UNIVERSITI TEKNOLOGI MARA

WATER PACKAGE SERVICES AND DISTRIBUTION OF WATER PIPELINES FOR LOCAL WATER APPLICATIONS USING NETWORK ANALYSIS IN MARANG

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AUTHOR'S DECLARATION

I declare that the work on this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The Geographical Information System (GIS) application has been used to analyze the network to determine the best water flow from the reservoir to the location of the applicant. GIS and software can simply manage water supply coverage; water delivered includes water velocity and volume according to the range values. GIS provides the advantages of solving the problem of water tank location that can determine the area to distribute the water to the consumer. The water supply system must provide adequate water flow to meet all demand points in the distribution system. Therefore, the analysis has also calculated the average total length of pipelines, total time taken and total water volume from water reservoir tank to applicant's location that water tank must happen during services. For the analysis, the ArcGIS 10.5 software has been used to generate spatial visualization of the water flow by pipes that are connected from the water tank to each applicant's location. This software is one of the great software for work related to the geographical information system. This operation is an easy and precise result obtained to assist water companies in managing an orderly system to identify ways of gaining profit as well as ways to address the problems behind daily water use by consumers. Then, the results can indicate the distance, time and volume of water and location map for the pipeline water flow from the water reservoir tank to each applicant's location.

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