

**TRAVELING USING MASS RAPID SYSTEM:
A COMPARATIVE STUDY OF BLIND SEARCHING STRATEGIES**

This thesis is submitted to the Faculty of Information Technology in partial fulfillment of the requirement for the degree of Master of Science (Intelligent System) Universiti Utara Malaysia

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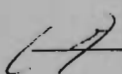
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ABSTRACT

Comparative study of blind and heuristic searching techniques are investigated for Kuala Lumpur mass rapid system. High volume of traffics and people made the mass rapid system such as Light Rail Transit (LRT), a likely candidate to use in daily life. However, since there are quite a number of transportation modes available, making choices may not be easy. The best travelling direction in terms of the least number of nodes traversed need to be ascertained before starting the journey. This research analyze the efficacy of blind search strategies namely breadth of search and depth of search to discover the best route to travel. The best route is defined as the shortest path that one should travel to reach his destination.

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Chapter 1

INTRODUCTION

Kuala Lumpur (KL), the capital of Malaysia, covers an area of 243.6 sq. km with a population of 1.5 million. Vehicle ownership growth rate at 8% per annum and human population contributed to the environmental deterioration and traffic jams not to mention traffic accident that might happen. Mass Rapid Transportation System in Kuala Lumpur commonly known as Rail Transit System has been established by the government since the last 10 years as an alternative transportation route for urban people. It consists of Putra-LRT, Star-LRT, Express Rail Link (ERL), Monorail and KTM Komuter. With the exception of KTM Komuter which is operated by Keretapi Tanah Melayu(KTMB), other railway systems were constructed according to build-operate-transfer (BOT) formula. In these respect, the private companies / consortiums signed concession agreements with the government to build the railway systems and operate them for some period.

KTM Komuter was the first to start electrical rail service in Malaysia on 14th August 1995 between Kuala Lumpur and Rawang. The service was later expanded to cover 153 route-km of electrified double rack between Rawang and Seremban, and Sentul and Port Klang. The electrification system consists of a 25-kVac catenary with six substations drawing power from Tenaga Nasional Berhad (TNB). The meter gauge track with multiple aspect signaling enable the train to run at up to 120 km/h. KTM Komuter uses three-car electric units (EMUs) from three different suppliers-Jenbacher Transportation Systems, Marubeni Corporation and

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Chapter 5

CONCLUSION

Transportation problem such as LRT station finding can be visualized as state space solution. Routes can be transformed into tree solution which can be manipulated by searching strategies. This study showed a searching tree solution for finding paths. In this study, we have compared and used two blind searching techniques to solve LRT problem in Kuala Lumpur.. The best paths are always obtained by breadth first search compared to depth first search. The result can be used to assist students and actual users in understanding tree path solution and searching techniques using PROLOG.

Future work for this study is to use actual heuristic values such as distance or cost in the calculation in order to find the best path at minimum cost. We plan to incorporate Best First Search and A* Search heuristic search methods for a conclusive and comprehensive searching system.

In addition, we also hope to do the study in Kuala Lumpur itself by taking actual distance between stations involved, time travel, and cost of travel. The absence of data has significantly reduced our study to only simulation data which might not reflect current situation. We need to represent the problem as a whole so that the system that we develop can be used for actual users of the system.

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