Assignment 3 report

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In the main layout file, the id of TextView widget is txt-currentlocation. This widget would display the latitude and longitude values of current location. And also the current address of this location.

A check in button below could copy the current location from the TextView widget and display it on the ListView widget below. When user wants to check in, a customized location name can be typed or not, once checked in, a Geofence will be created, Geofence is an API that allow developers to place a customized geographically fence to be saved in the map and detect the event such as enter or exit this fence, it's notable that only after the first exit of the most recent created fence it can be then activated. Any other check in within the Geofence will use the name of fence's owner's name and address.

When a user click the MAP button on the main activity, then it will turn into a new activity MapsActivity which would display a map on the screen. While user click on the screen ,the current position would be stored and user could enter a name for this position. On the top right corner in map page is the "My location" button, which could centered on users own location. On the bottom right corner in map page is the standard UI controls: zoom in button (+) and zoom out button(-). Time of check is still stored in the database, so when the user approach any of the named location within 30m, an info window would popup and show the name of the location.(the layout of window is popup.xml) When the user is more than 30m away from the named location, the popup window would close.

This application provides background check since it starts. One service can auto check the position in every 5 min, the other service could detect the location and check it if the user has walked 100m away from the previous position.

Graduate report

For outdoors experiments, I use cellular to test the performance of wireless network. The accuracy is estimated in real world location between standing position and position show on the map.
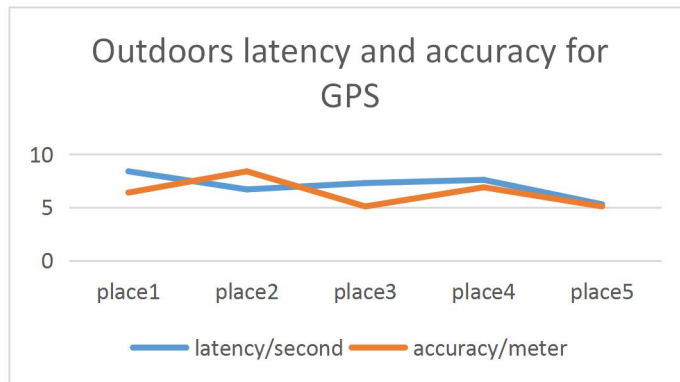
Outdoors latency and accuracy for GPS

Figure 1
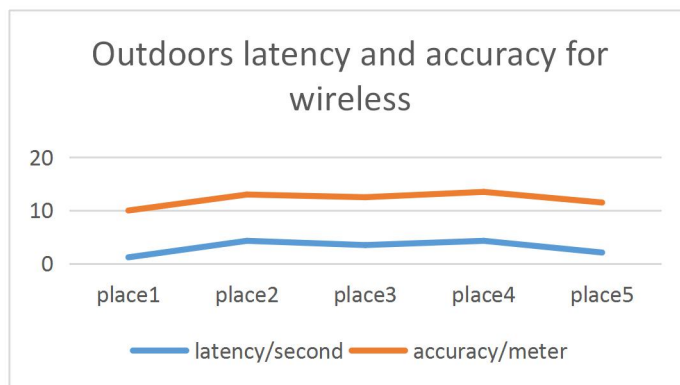
Outdoors latency and accuracy for wireless

Figure 2

For five outdoors experiments, it is obvious shown on the figure1 and figure2 that the average latency for GPS is higher than wireless but GPS performs better in accuracy.

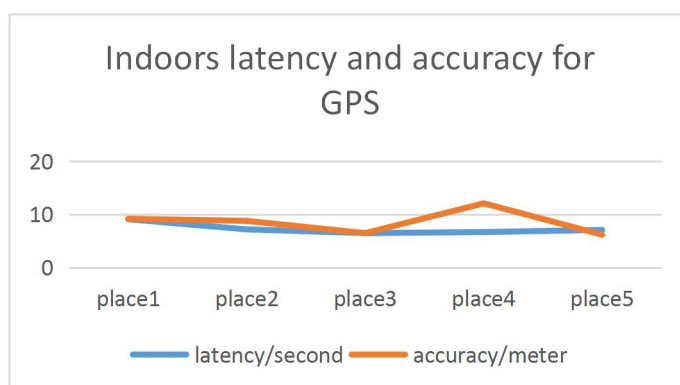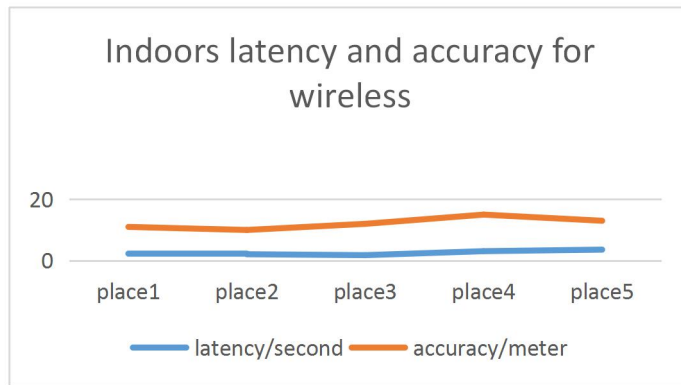## Indoors latency and accuracy for GPS

Figure 3

Figure 4

For indoors experiments, I connect WiFi as a network approach. I test the indoor performance in the apartment and classroom. However, there is no tall buildings around. So the latency and accuracy for GPS approach is almost the same as outdoors location. Because I use WiFi as network approach, it performs a little bit better than outdoors on latency and accuracy.