ROAD LAYERS SETTLEMENT DETECTION USING GROUND PENETRATING RADAR (GPR) AT GUNUNG JERAI, YAN, KEDAH.

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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 result of my own work, unless otherwise indicated or acknowledge as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree 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

Road is the only main way for people to reach a destination which is road need to be safe and comfy for road user. The lack of road safety can lead someone life to expose to the danger and even death. It also can affect to the geographical surface of the surrounding terrain and thus lead to the natural disaster such as landslide and flood. The problem of road settlement is more pronounced specifically with busiest road traffic and amounts of vehicle used the road, which road is the main source of road movement at Gunung Jerai. Most of the daily activities and services are using road either by lorries, vans and small transportations. Large amounts of road usage which involve in service delivery, residential used and work purpose cause to road settlement and serious implication on safety and environmental quality. The road offers a great profit through many services and purposes and the detection of road layers settlement is one of the steps for determining and sustaining the road accessibility. Therefore, the detection of road settlement at Gunung Jerai using ground penetrating radar (GPR) can identify the change and depress of road location which contribute to high risk of road settlement. In order to determine the road layers settlement was by interpreting radargram image and measure the road layers using GPR and compared to the standard specification by JKR. The radargram image produced has been analysed and identified the road layers. The measurement had been obtained to show how much the difference between the presence road layers scanned by using GPR compared to the standard specification in manual pavement design by JKR. The standard specification was the validation to the road layers supposed to be. This study had showed the capability of GPR in determining road layers to study road layers settlement detection using GPR at Gunung Jerai, Yan, Kedah.

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