

Planning to Design a Railway Network System: Using a Simulation Model

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Abstract: The railway is one of the most popular means of a mass transportation system. The proposed approach has a universal character and can be applied by city and authorities to design a strategic plan of urban transportation systems to solve an advanced transportation problem. This study is focused to design a new railway network between two big cities in Malaysia which are Kuala Lumpur and Kuantan. The Simulation model applied for planning a new railway design and analysis are the important factors. The overall objective of this approach is to increase the passenger service and public transportation system benefit, as well as to make available other transportation categories between these cities. In addition, the model will choose the best railway network that can get more passengers among the urbanization between these two cities.

Keywords: Transportation System, Railway Design, Simulation Model, Neural Network.

Introduction

The problems of the transportation system in Malaysia are generally not achieving a satisfactory level to many customers. This is due to the inability of the transportation system itself to connect customers to many different places. The railway network is one category of the transportation operations, which are a requisite to create a new train line among the cities to enhance the transportation system and to fulfil the customer satisfaction [1; 12].

In Malaysia, the railway system is state-run, and covers a total of 1,849 km. Popular within the cities is Light Rail Transit, which reduces the traffic load on other systems, and is considered safe, comfortable and reliable.

In this study, a new railway is proposed between two big cities which are Kuala Lumpur that is the capital city in Malaysia and Kuantan that is the capital city of Pahang state. A new railway is a very important line due to it is connected between two very essential cities which involve more active passenger transportation, as well as between the two cities there are very important and torsion place that is increasing the passenger ratio in this railway. Currently the connection between these two cities contains only the highway road and the bus transportation category.

This study proposes a simulation approach for railway transportation systems planning and design. The base of the Simulation is incorporated to seek a new railway design combination of transportation planning and operations strategies [4; 8; 9]. The target of this model is to make active a new transportation category among the cities which are located between two main and big cities in Malaysia, as well as this model will be set to increase the customer satisfaction and contribute to the profit of the transportation operations [2; 3; 5].