

Homework 2 [Realtime Location Tracking]

CMSC 628/491

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Due Date: 04/15/22

Problem Statement

The goal of this assignment is to understand how to use location tracking and Maps to build a realtime low-energy tracking application. The app only needs to work outdoors. However, here is the catch. The app should be low power consuming. Hence, it cannot just use GPS all the time to provide realtime location information to the user. The solution is to use a combination of low-power sensors such as the accelerometer in combination with the GPS unit to provide low power realtime tracking. The algorithm that combines the accelerometer data with the GPS data to minimize the use of the GPS unit is for you to develop. An example of an algorithm that can be used is dead-reckoning.

Requirements

- The app that uses a combination of GPS and accelerometer (or any other sensor) to provide realtime absolute location of the user.
- The app displays a MapFragment where the location of the user is updated in realtime.

Resources

Please use Google scholar to look for papers that combine GPS data with other sensor data to provide realtime location. It is a very well researched area.

Submission Instructions

- Your source code should be converted into a .zip file
- An apk for your implementation.
- A word doc describing the algorithm that describes your low power location determination algorithm.
- A single zip file that combines the source code with the doc file and .apk. Call that .zip file assign2.zip
- Use Blackboard submission to submit the assignment.
- The rubric for the assignment is the following: Algorithm for location determination (3 points); App component for collection of the sensor data (3 points); Map UI component (4 points).

Late Policy

For every late day submission, there would be a 20% penalty. For example, if you 5 points out of 10, and you submit a day late, you will get 4 points.