

### Introduction



- The StreetMapper Approach:
  - High Accuracy
  - Laser scanners
  - Video + Digital images
  - Mounting systems
- Some examples of data



# Who is using StreetMapper?





### **City Model Accuracy Tests - Stuttgart**

- Undertaken by Institute for Photogrammetry (ifp), Universität Stuttgart, Germany
- Compare to 3D model of City Surveying Office of Stuttgart
- 35 minutes surveying
- 18km survey





## **Navigation Accuracy**

- Number of satellites along the route
- Estimated horizontal accuracy along the route



#### **Point Cloud Accuracy**

- Compare points with 3D model for each façade
- Comparison made in good and bad GPS areas
- Overall RMS error 3cm or better from model to points



## **Highway Accuracy Tests - CALTRANS**

- Undertaken by Terrametrix (StreetMapper operator in USA)
- Caltrans Mobile Mapping Test Area
- Half-mile stretch of High Occupancy Vehicle (HOV) lane highway in San Diego

number of Control Points 1567 average dz 0.9mm minimum dz -15mm maximum dz +18mm average magnitude 5mm root mean square 7mm standard deviation 7mm





(STREET APPER)



#### Sensors: Laser scanners

- Direct 3D measurement
- Long range
- High accuracy
- Multiple returns (through vegetation)



Two 360 degree scanners 300 kHz measurements 300m range 10mm accuracy Multiple return pulses









#### Waveform processing - quality



## Waveform processing – multiple returns



#### **Technology - Video**

- Documentation video
  - Using TerraPhoto Viewer
- Coloured points
- Photogrammetry
  - TerraPhoto
  - PHIDIAS









#### **SM Video - Documentation Video**

Combined with 3D data



#### **Calibration of camera system**







## **Photogrammetry - PHIDIAS**







#### Feature Extraction: SMVision software

- For extracting road signs etc
- 25 frames/second
- High tolerance to noise and lighting



#### Feature Extraction: SMVision software

Improvement of feature extraction by using laser data to eliminate "false positive" matches



## **Vehicle Mounts**







#### StreetMapper 360 Mount

- Lifting platform
  - Safety of staff + security + environmental protection



#### StreetMapper Portable Mount

Can be easily relocated around the world



#### Thank You

#### Any questions?

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