e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:04/April-2022 Impact Factor- 6.752 www.irjmets.com

FOOD RECIPE RECOMMENDATION ANDROID APPLICATION

Prof. Ragini Mishra[*1], Diksha Mulik[*2], Atharv Narharshettiwar[*3], Dhanashree Patil[*4]

[*1]Assistant Professor, Department Of Computer Engineering, Vishwaniketan's Institute Of Management Entrepreneurship And Engineering Technology, Khalapur, Maharashtra, India.

[*2,3,4]Student (B.E.), Department Of Computer Engineering, Vishwaniketan's Institute Of Management Entrepreneurship And Engineering Technology, Khalapur, Maharashtra, India.

ABSTRACT

The basic needs of human is food, clothing, shelter. During the pandemic, as we know lockdowns were imposed by the government to prevent the further spread of COVID 19 to support such a movement. essential shops like vegetable and grocery remained closed for a few days. Food provides nourishment to the human body- sustaining the very existence of humans. This was better understood during the COVID 19 pandemic, when an emergency lockdown was announced by the Government of India. However, people had restricted choices for food and also the other sources like hotels were closed too. This situation gives us an idea of preparing an Android application that would suggest a recipe based on available ingredients in the kitchen. A combination of content-based filtering and collaborative filtering provides personalized recipe on mobile application for better experience and ease of user. Thus, improving the recipe's recommendation scheme. We have conducted survey to get design ideas for developing android based application.

Keywords: Android Application, Alternative Ingredients, Content-Based Filtering, Recommendation, Survey.

I. INTRODUCTION

In general, people like to cook but lack the idea of what to cook. There are many applications and websites where they don't have recommender system. But this condition still remains, "what to have for meal everyday?" and being unfamiliar about the variety of recipes they desire to know certain recipes that suits their preference.

It is natural to think that couples who work at a company or a person who lives by her/himself want to cook food for themselves as quickly and easily as possible when they are busy. However, to keep having the same food they can easily cook fed them up, therefore, it should be preferable for them to be recommended a variety of food that they can cook "easily"[2]. There are several cooking apps or websites available today, that are used to find recipes based on some keyword, like name of the food ingredient or type of cuisine, etc. These apps are mindful of the needs and interests of their users, but they fail at identifying their user's constraints, i.e., limited number of food ingredients. In such cases, users find themselves shopping for ingredients or they decide to substitute the missing ingredient with something else. [3].

Tackling this situation, we are here with a solution that offer recipes to the users, based on the ingredients available with them. An increasing number of users are using mobile applications to get information about recipes, but recommending the right recipe to each user is challenging.

II. LITERATURE REVIEW

Food pairing and alternative ingredient recommendation is used to innovate new dishes and replace any ingredient to complete the recipe The proposed system can be used by users to innovate new dishes and replace any ingredient in the recipe to complete the recipe [1]. A web-based application suggesting recipes to users based on a Content-based filtering algorithm and web scraping done by collecting data sets. They proposed web-based application which construct recommendation system by adding more heterogeneous information of recipes like cuisines, preparation direction, dietary etc. In this system there are three main module Android app (User): -In this user get registered with system and add images. Web App (User): - In this user can add recipe, add view and comments on recipe and search recipe they want. Admin: -Admin is responsible for adding user and managing another module [2]. Learned creating good data sets and building different models to help improve accuracy for object recognition. Their system aims to recommend recipe using the ingredients information provided by users. It allows users to upload ingredients images and recognize the object in the image. After recognizing ingredient images, users can get a list of recipes by a recommendation

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:04/April-2022 Impact Factor- 6.752 www.irjmets.com

system [3]. A set of similar users are searched by the algorithm after which those recipes with similar items in them i.e., in the form of similar cuisine and diet is recommended to the user. This helped improve recommendations for the user. A hybrid method proves best to provide a user-oriented experience which is the main objective of the app [4].

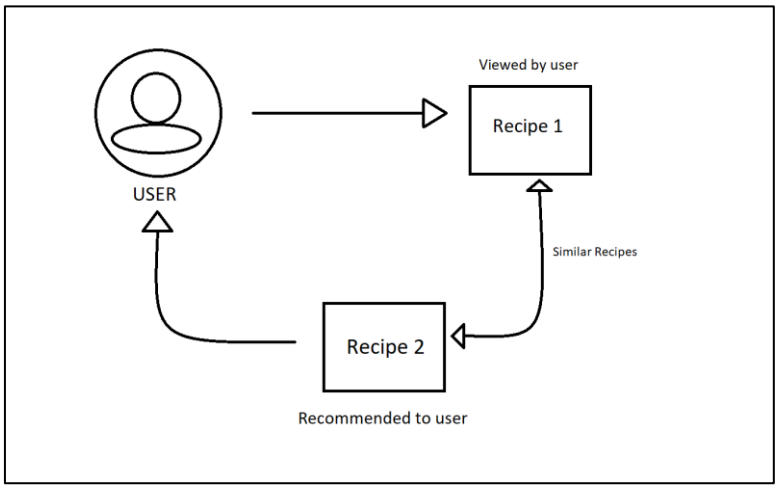
Sr. No.	Year of Publication	Author	Title	Proposed Model	Results
1.	2019	Suyash Maheshwari Manas Chourey	Recipe Recommendation System using Machine Learning Models	• Web scraping • Ingredients pairing • Alternate ingredient recommendation • Food pairing hypothesis	Food pairing and alternative ingredient recommendation is used to innovate new dishes and replace any ingredient to complete the recipe.
2.	2019	Ms. Soundarya Desai Ms. Pooja Patil Mr. Pratik Shinde Mr. Azhar Sayyed Prof. Rohini Bhosale	Recipe Recommendation Based on Ingredients using Machine Learning	• Android App • Web App • Admin	A web-based application suggesting recipes to users based on a Content-based filtering algorithm and web scraping done by collecting data sets.
3.	2018	Mona Mishra Yifan Gong	Recipe Recommender System Using Image Recognition of Ingredients	• Image recognition • k-means clustering • Nave Bayes classifier	Learned creating good data sets and building different models to help improve accuracy for object recognition.
4.	2019	Pratidnya S. Hegde Patil Richa Talaty Roshni Ramakrishnan Avleen Kaur Reen	A Recipe Recommendation App – Smart Cook	• Content based filtering • Collaborative filtering	A hybrid method proves best to provide a user-oriented experience which is the main objective of the app.

III. PROPOSED SYSTEM

3.1 Content-based filtering algorithm

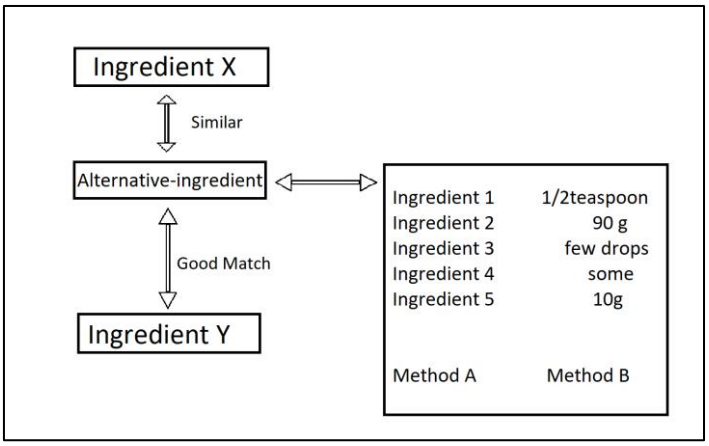
- In recipe recommendation system, content-based filtering algorithm plays an important role. Calculation of similarity matrix based on user's preferred feature vectors and item's feature vectors depending upon previous searches, recommendation is done.
- Other user's data is not needed while recommending to one user for Content-based filtering.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:04/April-2022 Impact Factor- 6.752 www.irjmets.com



3.2 Alternative Ingredients algorithm

- Recommendation of alternative ingredient is necessary if a particular ingredient is unavailable or can not be used in the recipe.
- To recommend alternate ingredients, Word2vec model is used which generates several hundred dimensions of vector space using large list of ingredients as input, every ingredient in the data-set is assigned with equivalent vector in the space.



- Ingredients with common contexts are positioned closely in vector space as vectors.
- Using extracted data computer compares the similarity of the ingredients using cosine similarity.
- Cosine similarity can be calculated using simple mean of the projection weight vectors and the vectors of each word.

IV. RESULTS AND DISCUSSION

4.1 User Interface

4.1.1 Homepage: - User can scroll through all the recipes that are available in our database.

- Search Button: - User can search recipes according to their preferences.
- Notification Button: - User can access all the received notifications.
- User Profile Image: - User profile image is visible here. Clicking over its user would be redirected to user profile settings.

4.1.2 Category page: - All the categories are made available to the user on this page. Giving user the control over the selection of the ingredients based on these categories.

4.1.3 Add-Recipe page: - User can share their homemade recipes by providing various information such as recipe name, food type, list of required ingredients, procedure and video of user preparing that recipe.

4.1.4 Favourites/Recents: - Recipes liked and recently viewed by the user are all visible here.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:04/April-2022 Impact Factor- 6.752 www.irjmets.com

4.1.5 Settings: - User can customize various attributes of this app. User can change the information provided while signing in. Language attribute can help user interact with this application in user preferred language. Feedback can be provided by user to help improve our app.

V. CONCLUSION

This application allows the user to select the ingredients he or she wants and view recipes that contain those ingredients. These ingredients can be sorted and filtered to the user's convenience. The user can also view recipes directly and select the one to cook. Thus, giving the user complete control over his or her food choices and preparation. This application was developed to solve one of the problems most people have, what could be made from the available ingredients.

ACKNOWLEDGEMENTS

It is a privilege for us to have been associated with Prof. Ragini Mishra, our guide, during this project work. We have been greatly benefited by her valuable suggestions and ideas. It is with great pleasure that we express our deep sense of gratitude to her for valuable guidance, constant encouragement and patience throughout this work.

We express our gratitude to Dr. B. R. Patil, Principal, Prof. Praveen Barapatre, Head, Department of Computer Engineering for their constant encouragement, co-operation, and support.

We would be failing in our duties if we do not make a mention of our family members including our parents for providing moral support, without which this work would not have been completed.

VI. REFERENCES

[1] Maheshwari, Suyash, and Manas Chourey. "Recipe Recommendation System using Machine Learning Models." International Research Journal of Engineering and Technology (IRJET) 6, no. 9 (2019): 366-369.

[2] Desai, Ms. Soundarya, Ms. Pooja Patil, Mr. Pratik Shinde, Mr. Azhar Sayyed, and Rohini Bhosale. "Recipe recommendation based on ingredients using machine learning. 8 (3)." (2019).

[3] Mishra, Mona, and Yifan Gong. "Recipe Recommender System Using Image Recognition of Food Ingredients." (2018).

[4] Pratidnya S. Hegde Patil, Richa Talaty, Roshni Ramakrishnan, Avleen Kaur Reen. “A Recipe Recommendation App – Smart Cook.” (2019)