Abstract
As mobile phones evolved to smartphones and their functionality is increased, location based systems become very popular. This projects aims to create an Android application which is not just location based but is also location aware. This application understands the current location of the user and reacts accordingly. In this application, users can save their locations and assign settings to them or can send their saved locations to server for creating a collaborative map including saved locations.

This project utilizes location information of the users retrieved from the Android OS based smartphone’s location providers, i.e. Global Positioning System (GPS) or Network (3G, wireless networks), and, using the location information, assists users on several key issues. Users can save their current location in their smartphones within a range that they decide. After saving this information, when users enter or exit their saved location an alert is triggered to notify user and some settings are applied related to the location’s type. There are two predefined location types: First one is the Private Location and the other is the Unsafe Location. Private Locations are private to the user, they have reminder, black list contacts (call filtering for specified contacts) and ring tone profile settings on them. These setting will get active or inactive when user enters or exits the saved Private Location. When the second location type, Unsafe Location, is saved it is sent to the server. The complete list of unsafe locations are kept on server and are open to every user. By the help of this tool, users can create a map of potentially unsafe areas in a collaborative manner.

Main Screen / Map Tab
- After tap on marker
- Request for Unsafe Locations
- Managing Reminders
- Settings on Private Location
- Notification Screen (a saved location is entered)

Saved Locations Tab
- After clicking a location
- Saved Locations

Application Functionalities
- Showing the map and location of the user
- Saving the location
- Assigning proximity alerts for saved locations
- Sending “Unsafe” marked locations to server
- Providing environment for setting changes on saved locations
- Update/Delete Operations on saved locations
- Requesting “Unsafe” marked locations from server
- Showing all Unsafe & Private marked locations on map upon proximity alert
- Server operations

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General Structure
This project has a client/server network architecture. For the client side, Android mobile operating system is chosen as the development platform, but the design of the project allows that it can be implemented with other popular operating systems like iOS or Windows Phone, as well. The server is implemented with PHP.

Future Work
As future work, server side improvement is the main object. With it’s current state, the server acts as a location provider and a location storage unit. This can be changed by creating a user interface with a web page. On the client side, the settings on private locations can be changed considering users’ requests and suggestions. Finally, power consumption of the application can be improved.

Results
Users can get nearly perfect results when they are using the application with the GPS. Both the client side and the server side responsiveness seems very good on the tests.

Response Tests
- Graph showing test results and response time.