GEOSPATIAL WORLD FORUM
15-19 January, 2018, Hyderabad, India

ONE GLOBAL PLATFORM – FOUR KEY EVENTS!

GEOBUIZ SUMMIT
15-16 January, 2018

AI & IOT SUMMIT
18-19 January, 2018

GEO4SDGs
Addressing Agenda 2030
18-19 January, 2018

LOCATION WORLD
18-19 January, 2018

CLICK HERE TO KNOW MORE
Airborne urban mapping made easy
Leica CityMapper and Real City

Ratan Awasthi
State-of-the-art oblique views
Point cloud from stereo & oblique images

- Pointclouds generated from imaging, even if flown in very dense overlaps (dense matching) still show problem areas, where efficient point extraction is not good enough.
Leica CityMapper
CityMapper imaging sensors

• Nadir camera
  • Leica RCD30 CH82 multispectral camera
  • 80 MP, 5.2 µm pixels
  • Mechanical bi directional motion compensation

• Oblique cameras, 4 pcs
  • Leica RCD30 CH81 mini RGB camera
  • 80 MP, 5.2 µm pixels
  • 45 degrees viewing angle (other optional available)
  • Mechanical in flight directional motion compensation
CityMapper LiDAR sensor

- Pulse repetition frequency up to 700 KHz
- Laser divergence 0.25 mrad
- Up to 2,500 m altitude range
- Oblique scanner, with various scan patterns
- Up to 40 degrees field of view
- Real time LIDAR waveform analysis
  - Including waveform attribute capture
  - Typical 8 p/m2 at City Mapping
CityMapper system peripherals

- **PAV 100 Mount**
  - Stabilises the sensor for flight path deviations in roll, pitch and yaw
  - Minimises image blur and improves LiDAR data spatial distribution

- **Leica POD Lifter**
  - High oblique viewing angles, without interference with aircraft fuse-lodge
  - Lifts the sensor during take off and landing to protect it

- **CC33 Camera & LiDAR Controller**
  - Controls camera heads and LiDAR unit
  - Stores the image and LiDAR data on 2.4 TB solid state drives
  - Includes deeply coupled GNSS/IMU solution

- **Leica OC60 Operator Console**
  - 12.1” screen hosting the Sensor Operator interface
  - Leica PD60 Pilot Display
  - 6.3” screen hosting the Pilot interface
CityMapper operational

• Weight and Size
  • CityMapper sensor: Height 75 cm, ø 41 cm, Weight 54 Kg
  • PAV: 67x53x17 cm, Weight 38 Kg
  • POD lifter: Weight 20 Kg
  • CC33: Weight 6 kg

• IMU / GNSS
  • SPAN CNUS5-H, Non export controlled

• Operational
  • Operating -10 to 40 deg C
  • Avg. Power: 600 w / 28 VDC
  • Peak power: 1000 W / 28 VDC
  • Fuse: 1x 50 A
Leica RealCity
Airborne reality capture for smart cities
Leica HxMap 2D & 3D production workflow

HxMap modules for Leica RealCity

**Enabler**
Enabler, Workflow Manager

**Provider**
Ingest, Raw QC

**Core**
APM, AT, Infocloud, Ortho Generator, Ortho Mosaic

**3D Modeller Basic**
City Modeller, Texture Mapper, 3D Editor

**3D Modeller Advanced**
Building Finder, 3D Mesh

**SDK**
Developer's Kit

- = Standard  ○ = Optional
HxMap CityModeller / BuildingFinder

1. Stereo imagery
2. 3D-point cloud/DSM (if available also from LiDAR)
3. Building footprints
4. 3D city model in LOD 2

Automatic
(Semi global matching algorithm)
HxMap LiDAR point cloud processing
St. Gallen Cathedral – Lidar intensity point cloud
Image PC vs Lidar PC
Noise & Vegetation
Image PC vs Lidar PC
Noise & Vegetation
Image PC vs Lidar PC
Building Edges
Image PC vs Lidar PC
Building Extraction
Image PC vs Lidar PC
Building Extraction
3D Mesh
Economic advantage

- Two datasets collected in one flight ➔ **Half the collection costs**
- End user does not need to select between imaging and LIDAR ➔ **Gets both**
- Fused data improves automatic modelling ➔ **Reduced manual edits**
- Improved accuracy of end product ➔ **Increased customer satisfaction**
- Fused workflow ➔ **Less software tools, less training, less labor works**
- But primary: The RealCity and CityMapper offers a complete solution for the fast growing need of accurate 3D urban modelling.
Thanks