

CERTIFICATION OF APPROVAL

**Assessment of Real Time Kinematic Global Positioning System (RTK GPS)
Application for Simulation of Building Monitoring.**

by

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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

MOHAMAD FAUZI BIN ABDUL KADIR

ABSTRACT

Nowadays, Global Positioning System (GPS) is the most important technological innovation in the field of deformation studies because there are more large and tall buildings than in the past. These building are being designed to be much more flexible and to resist extensive damage from changes in temperature, severe wind gusts and earthquakes. Structural engineer require the best, precise and reliable instrument to resolve their concern about building movement. Thus, various type of Real Time Kinematic GPS (RTK GPS) surveying method such as Single-Based and Network-Based RTK GPS need to be assessed in order to determine the precision and capability of detecting small and large movement of building. This research aims to check the accuracy and capability of Single-Based RTK GPS surveying method to detect small and large movement by using building monitoring simulation. Several GPS points have been established around Universiti Teknologi PETRONAS (UTP) in order to assess the precision, capability and communication of Single-Based RTK GPS. The result collected determined the 100% communication signal between base and rover receiver within 2 kilometer. Besides that, RTK GPS surveying method also produced very high precision and capable to detect small and large movement up to centimeter level accuracy.

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LIST OF ABBREVIATIONS

CORS	Continuously Operating Reference Station
DGPS	Differential GPS
DoD	Department of Defense
DOP	Dilution of Precision
DSMM	The Department of Survey and Mapping Malaysia
GDM2000	Geodetic Datum of Malaysia
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GPS	Global Positioning System
MASS	The Malaysia Active GPS System
MyRTKnet	Malaysia Real-Time Kinematic GNSS Network
P	Precise
PPS	Precise Positioning Service
PUPK	Pulau Pangkor
PUSI	Pusing
R1	Rover Point 1
R2	Rover Point 2
R3	Rover Point 3
RINEX	Receiver Independent Exchange Format
RMS	Root Mean Square
RTK	Real Time Kinematic
SA	Selective Availability
SD	Secure Digital
SiRENT	Singapore Satellite Positioning Reference Station
SPS	Standard Positioning Service
SVs	Satellite Vehicles
UTP	Universiti Teknologi PETRONAS
UTPB	UTP Base Station
VRS	Virtual Reference Station

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