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Citizen-centered Parking Locator System Case Study; Tabriz City

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Extended Abstract

Introduction

Increasing use of personal vehicles by citizens; Due to the limited capacity of cities to accommodate a large volume of cars, the problem of traffic has been imposed on cities, which is a problem in large cities that overshadows the lives of all sections of society and in addition to wasting time; It causes both environmental problems and imposes a heavy economic burden on society and the government. It has also increased traffic accidents, increased fuel consumption, vehicle depreciation and other major problems. Meanwhile, the problem of parking has become one of the most important emergencies in the life of cities because many citizens waste a lot of energy and time to find a suitable parking lot and contribute to the increase of pollutants. be. Currently, many cities have developed parking locator systems using information and communication technologies (ICTs) to facilitate daily urban mobility. Combining telecommunications (network sensor technologies), geographic information systems (GIS) and Global Positioning System (GPS), these systems provide access to parking information when drivers need it and provide the most effective route to empty parking spaces. These systems are designed as web applications and are available through mobile devices or personal computers (laptops). The main task of these applications is to route and select the most appropriate parking lot based on the evaluation of existing parking lots. For this purpose, these systems Multi-criteria spatial decision analysis (GIS-MCDA) combines a set of criteria affecting the choice of a parking lot by applying the weight of each of them and introduces the most appropriate parking lot. The purpose of this study is to present a program based on Mobile GIS to find the most suitable parking for cars in the city of Tabriz. In this program the user according to the criteria; Proximity to the destination, the number of empty spaces, the cost of parking, as well as the automatic method of finding the appropriate parking according to the position of the car and the traffic on the route. In this method, due to the possibility of observing the amount of traffic on the routes, misplaced traffic is prevented and environmental pollution is reduced.

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Methodology

The present research is applied in terms of purpose and descriptive-analytical research method. Field and documentary methods have been used to collect data and information. In this research, OSM system has been used as a reference map and preparation of parking and route data. To design and prepare the platform of the proposed application, the software environment of Android Studio software has been used.

Results and Discussion

The proposed parking locator system includes a range of sections and a set of applications, which is presented in the form of a subordinate application. In fact, in general, the main structure of the system consists of three parts: the central database, the parking server and the application part of the system used by the user. The obvious difference between this system and other systems presented in this field is how it is used, so that according to the ability of users of this system, especially their familiarity in using smartphones, we have proposed a way to increase the efficiency and effectiveness of the system. It greatly enhances. Another feature of this system is the possibility of booking parking by incoming passengers to the city of Tabriz from other parts of the country, which makes it possible to prepare and install this program at any time and place before entering the city to reserve and store the appropriate parking. To design and create the system, the software environment of Android Studio software has been used.

Conclusion

According to the results of this study, the use of this program reduces many of the existing problems, including in the field of car parking, as well as reducing the destructive environmental effects of unregulated vehicle activity in the city and reducing access time to appropriate parking, in addition to reducing environmental pollution Reducing fuel consumption and its problems, including reducing drivers' nervous tension and verbal and physical conflicts, has also been effective.

Keywords: Parking locator, Intelligent System, Citizen-centered, Mobile GIS, Tabriz.