Hyper Local Vector-based Targeted Advertising

Project Summary

The goal of the project is to essentially design and develop an advertising network that utilizes accurate location data, which includes Speed, Direction and GPS Location data to deliver incredibly relevant advertisements to the user. Advertisements for businesses a few hundred feet away could be displayed to a user when it has been detected that the user is traveling by foot while advertisements for business 3-5 miles “up the road” could be displayed to users that are traveling at highway speeds. A primary function of the advertising network would be to display location intelligent advertisements - for example if a user has recently walked passed a business an advertisement featuring wording such as “Turn around X is only steps behind you!” could be displayed to the user.

For the advertising network to work effectively it must maintain a database of “advertisements” that are ready to be displayed. The advertising network will also have to be capable of determining which advertisement shall be shown to any given user based on their positioning data. The advertising network must then “dispatch” the appropriate ad to the appropriate device. When the advertisement has been shown, the network will record that it has been displayed to a user.

A proof of concept application will also be developed to showcase and consume the API that will allow applications to utilize the advertising network.

Project Goals

- Create and maintain a database containing advertisements to serve to various users.
- Integrating said database into a map-based program to determine which advertisements should be shown to which users utilizing location based data, and position vectors.
- Create an API capable of communicating between the Ad server and the client device.
- Develop an application capable of utilizing the API to demonstrate and showcase the Ad Server which is the focus of this project.

Product Features

- Hyper local targeted advertising via a vector-based deterministic system.
    - Utilize location based information including direction and speed of travel to determine which advertisement to display to the user.
    - Only show advertisements for “future” business - that is business that the user is likely to approach soon, rather than business they have already passed on their journey.
    - Intelligently determine which advertisements to display - if a user is traveling at highway speeds show advertisements for businesses they may be interested in 3-5 miles from now.
- Ability to deliver advertisements targeted to a user across a network.
- Track and record information about advertisements that have been displayed to each user.

Product Limitations

- The product shall not be capable of modifying the database containing advertising and product information from a consumer / “non code” standpoint.
- The product shall not be capable of delivering “high quality” or image based advertisements.
- The product shall not be capable of creating a new advertisement from a consumer / “non code” standpoint.
- The products application shall not provide all necessary checks to ensure “nuisance tasks” (tasks such as revoking permissions after they have been granted, etc) have not been performed and performing these “nuisance tasks” may hinder the usual operation of the application.