

**UNIVERSITI TEKNOLOGI MARA**

**VISUALIZING NON - REVENUE WATER  
LOCATION ON MAP (VNRW)**

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**Thesis submitted in fulfilment of the requirements for  
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## STUDENT'S DECLARATION

I certify that this thesis and the project to which it refers is the product of my own work and that any idea 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**

Water plays an important role for humans, plants, animals and everything on earth that need water. In Malaysia, the state's inability to lessen the Non-Revenue Water (NRW) losses has negatively affected the country's progress in reducing the percentage of NRW. During transmission and distribution to users, it can be wasted because of the metering problems, pipe leakage and illegal practices. This research project aims at developing an effective map functionality using Google Maps elements in the VNRW prototype. Map functions will be used as a medium for providing information on a place's position. The method used in this research study consists of six phases. The six phases are planning, knowledge gathering, data collection, design, implementation and testing and documentation. VNRW is a prototype that was developed for Syarikat Air Darul Aman (SADA) to assist in visualizing the Non-Revenue Water (NRW) location on map. The outcome of this research is a technique of integration that enables map visualization. This study has been carried out successfully and the assimilation of the map into the VNRW prototype is hoping to help SADA in visualizing NRW's location.

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