Management system for optimizing public transport networks: GPS record

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Abstract

As cities continue to grow in size and population, the design of public transport networks becomes complicated, given the wide diversity in the origins and destinations of users [1], as well as the saturation of vehicle infrastructure in large cities despite their attempts to adapt it according to population distribution. This indicates that, in order to reduce users' travel time, it is necessary to implement alternative road solutions to the use of cars, increasing investment in public transportation [2, 3] by conducting a comprehensive analysis of the state of transportation. This situation has made appear the solutions and development oriented to transportation based on Internet of Things (IoT) which allows, in a first stage, monitoring of public transport systems, in order to optimize the deployment of transport units and thus reduce the time of transfer of users through the cities [4]. These solution proposals are focused on information collected from user resources (data collected through smart phones) to create a common database [5]. The present study proposes the development of an intelligent monitoring and management system for public transportation networks using a hybrid communication architecture based on wireless node networks using IPv6 and cellular networks (LTE, LTE-M).

Palabras clave

Machine learning, Proactive control, Traffic, Smart cities, Public transport networks