Iwane Mobile Mapping System

Geo-Imaging Mobile Mapping Solution

Iwane Mobile Mapping System (IMMS) is high-efficient, easy-to-use, end-to-end solution that provides tremendous flexibility in collecting, accessing, displaying, and analyzing 360° geo-referenced spherical imagery. IMS3 is purely an optical MMS based on Iwane Camera Vector (CV) Technology. The mobile mapping system by Iwane does not rely entirely on GPS. It is purely an image based MMS and perfectly suitable to map urban & rural area.

IMS3+ is Simple & Robust, Easy Operation, High Resolution Image, Deliver unique geo content, High Accuracy, Easy Update, Potential Expansion, Support for Desktop, Web and Mobile & SDK and API's available.

Iwane

01/12/2018

IWANE MOBILE MAPPING SYSTEM

(IMS3+)

Simple Configuration & High Accurate Mobile Mapping System (MMS)

based on

Advanced Image Processing Technology

Fast, safe and convenient way of acquiring terrestrial geo image /video datasets

Simple & Robust I Easy Operation I Higher Accuracy I Fulfilling Application I Easy Update

MOBILE MAPPING SYSTEM	IMS3
Design Concept	Simple & Robust (Use of minimal sensors)
Dual Cam System (Two Model)	30 M Pixel & 12 M Pixel Camera (2 set – Up & Down camera)
Capture Rate	16 FPS (Capture sequence of images / Video)
Optimal Speed	60 Km / h (Can go more fast in half mode)
Mounting Time /Type	One hour for first time / On any mobile platform)
Calibration	Mostly Software based calibration
Power	Direct from car battery (Using sin wave Inverter)

** Robust, Reliable & Flexible

DATA FACT		
Initial Preparation	Minimal & Simple operation (Operate - Start & Stop)	
Optimal driving speed	60 Km/h (One person can capture data)	
Raw Data	12-14 GB/km (Can acquire 500 km using one set of 1TB HDD)	
Processed Data	3 GB / Km (Geospatial Video)	
Processing Time	45 minutes / Km (Can process 30 Km / day using 2 PC and 1 People)	

UNIQUE SOLUTION	
Proven System & Solution	Proven & widely accepted solution. Capability to deliver output in rural & urban areas
End to end solution	Starts from data capturing till hoisting
Accurate	High positional & relative accuracy (Close to survey grade)
Deliverables	Geospatial Video (Complete Spherical Image with stabilize image)
Development Tools	Advanced Programmable API's and SDK
MMS Data Support	Desktop , Web & Mobile
Workflows and Capability	Refined workflows (95 % automated) & Capable to deliver results

**** In-use by many government departments for nationwide mapping**

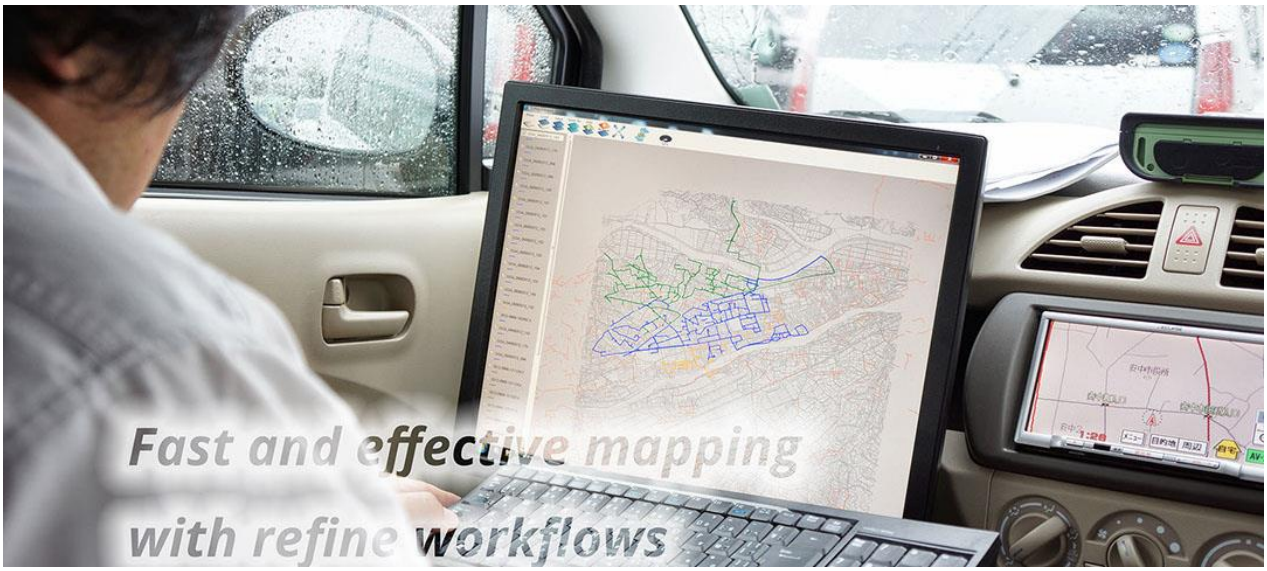
With Iwane technology, less field supplementary survey is required! The frame rate per second and angle of views also ensures that every object is seen from different angles and in many subsequent images. Therefore it is very little that you can miss!

GEO REFERENCING		
Geo referencing	**Support for direct and in-direct geo reference**	**Process by GPS data or GCP data or a combination of both**
Not reliant on GPS	**Accuracy can be achieved even after bad GPS data acquisition**	**Use of GCP's at 100 m interval and readjust mobile trajectory.**
No inconsistency	**Can be minimized to minimal**	**Using Camera Vector technology**

****Solution for mapping in Urban or Rural areas**

ACCURACY						
Position Accuracy	**Geo reference using High Accurate GNSS trajectory**			**Geo reference using GCP's (1 point every 100m)**		
Standard Deviation	**X (m)**	**Y(m)**	**Z(m)**	**X (m)**	**Y(m)**	**Z(m)**
	0.045	**0.048**	**0.039**	**0.060**	**0.061**	**0.064**
Relative Accuracy						
Measurement (Point to Point)	**2-5 cm within a distance of 15m from the center heard of camera**			**Recommend to capture twice if the width of road in wide**		

**** High Relative & Absolute Accuracy: Survey Grade**



HARDWARE	
Omni directional Camera	1 set of 30 M Pixel and 1 Set of 12 M Pixel (one at the top for 360 degree coverage and other on the back side of vehicle focusing on road surface)
Accelerometer	3 Axis Accelerometer
GPS	1 PPS Output (< 3m accuracy) - GPS for time synchronization only
High Accurate GNSS (optional)	GPS + IMU + DMI for high positioning accuracy
Data Acquisition PC & SW	Customize PC for sensor data collection

** Minimal Sensor and maximum output

SOFTWARES		
Application Software	ALV	Standalone Desktop Software
Application Software	ALV for ArcGIS	Plug-in for ArcGIS
MMS Server	Web ALP3.0	Flash Version
MMS Server	Web ALP3.1	Html5 Version
MMS Server	Web ALP3.1	Smartphone
Digital Street Scanner	DSS	Output Geo-tiff & import in GIS
Mapon3D	Road marking extraction tool	Export in CAD format

** Advanced MMS Application Software's

APPLICATIONS	USAGES	
Situational Awareness	**Public works / Municipalities**	**Ministry of Transportation**
GIS database development	**Cadastral & Mapping Bureau**	**Planning Departments**
Survey	**Land & Infrastructure**	**Defense Sector**
Analysis	**Housing Development**	**Housing Authorities**
Planning & Simulation	**Architectural Department**	**Disaster & Prevention**
Inspection & Management	**Plant and Pipeline Mapping**	**Utility Corridor Mapping**
Asset Management	**Tree Mapping & Management**	**Railroad Mapping**

****Cater to many application and different department**

OFFERINGS	
Complete Solution	**Complete MMS (All Hardware and Software)**
	MMS Server with API's
	Onsite Training (5 working days) & Annual Maintenance
Other Tools (Optional)	**3D PCCI, DSS, MapOn3D, Masking Software, etc..**
Service	**Data processing , Customization, Development , Tech. Support**

****Offer complete solution – capture, process, extract and disseminate data locally**

DATASHEET – IMS3 MMS	

IMS3+ MMS (General)	
Continuous Survey Time	Eight (8) hours (In day light)
Power	Input voltage (10 V to 16 V) Power (200 W)
Total Weight	30 Kg
Operating Temperature	-20ºC to +45ºC
Input/output ports	Power supply , Ethernet ,spherical cameras, wheel encoder , IMU , GNSS antenna
Timing resolution	1 ms

Spherical Camera	Ladybug 3 (two unit)
Camera Unit	CCD camera (6 pcs.)
Shutter	Global
Max Resolution	30 M Pixel and 12 M Pixel
Max Frame rate per second	16

Inclination Sensor	Inclination Sensor
Altitude	
Sensing range	± 180°-Roll , ± 80°-Pitch
Static accuracy	± 0.2° (Roll,Pitch)
Resolution	< 0.05°
Output frequency	0 to 200 Hz
Dimensions	27x30x14 mm

Position Sensor	GPS (Default)
Acquisition time	Less than 2 seconds
Measurement Pulse Output	+/- 1 microsecond at rising edge of pulse
Time Accuracy	
	<15 meter , 95% typical
WAAS	<3 meter , 95 % Typical
Velocity	0.1 knot RMS steady state
Weight	105 g

Size	61 mm in diameter and 19.5mm in height

High Position Sensor (GNSS)	**Optional (GNSS Receiver)**
Channel Configuration	372 channels
Signal Tracking	GPS, GLONASS, and BeiDou
Horizontal Positional Accuracy	L-Band : 0.08 m (Hz) , 0.16 m (V) RTK : 10 mm + 1 ppm(Hz) , 20 mm + 2 ppm
Maximum Data Rate	10 Hz standard, 20 Hz optional Timing (1PPS)
Time to First Start	Start Time: 60 s (Cold) ; Warm: 20 s typical; Hot : 5 s typical
Operating Temperature	-30°C to + 70°C
Weight	0.65 Kg
Differential Options	SBAS, Beacon, External RTCM, Atlas L-Band and Athena RTK

Inertial Measurement Unit (IMU)	**Optional (SPAN IMU –ISA-100C)**
Gyroscopic Performance	
Input Range	±495 deg/sec
Bias Stability	≥0.5 deg/hr
Scale factor repeatability	≤100 ppm
Scale factor non-linearity	≤100 ppm
Angular random walk	0.012 deg/√hr
Accelerometer Performance	
Input Range	±10 g
Bias Stability	≥1250 µg
Scale factor repeatability	≤ 100 ppm
Scale factor non-linearity	≤ 100 ppm
Angular random walk	≤100 µg/√hr
Operation Temperature	-40ºC to +55ºC
Weight	5.0 Kg
Dimension	180 x 150 x 137 mm

Mounting Kit	**Manufactured In-house**
Dimensions	
IMU Plate	2400 mm
Length of Pole	1000 mm each
Case for Mount	180 x 150 x 137 mm
Case for Camera	180 x 150 x 137 mm

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