Fáilte!  

Seminarvortrag zu meiner Praxisphase bei Murphy Surveys Ltd.  
am 08.10.2015 an der Hochschule Bochum  
vorgetragen von Florian Rogosch
Übersicht

• Allgemeine Vorstellung meiner Praxisstelle

• Einführung in meine Arbeit im Innen- sowie Außendienst

• Detailliertere Vorstellung meiner Arbeit an Hand eines beispielhaften Projekts
Murphy Surveys Ltd.

- Established in 1983 \((\text{in the Rep. of Ireland})\)

- Nationwide and international operating consultant surveying company

- Several offices in Ireland and the UK

- With a staff of over 120 people in Ireland and over 60 people in the UK
Irish head office is based in **Kilcullen**, Co. Kildare
Survey services (selection)

- Laser Scanning
- Monitoring
- BIM
- Underground Utility Surveys
- Photographic & Aerial Surveys
- Topographic Surveys

Pictures: http://www.murphysurveys.ie/survey-services/
Daily work

in the laser scanning department

• A team with around 13 people very international!

• work on site → \( \frac{2}{3} \) of the time assisted experienced surveying engineers

• office → \( \frac{1}{3} \) of the time processed the data I gathered on site
Equipment

Leica P20 Laser scanner
Leica TS15 total station

Z+F Imager 5010C Laser scanner
Equipment

Leica GS15 GPS set

Leica DNA digital level
Typical workspace in the office

*Extracting features of a 3D unified point cloud to a 2D floorplan*

Work with **Leica Cyclone** and **Leica CloudWorx** for AutoCAD
Office - registration

→ Register scans and use filters

→ Create unified and tidied point clouds
Office - registration

Check the quality of the point cloud:
Office - filtering

Big issue:
Mirrors!
OPW – my 1st project

OPW Head Quarter in Trim, Co. Meath

→ scan of the entire building from the outside (elevations) and the inside (4 floors + basement)
What the client requires:

- Current **2D floor plans and elevations** of the whole building

- A detailed **BIM (Building Information Modelling)** of the entire building
OPW – laser scanner

Z+F Imager 5010C
laser scanner

Reasons:
• 360° scans + HDR panorama picture
• Create colourized point clouds → every pixel receives a RGB value
• difficult geometry of the building
OPW - targets

B&W tilt-and-turn and paper targets
OPW - targets

B&W tilt-and-turn targets aka. “Lollipop”

Appearance in the point cloud (Leica Cyclone)

Registration of targets
Excursion

Rolling legs, quick change of setup!

Spherical target with magnetic stand

At least 3 targets for each scan
Complete scan of the OPW head quarter

→ 480 scans

(60 scans for the basement and 100 to 110 scans for each floor)

in 14 days on site
  + work in the office

=> huge amount of data!
OPW – elevations

What the client receives:
OPW – floor plan

THIRD FLOOR

OUTLINE OF PROPOSED ROOF GARDEN
LANDSCAPING OF ROOF GARDEN BY FIT OUT CONTRACTOR
THANKS FOR LISTENING
Ireland – just a great craic!
…Fortsetzung folgt…
M7 motorway

After cloud to cloud registration with Leica Cyclone:
M7 motorway

Untidied but unified point cloud:

→ a lot of noise (e.g. vehicles that pass by)
M7 motorway

Solution: Filtering the noise with smooth surface!
• Use the pointcloud to create a topographical map!
• Capture topographical information with Leica Cyclone Topo II

→ Select single points (e.g. for height information)
M7 motorway - Topo

→ Draw / select topographical lines

→ export gathered topographical Information to AutoCAD