Dhirubhai Ambani
Institute of Information and Communication Technology

IT314 - Software Engineering

Group Members:

1. 202001063 - Bhalodiya Hem Pareshbhai
2. 202001066 - Japan Vijay Bhatt
3. 202001068 - Dhrupal Kukadia
4. 202001078 - Shashank Didwania
5. 202001081 - Ronit Jain
6. 202001083 - Patel Vedant Vipulbhai
7. 202001093 - Parmar Dhruv Jayeshbhai
8. 202001106 - Hardi Sanghani
9. 202001115 - Aditya Kothari

Project Name: **Location Sharing System**

Description:

Location Sharing System or LocSS is an android application that allows the users to share their location in real-time with selected contacts, view the locations of their contacts on a map, navigate to a desired location, and alert their contacts in case of an emergency.

The location sharing system uses the device's GPS and location services to track the user's location and share it with their contacts.

The navigation feature of the system allows users to input a desired destination and receive real-time navigation instructions to reach the destination. The system may also suggest alternate routes based on traffic and other conditions.

The emergency alert feature allows users to send an alert to their selected contacts in case of an emergency. The alert includes the user's current location and a predefined or customized message.

Privacy and security are prioritized in the location sharing system, and users have complete control over their location sharing and emergency alert settings.

Overall, the location sharing system provides a convenient and secure way for users to share their location, navigate to their desired destination, and alert their contacts in case of an emergency.

Intended audience:

The intended audience for the location sharing system android application can be any individual who wants to share their location, navigate and alert their friends in case of emergency. However, the application may be particularly useful for:

1. Families: Families with children and elderly people can keep track of each other's location and be assured about their safety.

2. Business professionals: Business professionals who travel frequently can use the application to share their location with their colleagues and navigate to their meetings or events.

3. Outdoor enthusiasts: Individuals who enjoy outdoor activities such as skiing, hiking or camping can share the locations with their contacts.

4. For people visiting/shifting permanently to a new city are benefitted the most. These people can receive recommendations from their friends/new neighbors to explore the city in the best way possible.

User requirements:

Here are some of the user requirements for the application:

1. The user interface should be easy-to-use that is intuitive and requires minimal or zero training.

2. The app should prioritize user privacy and data security, allowing users to control their location sharing and emergency alert settings.

3. The app should allow users to share their location to their friends and family members in real-time.

4. Users must be provided with the optimal route to their desired location by taking into account traffic updates, alternate routes and other factors that might affect navigation.

5. The app should be compatible with a wide range of Android devices and operating system versions.

Assumptions:

List of assumptions for LocSS include:

1. Users have a smartphone that is compatible with the application and has an active internet connection.

2. Users have granted permission to the application to access their device's location data.

3. The application assumes that users will use the application in a responsible and appropriate manner, respecting the privacy and safety of themselves and others.

Functional Requirements:-

1. The user should be able to access his own location on the system and keep a track of it.
2. The user should be able to access the contacts and friends with whom he/she wants to share their location with.
3. The user should be able to use any message service of his/her choice to send their locations.
4. The user should be able to assign frequently visited locations (like home, office, etc.) and store those locations for easy sharing and tracking.
5. The user should be able get rent options or rent his/her own property.
6. The user should be able to get recommended locations or popular places to visit if he/she visits that location for the first time.
7. The user should be able to use an emergency SOS message to share location instantly to chosen friends.
8. The user should be able to add their contact information to share instant location during an emergency through SOS.
9. The user should be able to store their friends' recommended places to visit and should be able to share his/her location with friends.
10. The user should get an equidistant meetup location for gathering of a group of people.

Non - functional Requirements:-

1. **Security:** The location sharing system must have high levels of security so that unauthorized users can't access user location

information. This feature is quite crucial for securing user privacy and preventing data leakages.

2. **Performance:** The system should be efficient enough to handle enormous amounts of location data at the same time. As a result of this multiple users would be able to access and share the location quickly.

3. **Reliability:** The system should be capable enough to provide guarantee of reliability that users can access and share their location data at any time & also it should be completely secure.The system should be robust to system failures and there should be minimal downtime.

4. **Scalability:** System should be able to accommodate the growing user base and the enormous location data. This will make sure that the system will be able to accommodate the user base's requirements as it grows.

5. **Usability:** The system should have an easy and user-friendly interface. As a result of which users won't be facing challenges while using the user interface.

6. **Compatibility:** The system should be made to operate smoothly with a variety of hardware, software, and operating systems. By doing this, users would be able to access and share their location information from any device or platform of their choice.

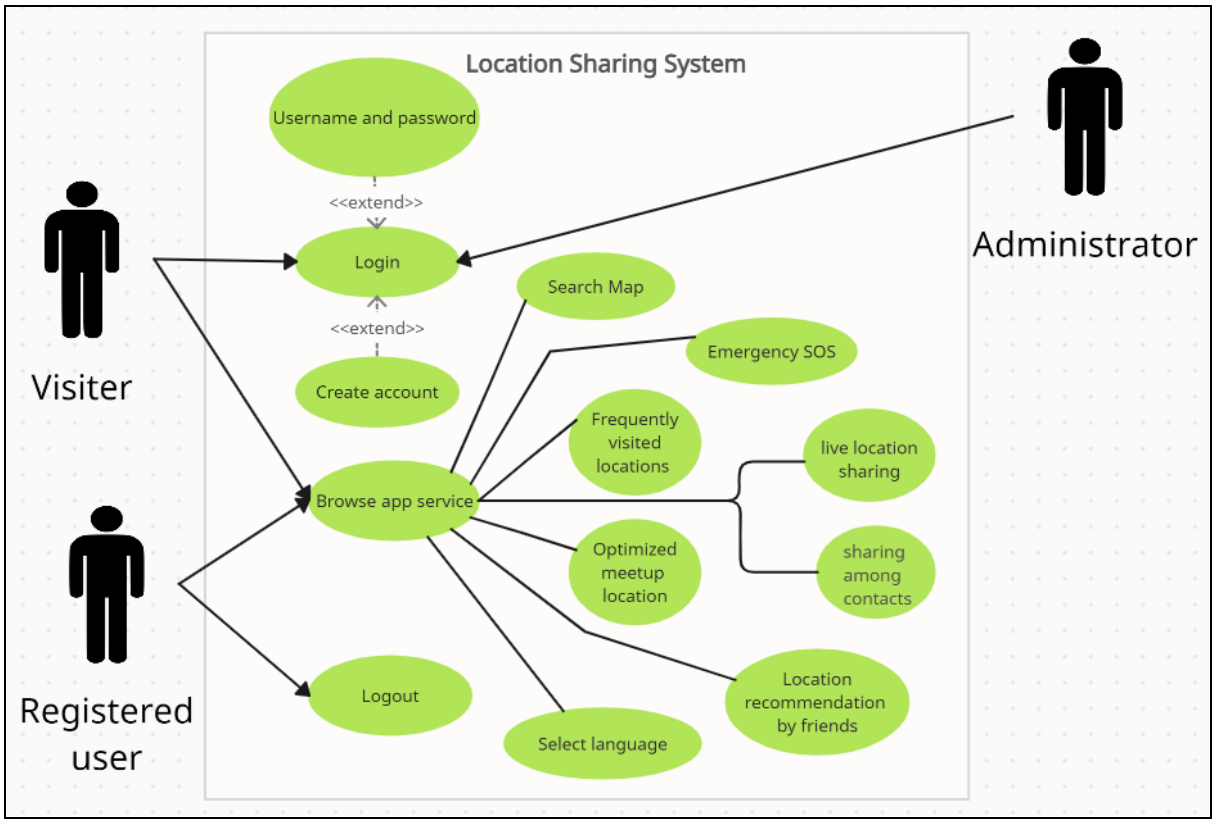
7. **Availability:** Users must always have access to the system, with little to no downtime. Users will always be able to access and share their location information.

8. **Accessibility:** Any user should be able to access and share the location data regardless of their ability. Even a person having hearing or vision impairments or any other disabilities should be able to utilize the system.

Use cases:-

1. Log in
2. Search location
3. Manage friends
4. Share live location
5. Emergency SOS message
6. Meetup with friends
7. Nearby me places

Use case diagram:-



User stories:-

In this use case diagram, the user interacts with the system to perform various actions, such as signing into the system, searching locations in map, sharing their live or static location, receiving location from others, sending and receiving an emergency SOS message and finding the most appropriate location for a meetup. The system is responsible for processing these request and providing the necessary functionality to the users:

Use case	Log in
Description	Verify login credentials from the user to access services.
Actors	User, location sharing system
Pre condition	1. Users must be connected to the internet. 2. Input interface should be available to the user.
Post conditions	1. Users should be able to access the services.
Flow	1. User enters his credentials. 2. The system verifies the credentials with the database. 3. The user is allowed to access the system if the credentials are verified.
Alternate flow 1	In step 3, if the credentials are not verified, 1. The system asks the user to re-enter credentials. 2. System offers an option of “forget password” where users can edit their current password by providing alternate methods of verification.

Use case	Search location
Description	The user will be shown a map based interface of his/her nearby locations to browse for different places to visit.
Actors	User, location sharing system
Pre condition	1. Users must be connected to the internet.
Post	1. Users should be able to access the services.

conditions	2. Guest users should only be able to access search maps.
Flow	1. User locates the search bar. 2. Enter the name/coordinates of the place of visit. 3. The user is allowed to manipulate the map to explore more options.

Use case	Manage friend
Description	The user will be provided with a functionality to chat and add people to his/her friend list.
Actors	User, location sharing system
Pre condition	1. Users must be connected to the internet.
Post conditions	1. Users should be able to access the services. 2. Guest users should only be able to access search maps.
Flow	1. User clicks on “Add people” functionality. 2. Select people from his/her contact list or by specifying the email address to add them to the user's friend list. 3. The recipient will be notified about the new connection. 4. The system provides the user with the functionality to text people present in his/her friend list and share their location.

Use case	Share live location
Description	The user will be able to share his/her live location with the selected recipient.
Actors	User, location sharing system
Pre condition	1. Users must be connected to the internet. 2. Input interface should be available to the user.
Post conditions	1. Users should be able to access the services. 2. Guest users should only be able to access search maps.
Flow	1. User clicks on “share live location” functionality. 2. Select the recipient to share the location with, from the user’s edit list. 3. Click on the ”share” button.

Use case	Emergency SOS message
Description	It’s a safety feature that allows the user to activate a SOS button that the user can press during an emergency to notify their chosen recipients (friends or family).
Actors	User, location sharing system, recipients
Pre condition	1. Users must be connected to the internet.
Post conditions	1. A button must be activated on the homescreen of the user’s device.
Flow	1. User activates the emergency SOS message feature from the application. 2. User selects the recipients from the list of friends to whom he may want to notify. Users can also

	have a default list, so that he doesn't have to select the recipients everytime he activates the feature. 3. System activates and displays a SOS button on the homescreen of the user's device. 1. If the user presses the button, the system sends an alert notification and the user's live location to all the recipients.
Alternate flow 1	1. Users can also select an expected time he is anticipating to reach his destination. In case the user is unable to reach the destination 1 hour past the anticipated time, the SOS message is automatically sent to the recipients.

Use case	Meetup with friends
Description	A group of users can find a common equidistant meeting point that is suitable to all the users in the group.
Actors	Multiple Users, location sharing system
Pre condition	1. Users must be connected to the internet. 2. All the users must be in a group. 3. The location sharing service should be activated by all the users of the group.
Post conditions	1. The system should provide a list of places for meeting to all the users.
Flow	1. A user from the group selects the option "meetup with friends". 2. The system takes the locations of all the users in the group and provides a list of recreational

	places that are suitable to all the users.

Use case	Nearby me
Description	The system displays nearby recreational places like restaurants, parks, cinemas, etc. to the user. This also includes the places that are recommended by the user's friends.
Actors	Multiple Users, location sharing system
Pre condition	1. Users must be connected to the internet. 2. The user’s location sharing feature must be activated.
Post conditions	1. The system should provide the locations of the suggested places on the user’s map.
Flow	1. User activates the “nearby me” feature in the application. 2. The system takes the locations of the user and displays all the nearby recreational places that are recommended by his friends.