

USC CSci546: Intelligent Embedded Systems (Spring 2010)

Assignment 2: USC Navigation Application

1 This assignment has the following objective

- Design and development of an interactive application for navigating across USC campus that will use GPS sensor and GoogleMaps. The objective is to provide directions to a particular building across USC-UPC campus from current location

2 The assignment tasks

- Use the given files `adjmatrix`, `buildingdata`, `buildingadddata` to generate and use adjacency matrix of 122 buildings across USC-UPC campus
- Find path from current location to destination location given by user. Source location can be determined using GPS sensor and path to destination location can be calculated using the adjacency matrix. Destination location is a three letter code of building on the campus
- Provide interactive directions using GPS and orientation sensor to travel from source location to destination location
- Overlay the map images provided by the USC Web Services and Public Relations department on to GoogleMaps. Along with directions, render your current position on the map with pins for information of nearby buildings (the info is available in the javascript)

3 Tips for using given adjacency matrix and image files

- Create a folder named `'raw'` in `'res'` directory of your Android project directory.
- Place files `adjmatrix`, `buildingdata`, `buildingadddata` into that directory (e.g. `projectDir/res/raw/`)
- These can be referred directly in java code as `R.files.adjmatrix` by creating an `InputStream`. For example, `(InputStream) context.getResources().openRawResource(R.raw.adjmatrix)`
- Similarly place map image files in `'drawable'` folder. Image files can be referred as `Bitmap` objects in java from `'drawable'` folder in your Android project directory

4 Details of given files

- `adjmatrix` - Adjacency matrix for 122 buildings across USC-UPC campus
- `buildingdata` - Building data for 122 buildings (This list is to be used as row and column information for adjacency matrix)

- buildingadddata - Additional data available for buildings
- sample.js - sample code to render the image tiles on google map
- images3d.zip - image tiles at different zoom levels

5 Submission instructions

- Assignment is due on Feb 19 11:59pm.
- This is a group Assignment. One submission per group is required
- Email a .zip file of your project directory from Eclipse workspace to nimkar@usc.edu
- Code will be evaluated on Android SDK version 1.6

6 Resources

- [Using Location and Maps in Android](#)
- [Map Activity using GPS tutorial](#)
- [Android Discussion Groups](http://code.google.com/android/groups.html): <http://code.google.com/android/groups.html>
- [CS 546 Mailing List](mailto:cs546usc-s10@googlegroups.com): cs546usc-s10@googlegroups.com