

**OUTDOOR EXPERIMENT OF MULTISPECTRAL SENSING SENSOR
FOR URBAN ROAD MATERIALS**

By

Matthew Rio Darmawan
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SWISS GERMAN UNIVERSITY


SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

Matthew Rio Darmawan

Student

Date

Approved by:

Ir. Heru Purnomo Ipung, M. Eng.

Thesis Advisor

Date

Dr. Maulahikmah Galinium, S.Kom, M. Sc.

Thesis Co-Advisor

Date

Dr. Irvan Setiadi Kartawiria ST, M.Sc.

Dean

Date

Matthew Rio Darmawan

ABSTRACT

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By

Matthew Rio Darmawan
Ir. Heru Purnomo Ipung, M. Eng., Advisor
Dr. Maulahikmah Galinium, S.Kom, M. Sc., Co-Advisor

SWISS GERMAN UNIVERSITY

This research is an improvement from previous work on experiment classifying urban road materials that tested on laboratory scale where this experiment is more focusing on experiment of multispectral sensing sensor for urban road materials in outdoor environment. This research aims to classify five urban road materials that are aggregates, asphalts, concrete, clay, natural fibre including vegetation and water. There were 9 cameras in the multispectral sensing sensor. Seven camera attached with narrow band optical filter sets with the centre spectrum at 710nm, 730nm, 750nm, 800nm, 870nm, 905nm and 950nm that are attached. One camera attached with normalization band is 720nm using high pass optical filter. The one camera attached with UV/IR cut optical filter to be work as RGB camera. The images result that has been taken processed in MATLAB to get the imaging index results from the multispectral system. Using Naïve Bayes classifier in Weka to classify the urban road materials with vegetation and water. The first classification and testing that classifies five urban road materials with vegetation and water have accuracy results ranged from 0 % to 32% while the accuracy results that classifies five urban road materials without vegetation and water have better accuracy results ranged from 0 % to 55 %.

Keywords: Multispectral, Urban road materials, Imaging index, Image processing



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DEDICATION

I dedicate this works to my family,
for their support and wisdom.



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