ANALYSIS OF ESP8266 MODULE ACCURACY FOR WIFI NETWORK BASED INDOOR POSITIONING SYSTEM

By

Albertus Agung Dananto Setyawan
2-1752-009

MASTER'S DEGREE
in

MASTER OF MECHANICAL ENGINEERING – MECHATRONICS concentration
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY
The Prominence Tower
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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.

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ABSTRACT

ANALYSIS OF ESP8266 MODULE ACCURACY
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By

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Indoor positioning system is a technology to mapping some object in a certain area. It is similar with GPS system, but IPS is used to overcome the weaknes of GPS which the signal can't be used inside the building. One of media that can be used in IPS is Wireless signal which works on 2.4 GHz. This radio frequency can be produced by small module called ESP8266. In this thesis working, the capability of ESP8266 to be used in IPS will be tested and analyzed. It will be processed by determining the relation between the RSSI and the distance between transmitter and receiver, and get the equation. The second process is deploying the equation into trilatertaion algorithm to test the harware in a several area. The result from this experiment is equation model $f(x) = 0.1156x^2 - 3.548x - 90.67$ with R^2 value 0.9701. This equation is for calculating distance from known RSSI that can be used in the trilateration algorithm.

Keywords: IPS, ESP8266, Trilateration

DEDICATION

I dedicate this works for my family, ATMI Cikarang, SGU
and the development of Industry 4.0 technology.

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