Location Based Service for Tourism and Business using the example of Ras Al Khaimah

Location Based Services (LBS) provide personalized information services according to the current localization of the user of a mobile device. These services are becoming increasingly relevant for economic activities and are now in the focus of economic geography and academic research.

On behalf of His Highness Sheikh Saud bin Saqr Al Qasimi, Emir of the Emirate of Ras Al Khaimah, a workgroup under the direction of Prof. Dr. Heiko Schmid of the economic department of the University Jena extended the previous projects (business und tourist information system of Ras Al Khaimah) for mobile devices. In order to ensure the usefulness according to local influences and new functionalities, it was important to analyze the needs of map users as well as the advantages and disadvantages of mobile devices in matters of map applications and menu navigation.

The first step of the project was to define the elementary needs of map users like business people and tourists as well as advantages for public authorities in Ras Al Khaimah. In daily life, people often experience orientation problems while staying at unknown locations and they want to know: "Where am I and what's in my immediate vicinity?" In this example the map user would want to get additional information about his current location. Another question could be: "Where am I and how can I get to a shopping mall?" According to this scenario, the map user would plan a route from his current position to a destination. Additionally, route planning from one destination to another should also be possible, regardless of the map user's current position. In this case the map user, for example, wants to know: "How can I get from the mall to the mosque?" In order to reach a destination reliably it is important to specify the routing functionalities according to its surrounding in which the current navigation takes place. This means, that the map user must reach the destination from an adequate direction (i.e. entrance to shopping mall or slip road of car park). In summary, the LBS have to be person oriented where the point of origin is the user location. Each place of interest can be set as destination and the user can search its surrounding for additional information from the network dataset (e.g. where is the nearest shopping mall?).

Also, navigation in urban surrounding compared to navigation in rural environment or the desert is significantly different. From these considerations another research question results: Is it promising to consider peculiar traditions and the cultural diversity of the emirates for example defined by economic migration and tourism? If yes, how and in which way can we implement this additional information to improve the cartographic representation of particular regions and functionalities of Location Based Services like route communication?

Abb. 1: Locate position and find nearby places of interest

Abb.2: Routing to mosque

Abb. 3: Show nearby places of interest in alphabetical order

These specific requirements made it necessary to investigate which technical frameworks should be considered and which functionalities such as filters would be meaningful for example to avoid a visual map cutter on mobile devices and to provide user friendly menu navigation. After this mapping and data processing, it was also necessary to provide an easy and fast data access for the map user, regardless of his location on the map or of geometrical characteristics. In order to ensure the usefulness (usability and utility), we evaluated and designed several tools and methods to come up with a special kind of data directory which is implemented into the above mentioned map service.
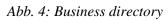
Abb. 4: Business directory

Abb. 5: Description & pictures of governmental institutions

Abb. 6: Show district Al Nakheel