



MMT2017
CAIRO-EGYPT



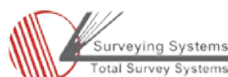
The **10th** International Conference on Mobile Mapping Technology

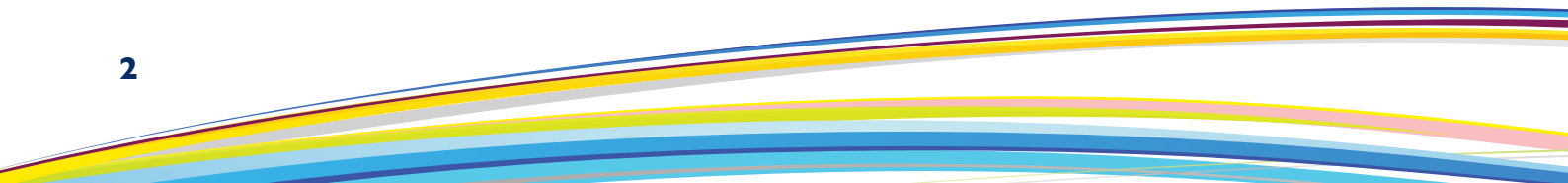
Mobile Mapping For Sustainable Development

6-8 May 2017, Conrad Cairo Hotel , cairo, Egypt



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PROGRAM SCHEMATICS

DAY ONE (Saturday, May 6th 2017)

08:30 - 09:30	Registration	Pre-function Area
09:30 - 11:00	Opening Session and Welcome Address	Main Hall
11:00 - 12:00	Coffee Break and Opening the Exhibition	Pre-function Area
12:00 - 14:00	Keynote Session I	Main Hall
Professor. Christian Heipke President ISPRS	Geospatial Information: State of the Art and Future Trends	
Professor Deren Li Wuhan University	From Mobile Mapping Systems to Intelligent Mapping Robots	
Professor Chryssy APotsiou President FIG	The Role of Surveying and of Surveyors in Sustainable Development	
Professor Qingquan Li President of Shenzhen University	Comprehensive Road Detection Technology in China	
14:00 - 15:00	Lunch	TBC
15:00 - 17:00	Industry Session	Main Hall
Mr. Bryan Townsend GNSS Architecture and Technology Team Lead, Intel Mobile Communications, USA	GNSS Technology and the Expanding Consumer Market	
Dr. Mohamed Elhabiby PEng, MBA, Executive Vice President Micro Engineering Tech Inc., Canada	GEOVIXEL: The Future of Mobile Mapping for XD Digital Infrastructure	
Mr. Kai SUN Director of Leador R&D Center Leador Spatial Information Technology Co., Ltd., China	A laser-SLAM Algorithm for Indoor Mobile Mapping	
Ms. Rao lingling Assistant of General manager ZOYON, China	ZOYON Products and Applications for Road Assets	
18:30 - 21:30	Dinner & Show (For purchased tickets only)	TBC

DAY TWO

(Sunday, May 7th 2017)

09:00 - 10:30	Keynote Session 2	Main Hall		
Mr. Talal Hanna, Topcon Positioning Middle East and Africa FZE (TPMA)		Middle East and Africa Use of Mobile Mapping in Different Applications		
Prof. Dr. Ing. Muhamad Alrajhi, ISPRS Regional Coordinator for the Arab States Assistant Deputy Minister For Land & Surveying Ministry of Municipal & Rural Affairs, Kingdom of Saudi Arabia		Spatial Land Data Infrastructure for Sustainable Development		
Professor Abdullah Alkadi, Vice President Vice President for Development, Studies and Community Services - Imam Abdulrahman Bin Faisal University, Kingdom of Saudi Arabia		Utilizing Mobile Mapping in Navigating Historical Locations: Hijrah Route as a Case Study		
10:30 - 11:00	Coffee Break	Pre-function Area		
11:00 - 12:30	Parallel Technical Sessions	A1	B1	C1
12:30 - 13:30	Lunch	TBC		
13:30 - 15:00	Parallel Technical Sessions	A2	B2	C2
15:00 - 15:30	Coffee Break	Pre-function Area		
15:30 - 17:00	Parallel Technical Sessions	A3	B3	C3
19:00 - 21:30	Gala Dinner and Appreciation Certificates	B&C		

DAY THREE

(Monday, May 8th 2017)

09:00 - 10:30	Parallel Technical Sessions	A4	B4	C4
10:30 - 11:00	Coffee Break	Pre-function Area		
11:00 - 12:30	Parallel Technical Sessions		B5	C5
12:30 - 13:30	Parallel Technical Sessions		B6	C6
13:30 - 14:00	Closing Ceremony	Main Hall		
14:00 - 15:00	Lunch	TBC		

TECHNICAL PROGRAM

DAY TWO

(Sunday, May 7th 2017)

11:00 AM - 12:30 PM

Session (A1) - Hall (A)	Session (B1) - Hall (B)	Session (C1) - Hall (C)
“Alternative Sensor and Data Integration Algorithms”	“Direct Geo-referencing and Sensor Calibration”	“Digital imaging, Feature Extraction and Remote Sensing”
Chair	Chair	Chair
Prof. Charles Toth, Ohio State University, USA Prof. Mohamed Hassan, AASTMT, Egypt	Prof. Ayman Habib, Purdue University, USA Prof. Mohamed Zahran Banha University, Egypt	Prof. Cheng Wang, Xiamen University, China Dr. Saleh Mesbah, AASTMT, Egypt
P4: Relative Orientation and Essential Matrix of Spherical Panorama Images <i>Yi-Hsing Tseng and Tsung-Che Huang</i>	P25: Preliminary Study of a Time Dependent Model for Exterior Orientation of Hyperspectral Image Cubes <i>Adilson Berveglieri and Antonio Tommaselli</i>	P54: Extraction of Façade Elements Based on Wavelet Analysis Using Point Clouds <i>Fuxun Liang, Bisheng Yang and Zhen Dong</i>
P56: Automatic Registration of Panoramic Sequence and Mobile LiDAR Point Clouds via Similarity Measurements <i>Jianping Li, Xianghong Zou, Bisheng Yang and Ronggang Huang</i>	P36: Comparison of Airborne Lidar System Calibration Algorithms <i>Megan Miller and Ayman Habib</i>	P46: Framework Feature Extraction of Building Interiors Using Indoor Mobile Mapping Systems <i>Shiwei Hou, Chenglu Wen, Zheng Gong, Cheng Wang And Jonathan Li</i>
P29: An Improved model for Multi-Constellations GNSS Single Frequency Precise Point Positioning <i>Mahmoud AbdRabbou and Adel El-Shazly</i>	P85: Low-Cost Magnetometers Calibration using Proportional Integrator Technique for mobile devices <i>Abdelrahman Ali, Salwa Ahmed, Naif Alsubaie and Naser El-Sheimy</i>	P35: Mapping and Analysis of Terrain Geomorphology Using Simulated Airborne LiDAR Data Capture of Low Point Cloud Densities <i>Fahmy Asal</i>
P53: An IMU/LiDAR/PCG-Map Integrated 2D Positioning method for 3D Indoor Mobile Mapping <i>Jian Tang, Chuang Qian, Xiaoji Niu and Rong Zou</i>	P73: Comparative Analysis of Potential Calibration Alternatives for a Multi-Unit LiDAR System <i>Yun-Jou Lin, Darcy Bullock, Ayman Habib, Radhika Ravi, Tamer Shamseldin and Magdy Elbahnasawy</i>	P48: Combined Pixel/Object Based Building Extraction Technique from High Resolution Remote Sensing Satellite Images <i>Mahmoud A. Shawky, Ahmed S. Elsharkawy, Essam Hamza and Hassan Elhifnawy</i>
P59: Novel Highly Isolated Triplexer Antenna to Integrate Aviation and Radio Navigation Satellite Services Including GPS, Glonass, Galileo, Beidou And Sar With Different Communications Applications <i>Mohamed Oweis, Wael Swelam and Mohamed Abd El Azeem</i>		

DAY TWO

(Sunday, May 7th 2017)

12:30 PM - 14:00 PM

Session (A2) - Hall (A)	Session (B2) - Hall (B)	Session (C2) - Hall (C)
“Mobile Mapping Technology and Applications”	“LiDAR Data Processing”	“Positioning and Orientation Systems I”
Chair	Chair	Chair
Prof. Chenglu (Shirley) Wen, Xiamen University, China	Prof. Ahmed Shaker, Ryerson University, Canada Prof. Amr Ali, AASTMT, Egypt	Prof. Ahmed El-Rabbany, Ryerson University, Canada Prof. Mohamed Abdelazeem, Aswan University, Egypt
P64: Feasibility Study of a Backpack Mobile Terrestrial System with A Low Cost Omnidirectional Camera <i>Mariana Campos, Antonio Tommaselli and Eija Honkavaara</i>	P39: Segmentation-based Classification of Point Cloud Data <i>Yun-Jou Lin and Ayman Habib</i>	P80: Integration of Multi-Constellation GNSS Precise Point Positioning and MEMS Based Inertial System For Precise Applications <i>Mahmoud AbdRabbou and Ahmed El-Rabbany</i>
P70: A Low-cost Boat-Based Mobile Mapping System For Mapping Coastal Regions <i>Abdullah Arslan and Ayman Habib</i>	P5: Statistical Analysis of LiDAR Data for Land Cover Classification <i>Nagwa El-Ashmawy and Ahmed Shaker</i>	P37: On the Development of A Regional Ionospheric Correction Model For Low-Cost Single Frequency GNSS Users <i>Mohamed Abdelazeem, Rahmi NurhanÇelik and Ahmed El-Rabbany</i>
P47: A Backpack Mobile Mapping System Based on Velodyne LIDAR <i>Zheng Gong, Jonathan Li, Cheng Wang and Chenglu Wen</i>	P60: Evaluation of Distinctive Features for Land/Water Classification from Multispectral Airborne LiDAR Data at Lake Ontario <i>Salem Morsy, Ahmed Shaker and Ahmed El-Rabbany</i>	P44: Monitoring Ionospheric Perturbations over Egypt Based on National GNSS Network <i>Mahmoud AbdRabbou and Adel El-Shazly</i>
P76: Prediction Of Inertial Positioning Errors Based On Gaussian Process For UAVs In GNSS Denied Environment <i>Mostafa Mostafa, Adel Moussa, Naser El-Sheimy and Abu B Sesay</i>	P43: Alternative Approaches for Feature-based Down-Sampling of Irregular Point Clouds for Fine Registration <i>Fangning He, Ayman Habib and Yun-Jou Lin</i>	P77: A novel adaptive Kalman filter for MEMS-IMU/Magnetometer fusion <i>Qifan Zhou, Maan Khedr, Hai Zhang and Naser El-Sheimy</i>
		P33: Performance Analysis of Real Time Precise Point Positioning in Egypt <i>Ahmed Mansour, Mahmoud AbdRabbou and Adel El-Shazly</i>

DAY TWO

(Sunday, May 7th 2017)

15:00 PM - 16:30 PM

Session (A3) - Hall (A)	Session (B3) - Hall (B)	Session (C3) - Hall (C)
“Smart Collaborative Platforms”	“Vision Aided Localization”	“UAV/UGV Systems and Data Processing”
Chair	Chair	Chair
Prof. Jonathan Li, Xiamen University, China	Prof. Andrea Masiero, Padova University, Italy Prof. Moustafa Baraka, The German University in Cairo, Egypt	Prof. Alison Kealy, Melbourne University, Australia Prof. Khalid Shehata, AASTMT, Egypt
P62: Low-cost UAV Imagery System for Site-Specific Weed Management <i>Mohamed Hassanein and Naser El-Sheimy</i>	P6: Rapid Initialization with Image Based Indoor Localization Based on Artificial Neural Network Using Smartphones <i>Shih-Huan Huang, Jhen-Kai Liao and Kai-Wei Chiang</i>	P40: A Structure-from-Motion Approach Using UAV-based Imagery for Precision Agriculture Applications <i>Fangning He, Weifeng Xiong and Ayman Habib</i>
P21: A New Platform for Activity Tracking in Smart Health Sensor Monitoring Systems <i>Allaa Hussien and Sherin Youssef, Cherin Fathy</i>	P18: Road Test Results and Analysis on Integrating Visual Odometry with Car Motion Sensors for Positioning and Navigation <i>Muhammed Tahsin Rahman, Tashfeen Karamat, Sidney Givigi and Aboelmagd Noureldin</i>	P12: The Performance Analysis of Lidar-Based Unmanned Aerial Vehicles for Disaster Reduction Mapping Applications <i>Guang-Je Tsai, Min-Chuan Tsai, Kai-Wei Chiang and Naser El-Sheimy</i>
P68: FPGA for Intelligent Control Systems: Smart Agent for Elderly People Support <i>Nahla El-Araby, Sahar Hamed, Abdelhalim Mohamed, Islam Gamal and Mostafa Nageeb</i>	P15: A Low-Cost Image Based Mobile System Using Slam <i>Ahmed Youssef and Moustafa Baraka</i>	P26: A cooperative localization system for Unmanned Aerial Vehicles: Prototype development and analysis <i>Salil Goel, Allison Kealy, Bharat Lohani and Guenther Retscher</i>
P63: Remote Healthcare Monitoring System Through Mobile Application <i>Alaa El-Shazli, Nancy El-Gamil and Sherin Youssef</i>	P66: Visual Surveillance Systems for Tracking Multiple Moving Objects <i>Essam Mohamed, Sheren Youssef and Hany Hanafy</i>	P75: Corner Features Aided Indoor SLAM for Unmanned Vehicles <i>Haytham Mohamed, Adel Moussa, Mohamed Elhabiby, Naser El-Sheimy and Abu-Bakarr Sesay</i>
P83: Localization using Region-based Convolution Neural Network: A Comparison Study <i>Charles Toth, Zoltan Koppanyi, Haowei Xu and Dorota Grejner-Brzezinska</i>	P9: A Dual-Channel CAM Shift Algorithm for Embedded Real-time Visual Servoing Applications <i>Islam Alaa, Amr Wassal, Omar Rayan, Osama Rashad and Amr Eldieb</i>	

DAY THREE

(Monday, May 8th 2017)

09:00 AM - 10:30 AM

Session (A4) - Hall (A)	Session (B4) - Hall (B)	Session (C4) - Hall (C)
“Structure/Infra-structure Health Monitoring”	“Personal and Pedestrian Navigation”	“Mapping and Applications”
Chair	Chair	Chair
Prof. Michael Chapman, Ryerson University, Canada Prof. Adel Belal, AASTMT, Egypt	Prof. Kai-Wei Chiang, NCKU, Taiwan Prof. Amr Hanafi Ahmed Ali Banha University, Egypt	Prof. Charles Toth, Ohio State University, USA Prof. Adel El-Shazly Cairo University, Egypt
P79: Pavement Deflection Assessment Using Doppler Lasers on A Mobile Platform <i>Michael Chapman, Cao Min and Deijin Zhang</i>	P3: The Performance Analysis of Using Smartphone and Geo-Referenced Image for Space Resection Aided Pedestrian Dead Reckoning <i>Jhen-Kai Liao, Shih-Huan Huang, Kai-Wei Chiang and Chien-Hsun Chu</i>	P31: Accuracy Assessment of Different Algorithms Used for Derived Bathymetry from the Multispectral Band Landsat 8 Satellite Images Applied for El-Dekhila Port and Soma Bay, Egypt. <i>Esalm Saleh, Adel El-Shazly, Mohamed El-Ghazaly and Kamal Ahmed</i>
P82: Vision Based Techniques for Building Facade Monitoring <i>Andrea Masiero, Francesca Fissore, Francesco Pirotti and Antonio Vettore</i>	P16: Low-Cost GNSS/MEMS Sensors integrated Vision System for Motion and Position Estimation of a bicycle <i>Hsiu-Wen Chang</i>	P84: Swarm Mapping: Investigation on Strategies to Explore Building Interiors <i>Zoltan Koppanyi, Charles Toth and Dorota Grejner-Brzezinska</i>
P89: Modern tramway track geometric quality inspection by aided INS <i>Qijin Chen and Xiaoji Niu</i>	P65: GNSS/INS integrated with intelligent vision system for path reconstruction of a bicycle. <i>Tz-Chiau Su and Hsiu-Wen Chang</i>	P51: Change Detection Analysis of Urban Land Cover Changes Using SPOT5 of Arar City, Saudi Arabia <i>Saleh Mesbah Elkaffas, Khaled Mahar and Sultan Alenezi</i>
P19: Low cost structures oscillation monitoring using terrestrial photogrammetry <i>Omar El Kadi and Adel Hassan Youssef El-Shazly El Shazly</i>	P61: A Novel Approach for Step Detection Using A Free-Moving Handheld Device <i>Maan Khedr and Naser Elsheimy</i>	P86: Remote Sensing Images Self Recovery Authentication Watermarking Technique <i>Salwa Ahmed, Abdelrahman Ali and Naser El-Sheimy</i>
		P71: Positioning Accuracy Improvement Using Low-Cost Inertial Sensors <i>Abdalla El-Desoky, Ahmed Kamel, Mohamed Elhabiby and Hadia Elhennawy</i>

DAY THREE

(Sunday, May 8th 2017)

11:00 AM - 12:30 PM

	Session (B5) - Hall (B)	Session (C5) - Hall (C)
	“Hand-held Mobile Applications”	“Indoor Mapping and Localization”
	Chair	Chair
	Prof. Antonio Vettore, Padova University, Italy Prof. Yi-Hsing Tseng NCKU, Taiwan	Prof. Aboelmagd Noureldin, Queens University, Canada Prof. Ming Wang NCKU, Taiwan
	P57: iNavSet: A benchmark of indoor navigation using smartphones <i>Liu Kun, Pei Ling, Deng Zhantao, Qian Jiuchao, Liu Peilin and Yu Wenxian</i>	P13: The Generation of Well-Georeferenced Floor Plans for Indoor Navigation With Inertial Sensors Aided SLAM Algorithms <i>Min Chuan Tsai, Guang Je Tsai, You Liang Chen, Kai Wei Chiang and Naser El-Sheimy</i>
	P24: Mobile-based Remotely Vehicle Tracking System <i>Essam Mohamed and Sherin Youssef</i>	P41: Indoor surveying with low cost UWB devices <i>Andrea Masiero, Francesca Fissore, Alberto Guarnieri and Antonio Vettore</i>
	P90: Comparative Analysis of Wheat Area Estimation using Landsat and Sentinel-2 Satellite Imagery <i>Abdelraouf Massoud Ali, Ayman Fawzy Habib, Mohamed A. Aboelghar and Mohammed Elshirbeny</i>	P20: 3d Reconstruction With 2d Tilting Lidar Using Vision Only Positioning Method <i>Cyril Joly, Bruno Ricaud and Arnaud de La Fortelle</i>
	P72: Filter Architectures for Indoor Localization Using Gaussian Process on Smartphones <i>Mostafa Sakr and Naser El-Sheimy</i>	P49: Cooperative Localization in Indoor Environments Using Constrained Differential Wi-Fi and UWB Measurements <i>Guenther Retscher, Allison Kealy, Vassilis Gikas, Hannes Hofer, Andreas Ettlinger and Franz Obex</i>
	P55: Dynamic Variation effects on the Stochastic Performance of Smartphone Sensors Using Allan Variance and Generalized Method of Wavelet Moments <i>Ahmed Radi, You Li, Naser El-Sheimy and Abu Sesay</i>	P45: Comparative Analysis of Image and LiDAR-Based Elevation Maps from a UAV Platform for Agriculture Management <i>Fangning He, Magdy Elbahnasawy, Tamer Shamseldin, Weifeng Xiong and Ayman Habib</i>

DAY THREE

(Monday, May 8th 2017)

12:30 PM - 13:30 PM

Session (B6) - Hall (B)

Session (C6) - Hall (C)

“Positioning and Orientation Systems II”

“Cloud Computing and Networking”

Chair

Chair

Prof. Xiaoji Niu,
Wuhan University, China
Prof. Mohamed Zahran
Banha University, Egypt

Prof. Steve Liang,
University of Calgary, Canada
Prof. Mohamed Khedr,
AASTMT, Egypt

P32: Separability Analysis for Multiple Simultaneous Faults in GNSS and GNSS/INS Integration Systems

Ali Almagbile and Jinling Wang

P91: Random Linear Network Coding Over Cloud Computing Network In Data Transmission

Omaima Farouk Younis, Rowayda Sadek and Hadya El Hennawy

P38: The benefit of using high-rate GNSS in precise kinematic positioning

Ming Yang, Feng-Yu Chu and Shu-Chen Cheng

P74: An OGC Standard-based Internet of Things Prototype for Vegetation Recovery Monitoring in Northern Alberta

Steve Liang, Sara Saeedi, James Badger and Luo Kan

P10: Performance Analysis of Indoor Positioning using Differential Distance Correction based on Bluetooth Low Energy

Yun-Tzu Kuo, Jhen-Kai Liao and Kai-Wei Chiang

P58: Three Levels Security Model For Secure Cloud Storage

Sheren Elbooz, Gamal Attiya and Nawal ElFishawy

P17: Accelerating the convergence period of GPS/GLONASS precise point positioning using pseudorange multipath and noise mitigation

Mohammed Abou Galala, Mosbeh Rashid Kaloop, Mostafa Mousa Rabah and Zaki Mohammed Zidan

P67: Developing a New Technique for Detecting Two Critical-Nodes in Adhoc Networks

Ibrahim Fayed, Mokhtar Ahmed, Gamal Attiya and Nawal El-Fishawy

P23: Tuning of the Error Covariance Parameters in EKF-Based INS/GPS Systems: A Practical Approach

Mostafa Mahmoud, Islam Alaa, Amr Wassal, Aboelmagd Noureldin and Amr Eldieb

P92: Multimedia Cloud Computing Based Network Coding

Omaima Farouk Younis, Rowayda Sadek and Hadya El Hennawy



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