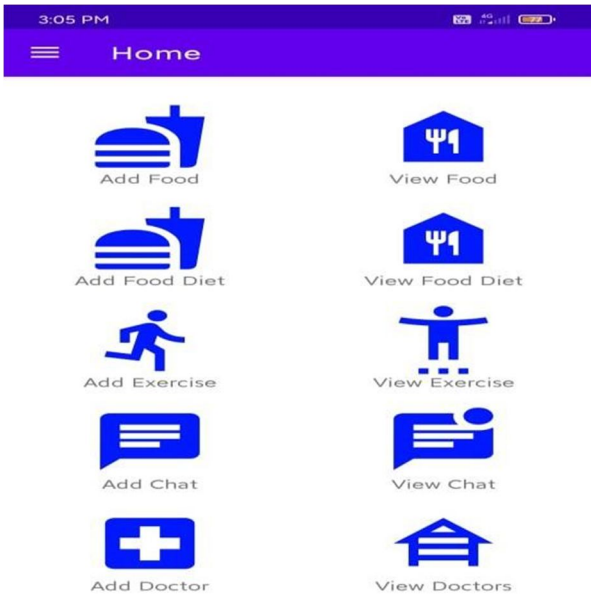

Fig 3. Admin Home Page

2) *Doctor:* The Doctor can log in with the credentials sent by the administrator after adding through the email. He/she can view requestsof the users and can view the consume, burn, remaining calories with a date.

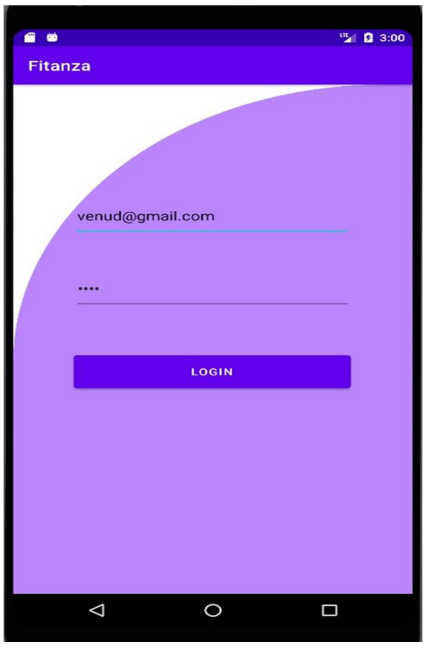

Fig 4. Doctor Login

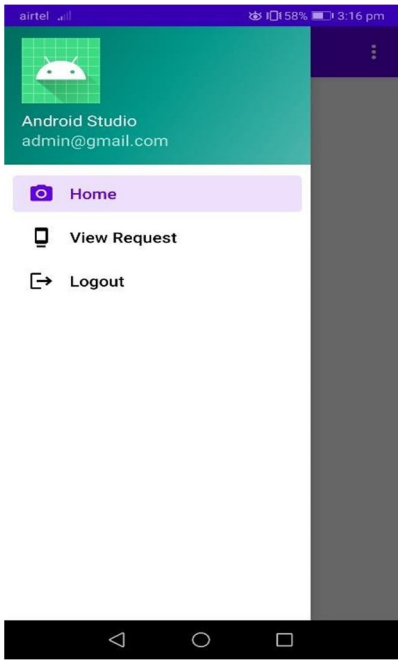

Fig 5. Doctor Home Page

User: The user can register by himself after registering he/she will get login credentials to his mail through those credentials he/she canlog in to the application. He/she can update his/her attributes, can send the request to the doctor, can view his/her diet, diet history.

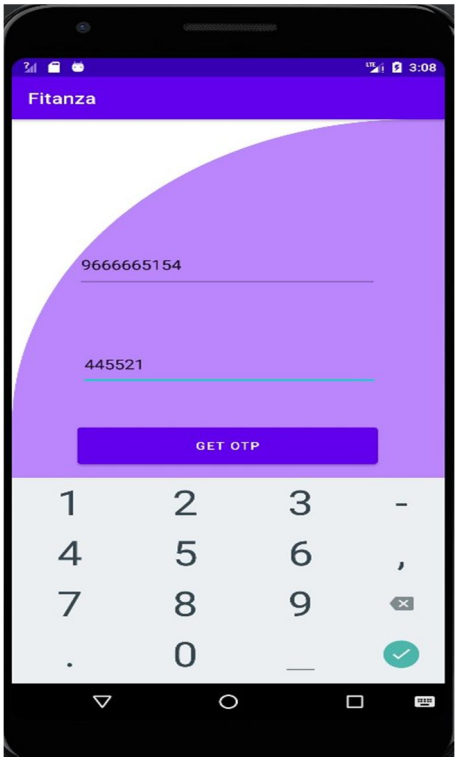

Fig 5. User Login

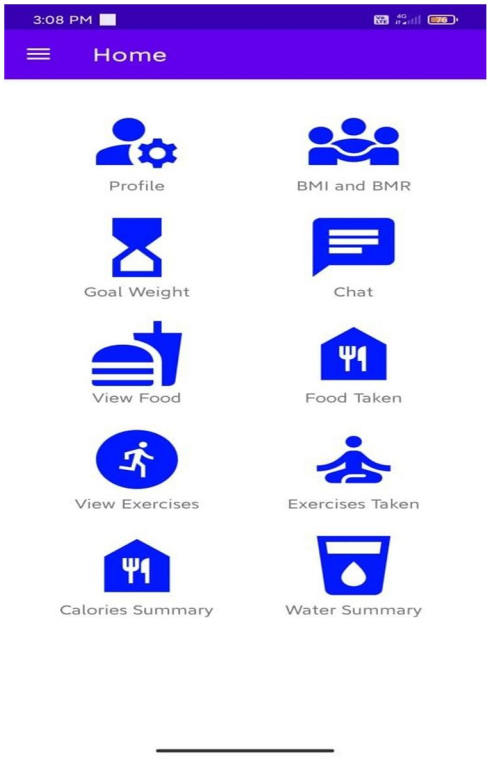

Fig 6: User Home Page

VI. FUTURE SCOPE

A. The system can be further implemented by using the Artificial Intelligence and Machine Learning techniques for all the disesaes.

B. The System can be extended to implement the diet for all the diseases and also provide the exercise steps for all the diseases.

VII. CONCLUSION

We have referred all the literature survey papers of the existing systems which provides general diet plan for the user which just helps to maintain a good health so this is the proposed system which provides diet plan to overcome the specific diseases and also provide the exercises to be done for the specific diseases.

VIII. ACKNOWLEDGEMENT

The satisfactions that accompany the successful completion of our project on "ANDROID FOOD DIET PLAN FOR CURING DISEASES" would be incomplete without the mention of people who made it possible, whose noble gesture, affection, guidance, encouragement and support crowned our efforts with success. It is our privilege to express gratitude and respect to all those who inspired us in the completion of project. We are extremely grateful to our respective Guide Mr. Sudhakar A and coordinator Mr. Venkateshwara A for his noble gesture, support co-ordination and valuable suggestions given to us in completing the project. We also thank Dr. R. N. Kulkarni, H.O.D. Department of CSE, for his co-ordination and valuable suggestions given to us in completing the project. We also thanks Principal, Management and non-teaching staff for their co-ordination and valuable suggestions given to us in completing the project.

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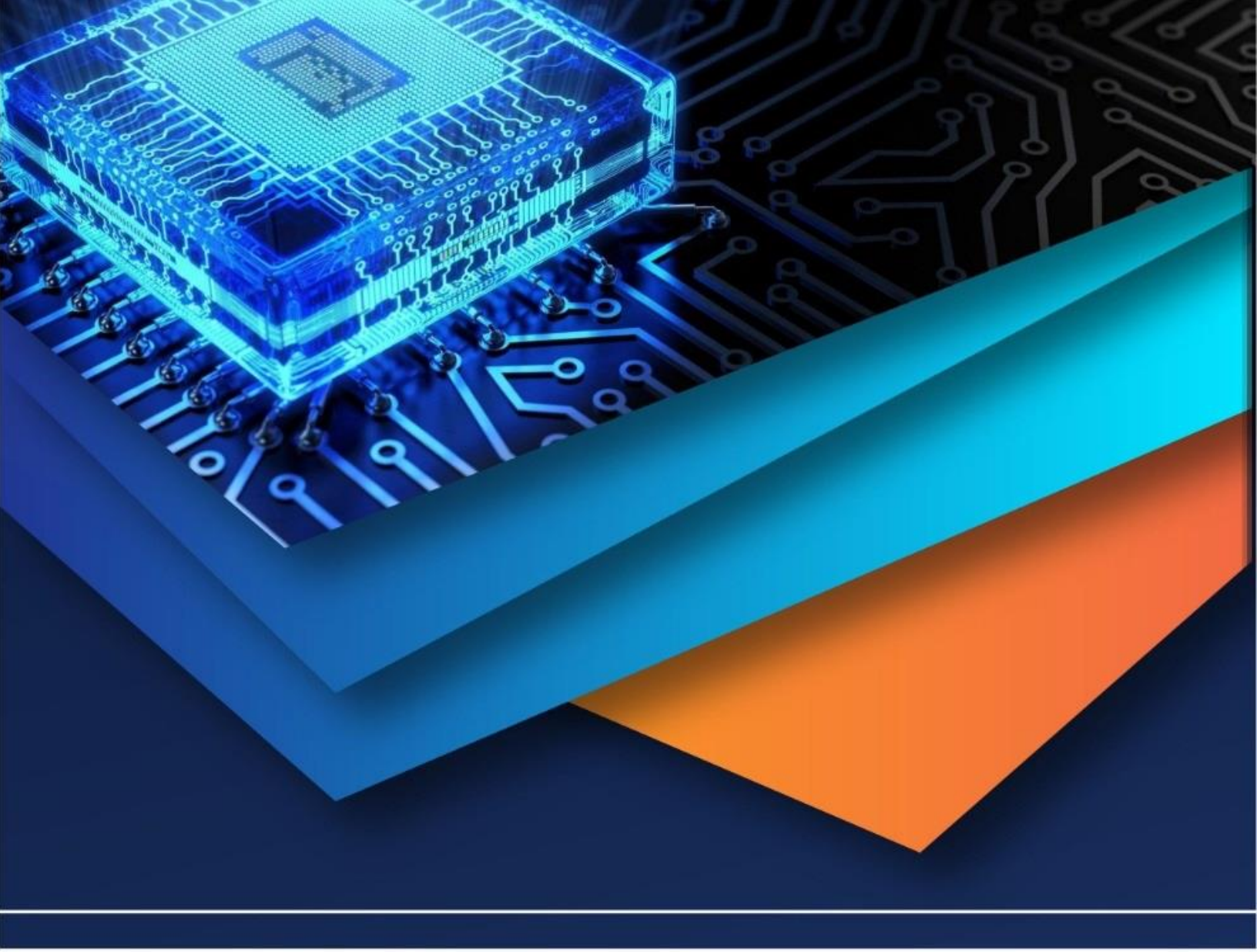

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