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## CSE 403 Proposal: Smart Hiking Tracker

Vision

The vision for this project is to provide a better way for hikers and outdoor adventurers to share their outdoor adventure details. The idea is to give the user access to specific information about hiking trails on a per user level and as an average over users.

Many apps provide a user with trail information and allow users to add their own trip reports. This app would improve on this by providing the user with higher quality information based on those who have previously done the hike. Instead of only allowing a user written trip report, the app actively records location specific trip data to create a rich amount of trip information for all users to access. This could include basic measurement like average speed and total time but could be much more detailed such as reporting average speed over a given stretch of trail or most common resting/scenic spots taken by hikers. This gives a detailed view of the route to prospective hikers and allows hikers to compare themselves with other hiker's data.

Further features could actively use previously recorded data to inform hikers in real time about upcoming obstacles or points of interest.

Architecture

The app would need to be implemented for a GPS enabled mobile device in order to collect the position specific data. Individual devices will talk to a server in order to report their trip data. The application would also have the functionality of displaying trip record information to users. Server would report on location data averages but allow user to query specific trip reports as well.
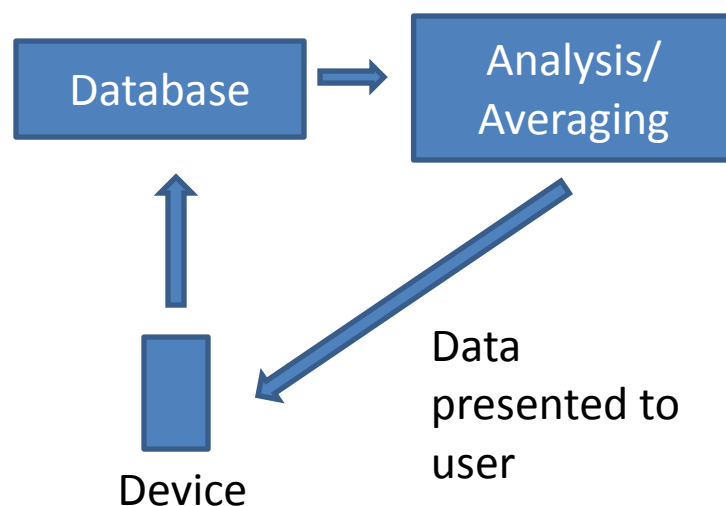
Challenges/Risks

1. Testing the application fully would require traveling to specific destinations and trails.
2. Data collected by user's devices might not give the insight desired. For example, you might want to conclude that a hiker's resting points are indicators of scenic points but may be arbitrary.
3. Reliability of location data would need to be addressed. In the worst case, poor location data might be hard to detect and could create bogus data in the trip logs.
4. There are many possible aspects to record as trip info and many ways to analyze and present it to the user. A challenge might be to find the most useful subset of all of these things.