Universiti Teknologi MARA

OPTIMIZING THE TRAVEL DISTANCE BETWEEN MOSQUE AND MUSLIM AFFAIR ACTIVITIES USING DELAUNAY TRIANGULATION

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Report submitted in fulfillment of the requirements for Bachelor of Science (Hons.) Management Mathematics Faculty of Computer and Mathematical Sciences

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STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

In Malaysia, there are various mosques that have been built for Islamic religious activities and worship. Every mosque has the same religious activities and becomes a place of worship, a meeting place, a learning institution, a place of social events and a place of rest. The purpose of this paper is to model the location of the mosques in Perlis and to investigate the optimum distance of the mosque for an activity involving a mosque occurs. In this study, incremental algorithms of Delaunay triangulation are form based on the location of the mosques in Perlis. There are many algorithms in the method of Delaunay triangulation. In this study, an empty circumcircle condition is one of the Delaunay triangulation algorithms which have been applied. The location of mosques in Perlis is divided into three regions which are Padang Besar region, Kangar region, and Arau region. There are 11 mosques in Padang Besar area, 52 mosques in Kangar area, and 25 mosques in Arau area. The place of Muslim affair activity occurs in every area and empty circumcircle condition has been applied. Through the empty circumcircle condition, the mosques will be selected and the nearest mosque from Muslim affair activity can be detected. Therefore, Osmaniah mosque is the nearest mosque from Muslim affair activity occurs in Padang Besar area. Nurusaid Santan mosque is the nearest mosque from Muslim affair activity occurs in Kangar area. Muhammadiah mosque is the nearest mosque from Muslim affair activity occurs in Arau area.

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