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**Technical Software Project Proposal**

**Project Name : Last Seen**

Overview

The purpose of this project is to create a proof of concept/prototype of a system utilizing Bluetooth enabled devices to assist search teams and rescue workers in finding missing hikers. The project will consist of three separate applications that will work in unison, one made for the hikers, one made for the rescuers, and another for the Bluetooth beacons. A typical use case of this system is explained in the following scenario:

* A hiker creates an account on Last Seen which will register their name, Bluetooth MAC address, and device name.
* The hiker submits their hiking itinerary on the mobile application which includes the trails they plan to visit as well as the approximate time they plan to begin their hike.
* On the trail, a Bluetooth beacon is installed at each mile of the path. The beacons scan for Bluetooth devices within range at regular intervals and records the devices it encounters along with a timestamp.
* When a hiker goes missing, the rescuers will use the application to search for the person by name to see their itinerary, Bluetooth MAC address, and device name.
* The rescuers walk the trails stated in the itinerary and requests data for the given MAC address or device name at each beacon.
* When a beacon that either, does not contain the requested data, or provides the latest timestamp is encountered, the last checkpoint the hiker reached can be determined. This information should drastically reduce the required search radius and improve the chances of finding the missing hiker.

Technologies

* Android OS
* Kotlin for the language of choice for Android mobile applications
* MongoDB for storing itinerary information and beacon logs

Future Additions

The following features maybe added to the project in the future as time permits.

* iOS support
* Google Maps integration for a better user experience