Pediaphon as a location based service

Andreas Bischoff, http://prt.fernuni-hagen.de/~bischoff/

The very successful Pediaphon service provides a text-to-speech interface to the free wikipedia encyclopedia [1]. To extend the features of the Pediaphon service to a location based service some information about the users position is required. The proposed approach assumes that the user is equipped with a GPS receiver, a cell phone or knows a least some address data of his location. In cases, where the user only knows some address data, this information can easily be converted to GPS coordinates by the help of the Google maps API Web service. Even if only a PO.Box or city name is known, the Web service returns, relative to the users real position, imprecise but nearby coordinates. In cases where the user has a cell phone, the base station cell ID can be used to estimate the users position ('cell tracking'). Most of today's smartphones are able to display the cell ID of the base station connected to. The German 'O2' network provider sends location information of each base station in Gauss Krüger notation as a free cell broadcast service. With the help of a Web service at geonames.org it is possible to get nearby geocoded Wikipedia articles of a given position. This approach is the so-called reverse geocoding. The Pediaphon location based service converts the given article to a spoken MP3 audio file on the fly for each position request. In a second step the Web based Pediaphon service was enriched by a Google maps mashup. A Google map with markers of the users position and the position of the geocoded nearby Wikipedia articles will be generated for each request, with the help of the Google maps API. Each marker provides on click a direct link to a generated audio representation of the geocoded Wikipedia article. In case of an user equipped with a GPS receiver or cell phone (smartphone), this approach can be easily extended to an automatic play back of the nearest Wikipedia article in case of a better fitting article with respect to user movements. This is the functionality of an automatic talking travel-guide in an unknown environment (e.g. a tourist guide).

Figure 1: Google map mashup (satellite view) with Pediaphon markers.

[1] http://pediaphon.fernuni-hagen.de

[2] Andreas Bischoff, CONTEXT-AWARE MOBILE LEARNING WITH PEDIAPHON A TEXT-TO-SPEECH INTERFACE TO THE FREE WIKIPEDIA ENCYCLOPEDIA FOR CELL PHONES AND MP3-PLAYERS, IADIS International Conference Mobile Learning 2007, Lisbon, Portugal, 5-7 July 2007, IBSN: 978-972-8924-36-2, Pages 228-232

[3] Andreas Bischoff, The Pediaphon - Speech Interface to the free Wikipedia Encyclopedia for Mobile Phones, PDAs and MP3-Players, The 3rd Ubiquitous Web Systems and Intelligence Workshop (UWSI 2007) Colocated with DEXA 2007, Regensburg, 3-7 September 2007, ISBN:0769529321, Pages 575-579

[4] Andreas Bischoff, Ortsbezogene Wikipedia Sprachdienste für Mobiltelefone und PDAs, Ortsbezogene Anwendungen und Dienste, Viertes Fachgespräch der GI-Fachgruppe KuVS, München, 13. und 14. September 2007, ISBN:9783899635911, Pages 71-75