

Smart Travel Assistant

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Abstract : The main focus of the project was to facilitate tourism and improve it by easing the service provided to the users. Since this was our main goal, we required a user interface that was easier for the users. Also, it was decided that the system would be providing recommendations to the users in order to avoid time wastage. The Smart Travel Assistant provides the ease of travel through the wide range of options and facilities provided in the system. Right from suggesting the appropriate places to the user according to their mood and past preferences to guiding the route of travel, weather, things to carry and best one stop places during the journey, travel could not have been easier and much more fun. Smart Travel Assistant has an inbuilt AI to provide a better user interface and quicker results. The chatbot within the system provides users the facility to ask questions and get their questions answered within a short interval of time. Suggested places also contain the range by which we can select the one best for our pocket. It also contains the domain or the type of place suggested such as religious, entertainment or nature so that we do not end up in a place obsolete to us. Moreover, the most feasible route and mode is highlighted along with the places during the journey to have a quick refreshment.

IndexTerms – chat-bot, Artificial Intelligence, dashboards

I. INTRODUCTION

In today's fast paced world, humans are depending more on technology. Our application aims in bringing artificial intelligence in travel industry and ease travel by providing AI powered dynamic contents to users. It is an application containing a database of places in the city based on various categories like religious, entertainment and shopping. Each place has been allocated with a rating given by various users. These ratings will help user to select the best place for them. Also, the places are sorted according to their rating with the best place at the top. We have implemented a chat-bot for queries or questions.

Our application includes:

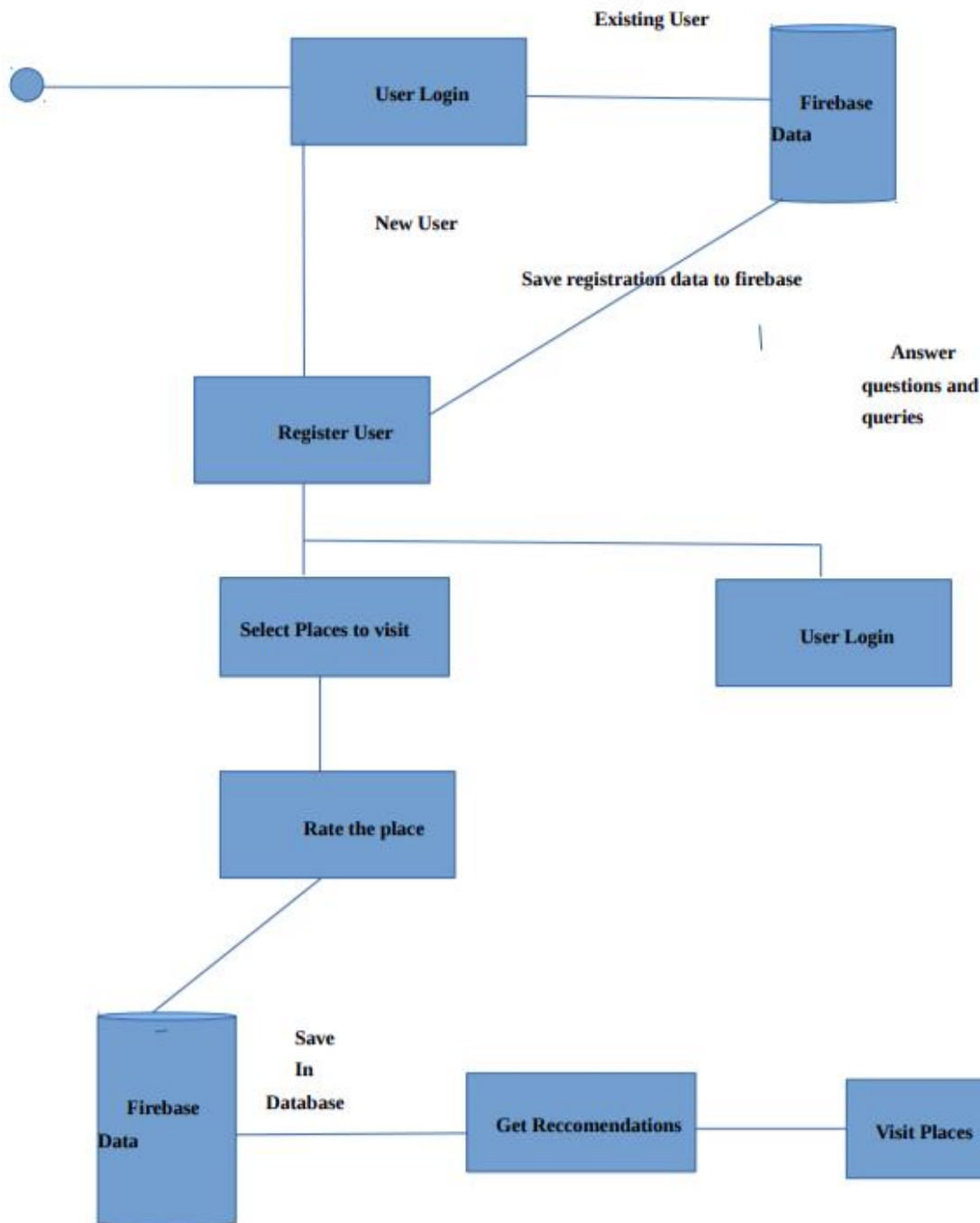
AI-Powered Chat-bots:- Implemented to answer questions based on keyword detection. It will answer users queries, doubts and questions.

Travel Dashboard:- Database of categorical places giving user a varied range of options to choose.

Rating System:- User can give ratings to places visited. Accordingly a rating will be saved for a particular. If in future, he changes the rating given initially, the previous given rating will be updated. The ratings given by all users are taken and an average rating is showcased.-

3.1 Theoretical framework

The System Architecture describes the various modules in the system. Initially, when the user opens the application, he has to login and eventually register if they are not a registered user. Data is stored in the database and also retrieved from it. The first page have plethora of places under categories like shopping, Based on the users ratings, it will be sorted. User can visit a place, rate it and so on. The system also has a chat-bot implemented to answer various queries of the user.



Equations

For implementing the Recommendation System, we have used 5-star rating algorithm, in which the intent is to use a simple calculation which allows the users of the app to get the recommendations of place according to the ratings given by other travellers. In this, based on various user's rating, the average rating is calculated and finally assigned to the place. In case, a user has given a rating and later wants to change it, the earlier rating is updated with the new rating and accordingly the final rating is calculated. This algorithm has eventually helped us in suggesting the top rated places to our users and help them to make their travelling experience better.

1] First, initialize the default ratings of all the places to 0, which is the no. of users who have given the ratings.

```

$ratings = array(
    5 => 0,
    4 => 0,
    3 => 0,

```

```
2 => 0,
1 => 0
);
```

Consider, a museum and we have to give rating to that museum. User can give ratings on a scale 1 to 5. Initially, when there are no ratings given, we initialize each rate with 0.

2] Now, as the users give the ratings, the ratings will get updated according to the calcAverageRatings function

```
function calcAverageRating($ratings) {
```

```
    $totalWeight = 0;
    $totalReviews = 0;
```

```
    foreach ($ratings as $weight => $numberOfReviews) {
        $WeightMultipliedByNumber = $weight * $numberOfReviews;
        $totalWeight += $WeightMultipliedByNumber;
        $totalReviews += $numberOfReviews;
    }
```

If there are following ratings given by user

```
5---3
4---2
3---1
2---3
1---1
```

```
WeightMultipliedByNumber = 15+8+3+6+1
                           = 33
```

```
totalWeight = 33
totalReviews = 10
```

```
//divide the total weight by total number of reviews
$averageRating = $totalWeight / $totalReviews;
```

```
return $averageRating;
}
```

In order to calculate the final rating now based on all the reviews given.

```
AverageRating = 33/10
AverageRating= 3.3
```

Hence, this is the final rating for our place.

I. RESEARCH METHODOLOGY

We have considered various papers which give significant ideas for implementing this idea. One of the common thing is that all of this approaches have ease of use and simplicity of travel.

The paper “Design of tourism resources management based on artificial intelligence” by author Feng Rong introduces “AI” in the travel industry. It helps the tourists to plan their own travel places. The diagram given in this paper explains the basic idea of model working in an impressive way. The overall idea regarding how their system will work is illustrated clearly. How the data extraction takes place from different sites is explained clearly. However actual method of implementation is very complex to understand and hence difficult to interpret. They have explained it using various equations, this can be simplified since the working is very tedious to understand and a lot of prerequisite knowledge regarding data analytics and data extraction methods is essential to understand the working for a naïve user. Hence person without not much technical knowledge will be in problem to implement this working.

The paper “Mobile application for guiding tourist activities: Tourist Assistant TAIS” takes tourist attractions into account and presents it before the user. It identifies various phases through which the tourist need to go like pre-travel phase, travel phase, post-travel phase and helps the user to use the application accordingly. Based on the recommendation system, application is suggesting places of interest that are better to see since screenshots of the actual application are presented, but the actual implementation of the system is not described clearly, which generates confusion among the readers. The actual implementation and technology used for it must be explained more clearly.

The paper “A Smart Travel system based on social network service for Cloud environment” by Jason.C.Hung introduces smart travel assistant by making use of technologies like IoT and cloud computing. The system is divided into three components: real time search, personal demand and task service. A very innovative idea is of structuring the data, information of around the world is collected, stored on cloud and made available to end user in user-friendly way by connecting machine and user. The paper also is good in providing the system details to great extent, by giving information regarding various domains and their actual implementation in the system

The paper “A Location Recommender System for Location-Based Social Networks” by Paclos Kosmides, Chara Remoudou, Konstantinos Demestichas, Ioanis Loumiotis, Evgen Adamopoulou, Michael Theologues predicts places to users based on their previous history and social networks. It uses machine learning to predict places.

IV. RESULTS AND DISCUSSION

The Smart Travel Assistant is developed successfully with the help of mentors to introduce Artificial Intelligence in the tourism industry. It will be ease the user's experience in a place unknown to them and also for people to know better, top rated places. Initially, this application is built on a small scale. But, we will widen our scope for other cities and states also.

Figures and Tables



Fig 2: Login Page

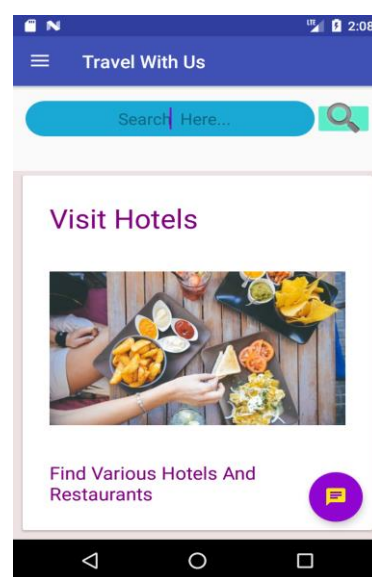


Fig 3: Main Screen Displaying category hotel

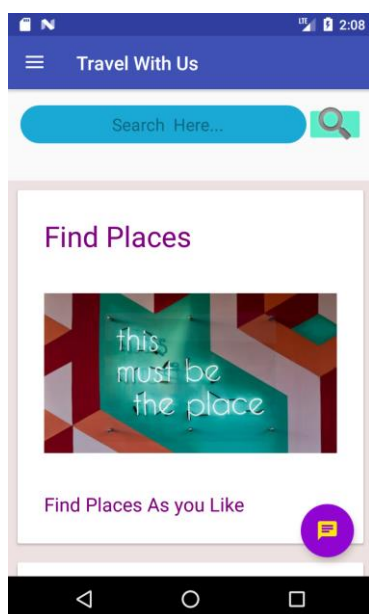


Fig 4: Main Screen displaying category places

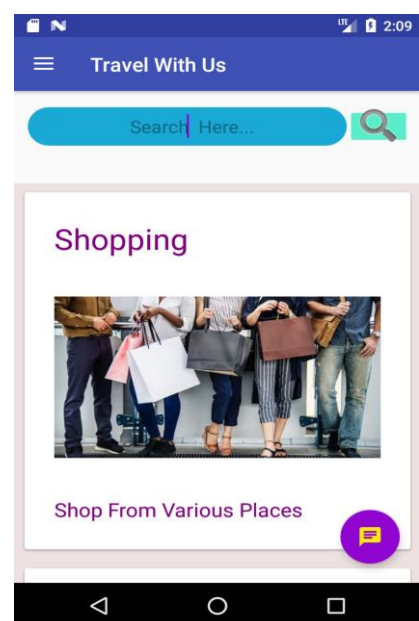


Fig 5: Main Screen displaying category shopping

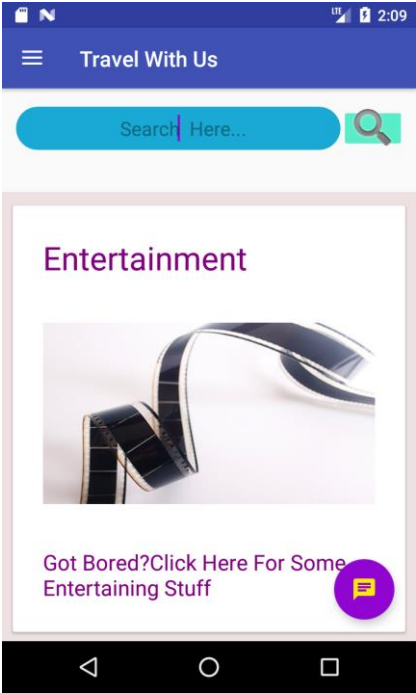


Fig 6: Main Screen displaying category Entertainment

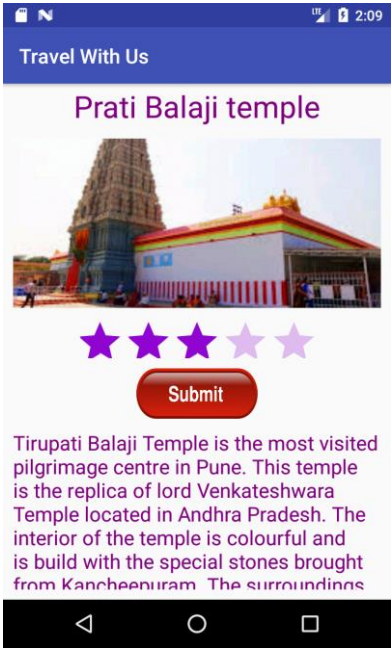


Fig 7: Information module

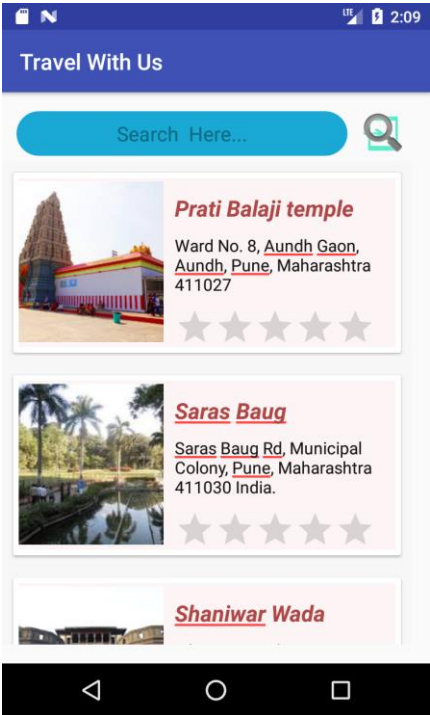


Fig 8 List of places

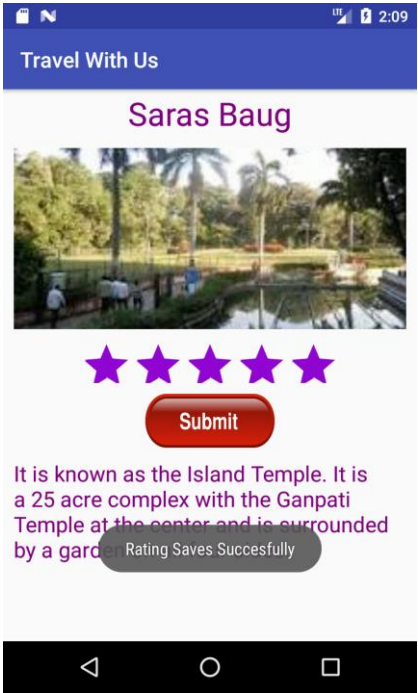


Fig 9: Ratings

II. ACKNOWLEDGMENT

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