

UNIVERSITI TEKNOLOGI MARA

**ASSESSMENT OF AUTOMATED
ROAD FEATURES EXTRACTION
ALGORITHM FROM UAV IMAGES**

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Dissertation submitted in fulfillment
of the requirements for the degree of
**Bachelor in Surveying Science and Geomatics
(Hons)**

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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is 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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

In these days, thorough documentation of the road network is vital. It is especially true for many applications such as managing transportation and automation of navigation. Therefore, the extraction of road network such as from Unmanned Aerial Vehicle (UAV) imagery is needed so that it can be made use for these applications. The road network extraction can be done manually, however, it is costly and time consuming to update and utilize the spatial information compared to automatic extraction. The aim of this study is to analyze the capabilities of automatic road extraction from UAV images using Trainable Weka Segmentation (TWS), Level Set (LS) and Seeded Region Growing (SRG) method. To achieve this, the objectives of this study are to: 1) extract road automatically using TWS, LS and SRG method and 2) examine the capabilities of automatic road extraction from UAV images. The study area was carried out at UiTM Arau, Perlis, Malaysia. To ensure the completion of all objectives, several Ground Control Points (GCPs) had been established at UiTM Arau. Lastly, Agisoft PhotoScan had been used to build the orthophoto which then the road network in the orthophoto had been segmented and extracted using these ImageJ Fiji. The automatic extracted road network had then been compared to manually extracted road network. It was found that SRG method is slightly better in extracting road features compared to LS method. This study can help reducing the cost and time consumed in extracting features, especially road network, by using automatic extraction instead of manual extraction.

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