Beacon

Personal Location-Broadcasting Application

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PROJECT DESCRIPTION

Beacon is a location-broadcasting application for you and your friends. The application will be a standalone, fast and light way to share your location with your friends so they can find you at concerts, school, shopping malls, or anywhere else GPS functionality can be used. In addition as well, Beacon can be used to track your friend's locations, so you can find them.

The idea for Beacon was conceived out of the need for an application to find friends at large events, such as music festivals. Specifically we thought that an application that would guide a user to their friend's location would be especially useful. Moreover, getting directions to your friend's location, or letting your friend find your location, should be as easy as setting up a "beacon" for guidance.

Beacon will be especially useful in the mobile form factor as people take their mobile phone with them wherever they go. Furthermore all new smart phones have GPS functionality and location-based-services. Since a mobile location-broadcasting application for finding people is only useful if it takes a user to a person's location, this application is not designed for fixed platforms such as a laptop, desktop or tablet that people do not constantly carry with them.

FUNCTIONAL PROPERTIES

REQUIREMENT #1: BEACON BROADCASTS A USER'S LOCATION

Beacon will broadcast a user's location in the following ways:

1. Friend-List Broadcast
    - Friend-List Broadcast allows a user to broadcast their location to everyone, or to a select group of people from their friends list.
2. Friend-to-Friend Broadcast
    - Friend-to-Friend Broadcast allows locations to be shared with as few as one person, who can choose to track you or not.

3. Global Broadcast
    - Global Broadcast is a public location broadcast. Anyone with the Beacon™ application has the ability to see this location.

REQUIREMENT #2: GPS LOCATION GUIDANCE

Beacon will use GPS real-time functionality. If user A chooses to track user B's Beacon they will be guided to that user via an on-screen pointer.

REQUIREMENT #3: FRIENDS-LIST

A user can choose who they send the Beacon via a friends-list of contacts who also have the application.

REQUIREMENT #4: CHAT FUNCTIONALITY

Basic direct messaging to all individuals who are on a user's friends-list will be enabled.

REQUIREMENT #5: REQUESTIONG LOCATIONS FROM USERS ON YOUR FRIENDS LIST

Users will be able to select friends from their friends-list and request that they share their location.

REQUIREMENT #6: LIST OF PUBLIC LOCATIONS

A list of nearby public locations will be provided where a user can choose to set up a beacon, such as a restaurant, art gallery, or museum.

REQUIREMENT #7: FOLLOW-LIST

Users will have a list of beacons they are currently tracking. Selecting a beacon will open the location bearing/compass page.

NON-FUNCTIONAL PROPERTIES

REQUIREMENT #1: THE LOCATION OF A 'BEACON' IS ACCURATE

Beacon has the functional requirement of allowing a user to set up a beacon that allows another user to find their geographic location. The non-functional component of this requirement is ensuring that the accuracy of the location provided to other users is enough for the users to find each other. This requirement is extremely important as the application's main functional requirement is to allow individuals to find each other.

REQUIREMENT #2: CLIENT LOCATION UPDATES FREQUENTLY

In order for effective location finding the client must update its location frequently using other clients and/or a server. The location updates between clients must be fast enough to ensure reliable and effective location-finding. Location-finding will be inaccurate if a client A travels to the location of client B after client B has already left the location that was the received by client A.

REQUIREMENT #3: CLIENT TO CLIENT COMMUNICATION IS FAST

Similar to Requirement #2, fast client-to-client communication is needed to ensure that beacons can find each other in real-time at an up-to-date location. If the communication between clients is slow for any reason, there will not be timely location updates and like Requirement #2 clients may reach an old location. The communication between clients may be slow for multiple reasons. Some of these reasons may include: slow message handling and dispatching, lack of concurrency when dispatching messages, and slow network speeds.

REQUIREMENT #4: THE GUI IS EASY AND INTUITIVE

Beacon must have an interface that is easy and fast to use. The application is simply a location tracker and therefore does not and should not have a complicated interface. The time it takes to open the application and set up an appropriate beacon should be minimal. Furthermore, the amount of operations required to set up a beacon should be minimal. Accepting a Beacon request should be as easy as swiping left or right.

USER SCENARIOS

SCENARIO #1 LARGE EVENTS

Instead of texting directions to people at large events (such as a large music festival or a sports game) Beacon will allow people to find each-other. This is especially useful if people get separated. Beacon can be used by users to find their friends at a music venue when they get separated. They can set up a beacon at their current location and broadcast it to their friends. Their friends will then receive a notification with a choice to accept and be directed to the beacon, or to decline.

SCENARIO #2 ORGANIZED MEET-UPS

If a user is organizing a meet-up with a specific group of people they can simply select a list of people from their friends-list and broadcast the location of the meet-up to them.

The benefit to the user is that their friends, or whoever they are broadcasting their location to, will be able to know where they are or where they are going, and be able to meet up with them. This is a

better option than calling because it is not affected by loud environments and is easier than text messaging because it is based on location. Furthermore, the users of Beacon can message each other to send pictures of landmarks to make it easier to find each other.