

UNIVERSITI TEKNOLOGI MARA

**CHECKPOINT LOCALIZATION
FOR HIKERS USING HAVAERSINE
FORMULA**

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BACHELOR OF COMPUTER SCIENCE (Hons.)

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**Checkpoint Localization for Hikers
Using Haversine Formula**

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SUPERVISOR'S APPROVAL

CHECKPOINT LOCALIZATION FOR HIKERS USING HAVERSINE FORMULA

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This report was prepared under the supervision of project supervisor, Nor Azida Binti Mohamed Noh. It was submitted to Faculty of Computer and Mathematical Sciences and was accepted in partial fulfillment of the requirements for the degree of Bachelor of Computer Science (Hons).

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JUNE , 2015

STUDENT'S DECLARATION

I certify that this report and the project to which it refer 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 practice of the discipline.

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ABSTRACT

Checkpoint localization – Hiking is outdoor activity that has become increasingly popular among the people. This activity requires strong physical fitness and high tenacity because this activity came with high risk such as injury and lost. In 2014, a group of secondary school student got lost during hiking at Broga Hill. Besides, it was difficult to determine distance in the thick forest because of limited visibility. Mostly, equipment for hiking was very expensive. Some hikers cannot afford to buy those equipments. The advance development in technology has produced smart phones that integrated with GPS technology that can provide reliable and accurate location service. GPS technology has been applied in many fields such as trekking and navigation system. This system was developed in order to help hikers to find checkpoint during the hiking activity. This system allowed users to add their own checkpoint and provided the distance from user's current location to the checkpoint. The distance between user's location and checkpoint will be calculated using Haversine Formula. This application was running on Android operating system. In order to prevent accumulated error, this system had been tested on LG Nexus 5. The results show that 93.33% users agree that this application is effective to use for hiking. This system can be used as safety precaution if the users got lost during hiking, they can go to the nearest checkpoint by using this system.

Keywords - *Checkpoint Localization, Hikers, Haversine Formula, GPS.*