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Poster Book

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Automated Tree Quantitative Structure Model (ATQSM)

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"FORESTRY TRANSFORMATION BEGIN TODAY"

INTRODUCTION

An Automated Tree Quantitative Structure Modelling (ATQSM) using Terrestrial Laser Scanning (TLS) is a novel technique to obtain forest information which is significant in estimating aboveground biomass (AGB) and carbon stock of tropical forests in Malaysia.

ISSUES/ PROBLEM STATEMENT

- Due to commercial farming, mining, and logging in Malaysia, monitoring of forest resources is necessary in obtaining accurate and frequent information.
- Conventional field inventories are time-consuming, labor-intensive, and geographically limited.

NOVELTY

- Improvement of model development of AGB and carbon stock using terrestrial laser scanning for tropical forest.
- Replace conventional method and improvement of the current remote sensing techniques for AGB
- TLS and QSM can be useful tools for assessing of climate change on tropical forest throughout time

OBJECTIVE

To estimate AGB and carbon stock for assessment of tree densities at tropical forests using laser scanning approach and Quantitative Structure Model (QSM).

CONCLUSION

ATQSM is a novel and important tool for assessing carbon related climate change at tropical forests, agriculture and other land use to control, monitor and manage.

COMMERCIALIZATION POTENTIAL

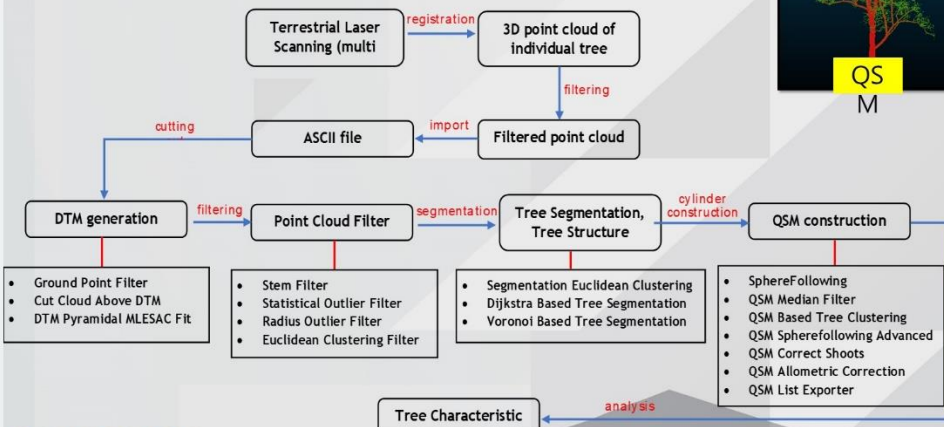
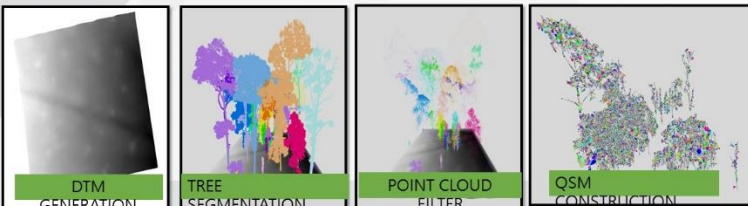


New approach for forest inventory and monitoring at tropical forests.



Potential to improve mapping efficiency compared with other conventional method.

METHODOLOGY

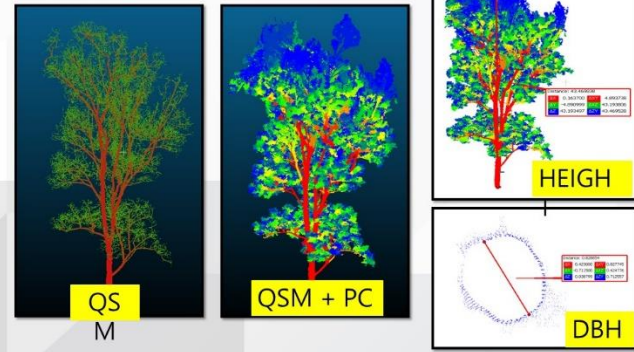


PUBLICATION
1ST INTERNATIONAL ACADEMIC RESEARCH CONFERENCE (IARECO), 2022
• Paper: Extraction of Tree Parameters by Terrestrial Laser Scanning in Dipterocarp and Non-Dipterocarp Forest - Journal of Sustainability Science and Management (JSSM) (in review)

THE 11TH SYMPOSIUM ON INNOVATION AND CREATIVITY 2022 - 11TH SIC
THE 5TH INTERNATIONAL INNOVATION, DESIGN AND ARTICULATION (I-IDEA), 2020



MAIN



INSTRUMENTATIO



Technical Specification (RIEGL VZ-400)	
Laser Wavelength (nm)	1550
Min. Range (m)	1.5
Mxm. Range (m)	600
Horizontal field of view	0° - 360°
Vertical field of view	100° (30-130)°
Pattern	Panorama - 40
Beam Divergence	0.35mrad
Angular Step	Users define
Accuracy (mm)	5mm
Precision	3mm
Peak pulse frequency	300 kHz
Points per second	122 000
Weight	9.6kg