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## Travel Grouping

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### ABSTRACT

*Many times, while traveling between two places, people face many kinds of difficulties, some of them can be like traveling alone or, some induced problems because of it like having excessive traveling costs, having reservations about whom to travel with or without, security problems, etc. These problems, although may seem not so grave to some eyes, can have huge effects on some other people, who differ in opinion, a way of living, etc. Hence, to solve this problem, we have proposed this idea, of making a "Travel Grouping App" that will make use of the modern technologies and aim to reduce this problem. Our app will run on all kinds of Android-based devices. With the help of this app, people, who are initially unknown, but traveling between a same source and destination places, and on similar dates, and similar times can form a group of themselves, so that they can communicate with each other and hence resolve the above-mentioned difficulties that traveling alone can incur. There can also be further provisions and functionalities in the app, like common mailboxes, GPS tracking etc. Additionally, there will additionally be a website, for the same purpose, through which users would be able to register themselves with our service. All in all, through this paper, we try to explore the idea of making such an app, additionally associated with a website, where users can register themselves, form groups with people, who have similar kinds of travel specifications as themselves, contact each other, and travel together, thus reducing some of the problems.*

**Keywords:** Travel, Grouping, Android, Phone App.

## 1. INTRODUCTION

Traveling or Commuting between different places is one of the fundamental aspects of human life. We need to move between places for different reasons, be it personal or professional. Modern technology like trains, flights, etc has made it easier for us to travel long distances in shorter time frames. As a result, there's not a single place left on our planet, which does not has human reach (talking qualitatively). It is rightly said, that "The World has become a Global Village". But every marvel has a price. Although brilliant, the concept of Travelling has many problems associated with it, especially when you consider people who travel alone, and generally too far off distances. Also, there are a lot of specific problems, associated with special group people who travel alone, lie, women, children, students, etc. Hence, we need to come up with a solution, which would aim to cater to those people and try to remove some of the ills of traveling alone, to a greater extent.

### 1.1 Problems of Travelling Alone

Some of the most common problems, which people face, while traveling alone are:

(i.) Loneliness: Many travelers complain that this is one of the major issues that they face while traveling alone. This becomes more issue when the duration of journey increases. When there are a few people around to talk to, then the journey becomes a lot more easy ride.

(ii.) High Travelling Costs: This is another major factor which comes into play while traveling alone. When two or more people are on a journey together, then they may share some expenses like cab expenses, etc. When you are all alone, everything is up to you to pay.

(iii.) Luggage Issues: Generally there's a huge amount of luggage which people carry with themselves, especially students, families, etc. Taking care of your luggage throughout the journey is a headache in itself, and it becomes graver when you are the only one who has to take the complete responsibility for all of it.

(iv.) Security Issues: This is one of the primary concerns of traveling. Many people especially women, avoid to travel long distances alone. In a country like India, women security is of primary concern nowadays. Although there are many movements, pertaining to the same cause, still there are a lot of ills out there to be considered. Hence, if they decide to travel in a group of at least 3 or 4, then they would feel a lot more secure, and powerful.

## 2. PRODUCT DESIGN

Our product is developed so that it can run on all kinds of Android-based devices. The application can be coded in the IDE's like Android Studio.

### 2.1 Proposed Functional Requirements

Some of the functionalities of our app are:

- a.) Group generator: It will generate groups with to common dates people are traveling on.
- b.) Group Code: People can be added to the group with the help of a unique group code with respect to each group.
- c.) Common Travel: This will display the common dates and destination of different people in a group.
- d.) Common mailbox: A mailbox/chat box where people can interact with each other.
- e.) GPS tracking: The app will display the GPS location of people who are traveling.
- f.) Travel Expenses: Here people can add the total money they spent during the trip so it can divide accordingly.
- g.) Travel Means: It will give the means through which people can travel or you are traveling with.
- h.) Group Finder: It will help to search for groups based on different criteria.

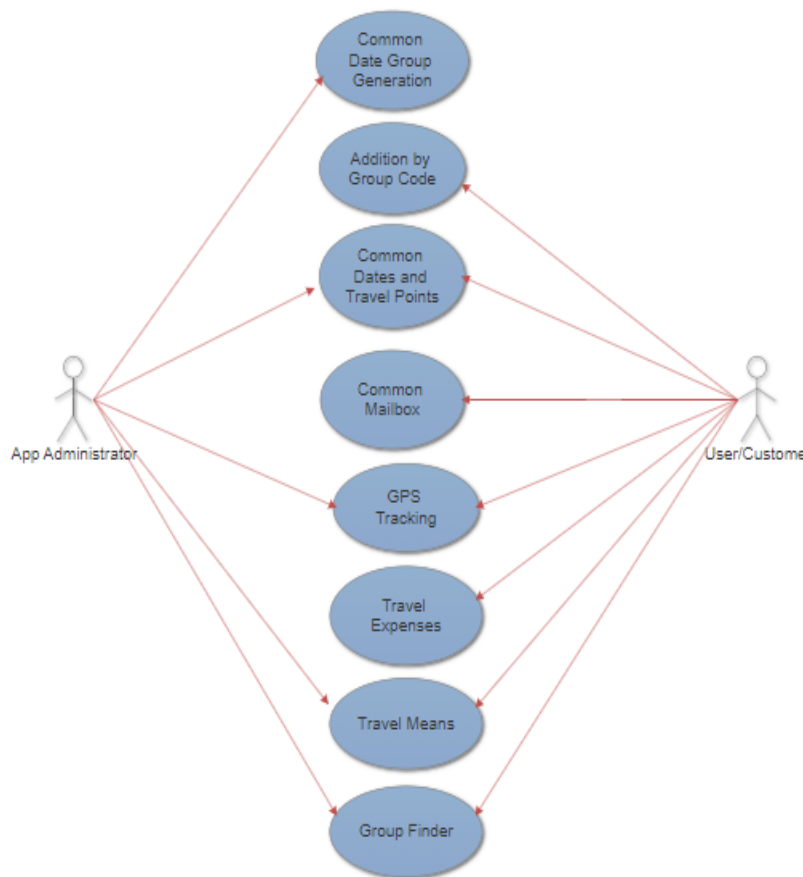


Chart -1: Use Case Diagram of the App

### 2.2 Data Flow Design

There would be a centralized database, which would be accessible through both, the app and the website. This would contain all the information about all the users, who would have registered with our company. The information would be sorted in 2 ways: one on the basis of individuals, and another way to sort would be based on the groups. This would be our primary data storage repository. Additionally, all the information, i.e. the whole database would be loaded into another repository, in which it would not be possible to add data directly, as it would be serving the purpose of back-up repository. Once all the data is successfully captured and stored, the main processing would start. In this, our system would first categorize all the incoming user on the basis of travel source and destination, and select all other users who have similar information of these parameters. Then it would move on to scrutinize the date and time option and select the same similar info users from the set of previously selected users. Then it would go on to check whether there are any personal preferences or not for the user, for example, he/she might want to travel with people from the same gender, or the same region, might not want to travel alone, etc. After doing all the matching operations, the system would finally display that selected user to the target user here, and then it would be up to him/her to contact others, and make reservations, etc. They would be given an option to contact via our app, or the website.

## **2.3 Components Decomposition**

### **a.) Group Module:**

The chief function of this component is to generate groups based on the travel source and destinations and travel times also. Whenever the user will enter his details, there would be an option to find or search existing groups or to make a new group. For making a new making, this component would be required, and it would be done so with the help of some random codeword that would be generated instantaneously and will be a kind of password for that group.

People can be added to the group with the help of a unique group code with respect to each group. This would be generated whenever a new group is formed, as described in the previous point.

### **b.) Communication Module:**

A mailbox/chat box where people can interact with each other. After setting their travel parameters, people can see who others in their group match according to their preferences. Then, it would all be for them to contact other people. Additionally, people can also be given an option of chatting over this app itself. In the future updates or designs of the product, it can also be configured to work in tandem with various popular messaging applications like Whatsapp, Messenger, etc. so that it becomes a bit easy for people to contact, as many of them would already be familiar with that application.

### **c.) GPS Module:**

The app will display the GPS location of people traveling. The people would be able to know the location of themselves and also that of all the others from their group, traveling with them. This would be helpful in case one of them get lost and in case of any other mishappening. Additionally, there would also be a provision of an SOS call, which would alert the nearest police station and also some relatives or family members of the user. This feature would give a sense of security to the users, and their well-wishers.

### **d.) Calculation Module:**

Here people can add the total money they spent during the trip so it can divide accordingly. This can be one of the deciding factors, whenever it comes to traveling, as people have pre-determined budgets and strict limitations on them. Users would also be given a provision to compare different routes, etc. based on the inputs which they provide. It will also give the means through which people can travel or you are traveling with. There can be different travel routes between two places, like cabs, buses, trains, flights, etc.

### **e.) Group Finder:**

It will help to search for groups based on different criteria. As already stated before, users when coming first to the site, they would be given a choice either to form a new group or to join an existing one. If they choose the latter option, then this module would come into play. It would search through all the groups and present before the user all those which have formed on the similar parameters to those of user.

## **3. USERS**

The success of any product or any service depends upon the reception which users give to it. Hence, it becomes imperative to consider their involvement, their requirements, and actions available to them, interface, etc. As already stated, the prime users of this app would be those who travel alone, but don't want to due to the various problems on the plate.

### **3.1 User Requirements**

The users are required to have Android 5.0 or higher versions installed on their devices to use this. Then they would need to provide their personal and travel details like phone numbers, e-mail ids, travel means, dates, places, etc. Based on the information which they provide, groups would be formed. Then, they are required to contact other people in their formed groups, and also can add others if they have the same travel parameters. Once, they contact other people, they can decide on how to travel together.

For accessing the website, users would only be required to have an internet connection and a web browser. Due to the fact that the website would be developed using PHP technologies, there won't be much problems for the users to run it on their existing versions. For the app, there would firstly be a home screen that would ask for the information from the user regarding his/her travel dates/times, personal info, etc. Then, accordingly, he would be given a code, which would be auto-generated, and the user would also be able to add/refer other people who have similar travel information. If the user is an existing user, then he would be given an option to join his group, which would contain people who have similar dates.

Then, they would be taken to a new interface, basically their group page, where they would be able to see others who are part of that group. They can see their information, and will also have the provision to contact them, based on the contact info which they provide.

### **3.2 Actions Available**

Some of the basic actions performed would be:

- a.) Find Group: This would enable the user to find those groups that have people with the same travel dates, locations and times to theirs.
- b.) Join Group: After finding a group, the user can request to join that group.
- c.) There would also be a provision for a new group altogether. Then, others can see and join this group if they want. This would be done on the basis of a random codeword generated while making the new group.
- d.) Change Information- The user can their provided information at any time and also if they do so, then their group's information would also be updated accordingly.

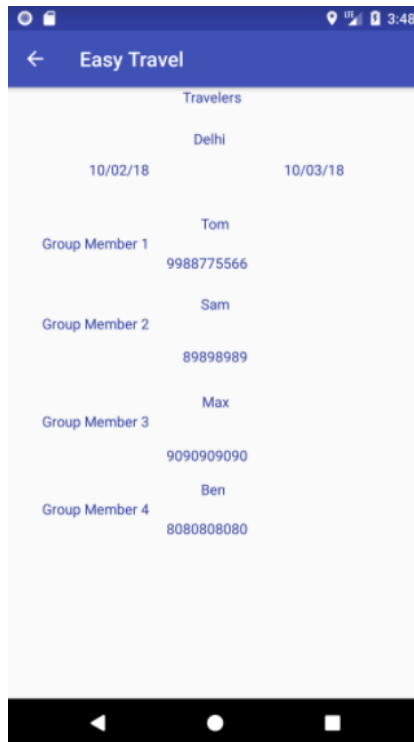
- e.) Mail/Contact: This action would enable the user to contact another one, either through our app/website, or just take the contact information of another user, and then contact on own.
- f.) Calculate Expenses/Compare: This would give the user a tough estimate of the total expenses that his/her travel journey will be going to cost. Accordingly, the user can make reservations.
- g.) GPS Track: The people would be able to know the location of themselves and also that of all the others from their group, traveling with them. This would be helpful in case one of them get lost and in case of any other mishappening. Additionally, there can also be a provision of an SOS call, which would alert the nearest police station and also some relatives or family members of the user.
- h.) Refer a Friend: A user can also refer one of his/her friend to be added to a group by sharing the group password. The only requirement is that the other person must also have the same travel parameters as the rest of the group, otherwise, he/she couldn't be added even though there's the group code available.

#### **4. INTERFACE**

User Interface is one those features of any software related product or service that can seriously hamper its success, no matter how much brilliant the initial idea or the functionalities and features of the product tend to be. It is due to the fact that most of the users judge the product by how it looks, what colors are used, how much easy is the app or the website to use, we use checkboxes or drop-down menus, and many other things. Hence, designing the user interface to the app and the website also hold as much importance in the designing phase as the prime/core functionalities do. Hence, below we take a look at the possible user interface of the app and the website.

##### **4.1 App Interface**

This section displays a possible user interface design, for the App. Chart 2 shows the Group Page in the App. It is the place where all the members will be listed and can see each other's information. Only those people can be a part of a particular group, who have similar travel parameters.



**Chart -2: Group Page in the App**

Chart- 3 shows a search page that will be displayed to a user. From here, he/she can find a particular group which they want to join, based on their preferences.

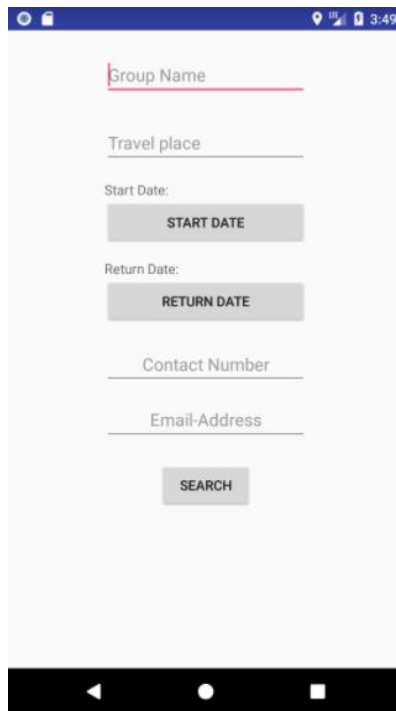


Chart -3: Search Page in the App

#### 4.2 Accompanying Website Interface



Chart -4: Home Page of the Website

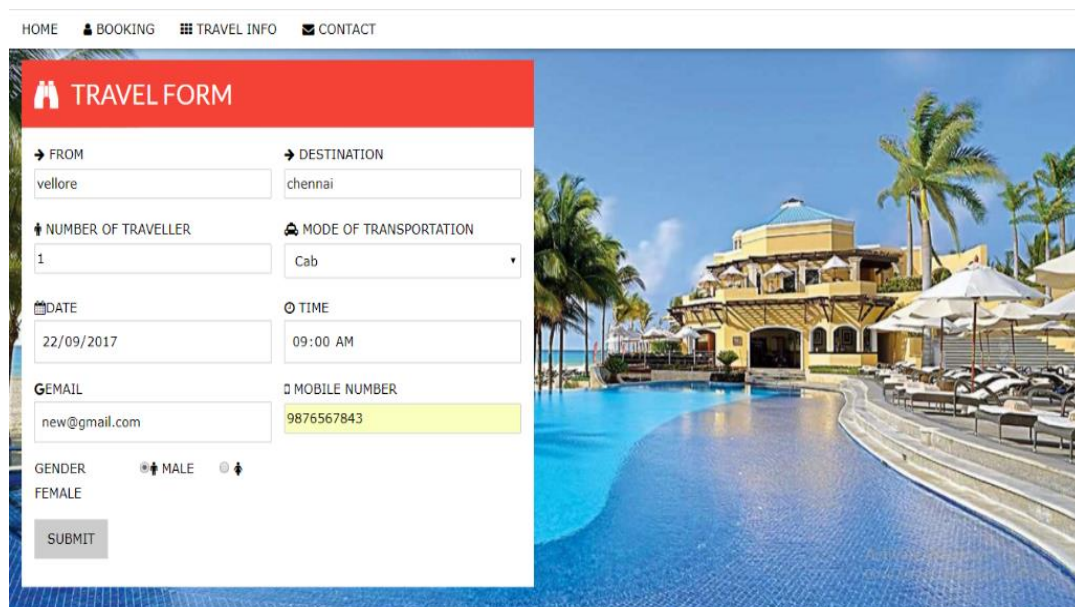


Chart -5: Registration Page of the Website

## **5. CONCLUSION**

After the successful completions and successful launch of this app, and it would be able to help all kinds of people who travel alone (and hence many different kinds of induced problems) between any given places at any dates or times, given just one condition that there must be some other people as well with the same kinds of travel parameters as themselves. This product or application will be special assistance to some special groups like women, children, students, senior citizens, etc. as they are the ones who are most affected by the ills of travelling alone. They have to face almost all kinds of such problems, as discussed in the starting of this paper. The users would be able to access this service via two means: an app, and a website. The app would be able to run on all kinds of android mobile phone devices, which in the future version can be extended to other operating systems like iOS, Windows devices, etc. The website would be accessible from all kinds of platforms, although with some restricted functionalities. Although there's still much room for improvement in this, as the app and website can be taken to a whole new level by updating its features, introducing new functionalities, enriching the user interface, etc. This app plus website system, catering to travelling problems is one of many attempts made by professors, student's researchers, etc. towards making the lives of the masses better. Also, it is one of the first attempts in solving such kinds of problems, associated with travelling alone.

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