Hochschule Kempten
University of Applied Sciences

Research & Development-Project: OSI ground truth data based on real world GIS (Geographic Information System)

OSI Crash Course Presentation for ASAM, Project OSI

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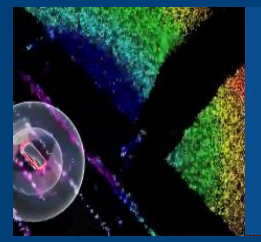
Abstract Driver

ADAS



Abstract Environment

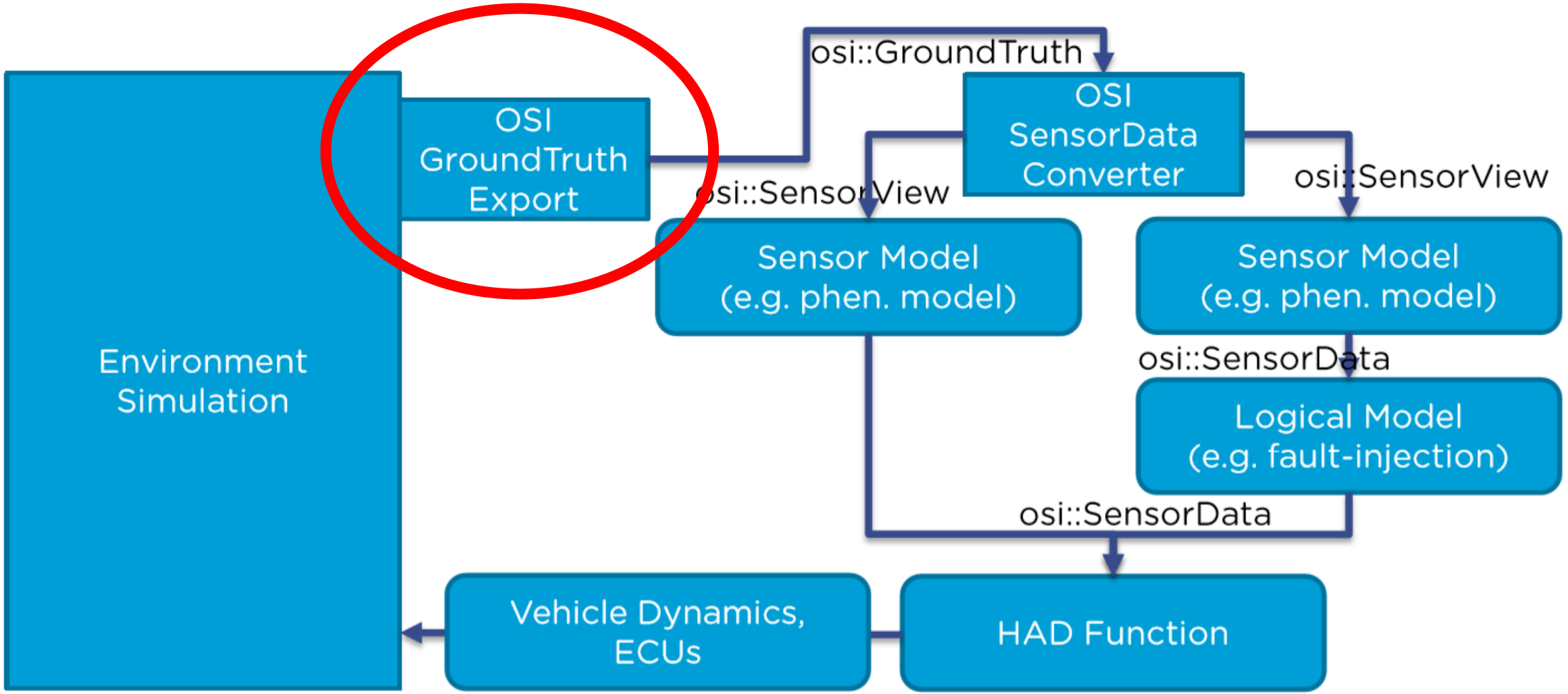
Abstract Vehicle

Vehicle

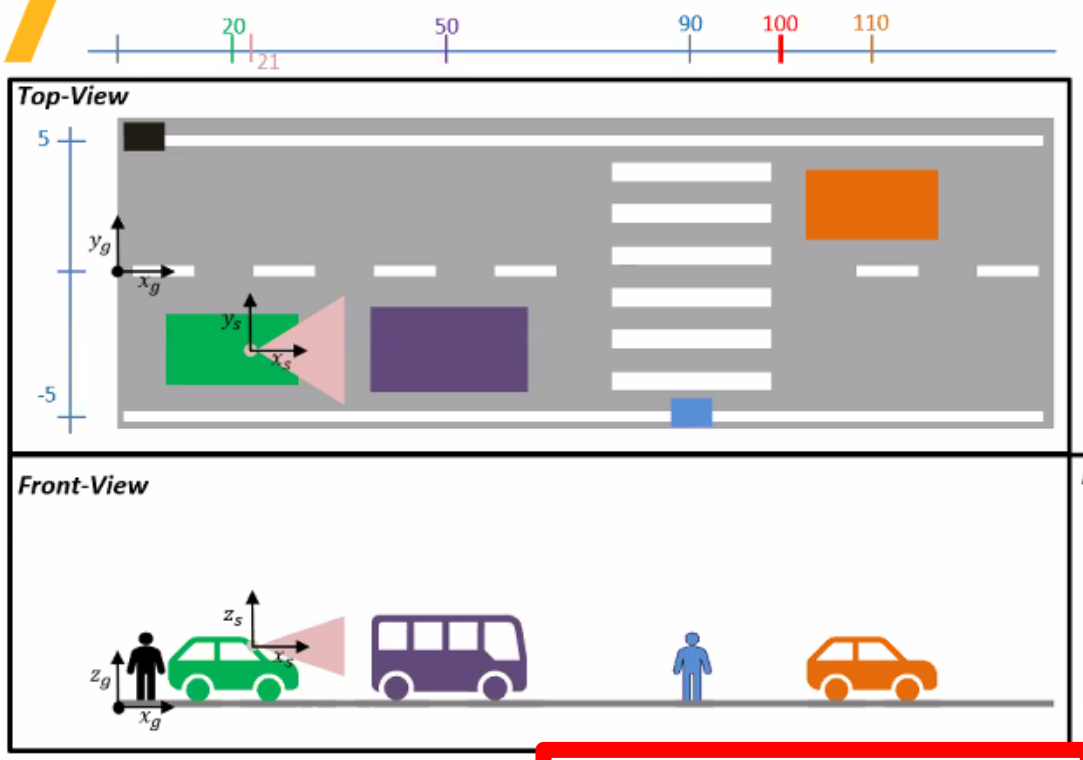
?

Driver

Environment


Environment Simulation
OSI GroundTruth Export
osi::GroundTruth
OSI SensorData Converter
osi::SensorView
osi::SensorView
Sensor Model (e.g. phen. model)
Sensor Model (e.g. phen. model)
osi::SensorData
Logical Model (e.g. fault-injection)
osi::SensorData
Vehicle Dynamics, ECUs
HAD Function

OSI3::GroundTruth / SensorView / SensorViewConfiguration /SensorData



Assumptions:

1. *osi3::SensorViewConfiguration:* ***(relevant for SensorView)***
   1. *range: 80 [m]*
   2. *field_of_view_vertical = xx [rad]*
   3. *field_of_view_horizontal = xx [rad]*
   4. *osi3:MountingPosition (ISO 8855 – Veh. Coordinate)*
      - *orientation = xx.xx [rad]*
      - *position = xx.xx [m]*
   5. *osi3::Identifier = xx [-]*

Sensor Model Description (relevant for SensorData)

1. *osi3::CameraSensorViewConfiguration*
   - *mounting_positon (**x_s , y_s, z_s, orientation**)*
   - *field_of_view_vertical*
   - *field_of_view_horizontal*
   - *…*
2. *When lateral offset between two detected objects inside the field of view is less than 0.05 [m] the sensor only considers the largest object. (relevant for OSI:SensorData)*

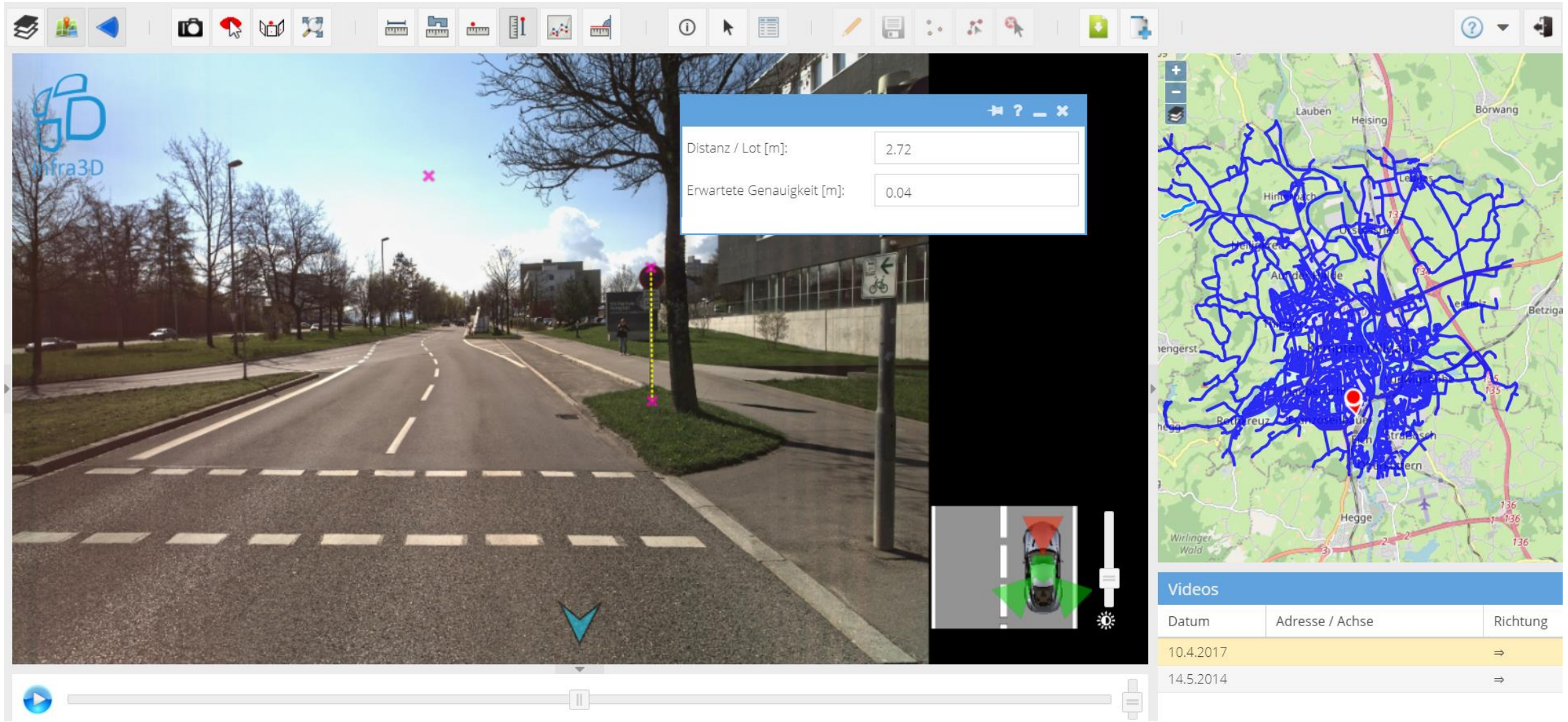
Legend:

x_g , y_g, z_g : *global coordinate system axis, represent the World Frame (could be anywhere).*

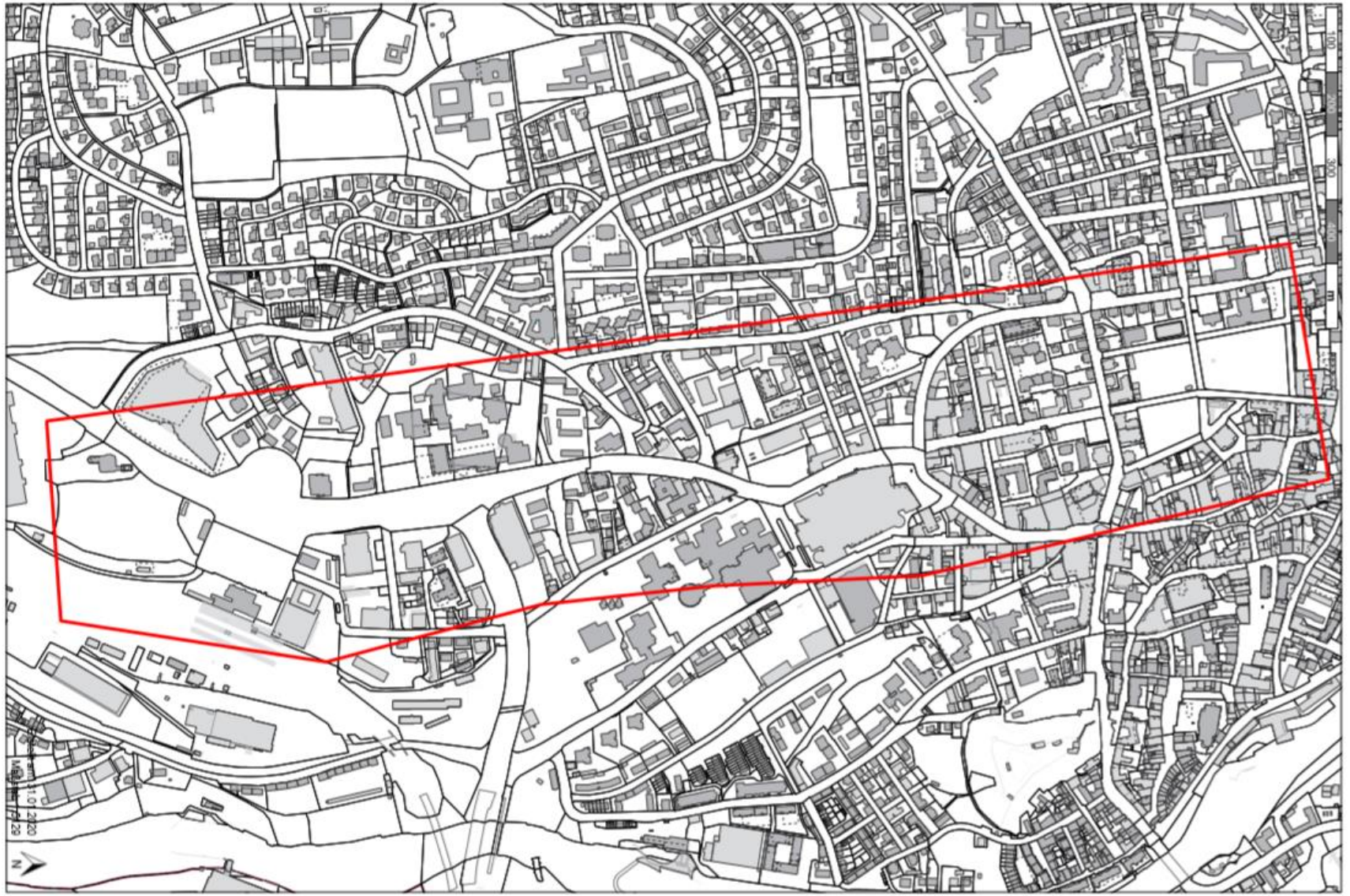
x_s , y_s, z_s : *Virtual mounting position of the sensor, sensor coordinate system, defined relativ to the vehicles frame's origin (center of rear axis ISO 8855.*

	OSI:GroundTruth (x_g , y_g, z_g)					**OSI:SensorView** global_ground_truth)					**OSI:SensorView** (camera_sensor_view, **image**)					**OSI:SensorData** (x_s , y_s, z_s) (detected_moving_objects)				
Obj.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
x	20	2	50	90	110	20	x	50	90	x	x	x	29	69	x	x	x	29	x	x
y	-2.5	5	-2.5	-5	2.5	-2.5	x	-2.5	-5	x	x	x	0	0	x	x	x	0	x	x
Nr.	5					3					2					1				

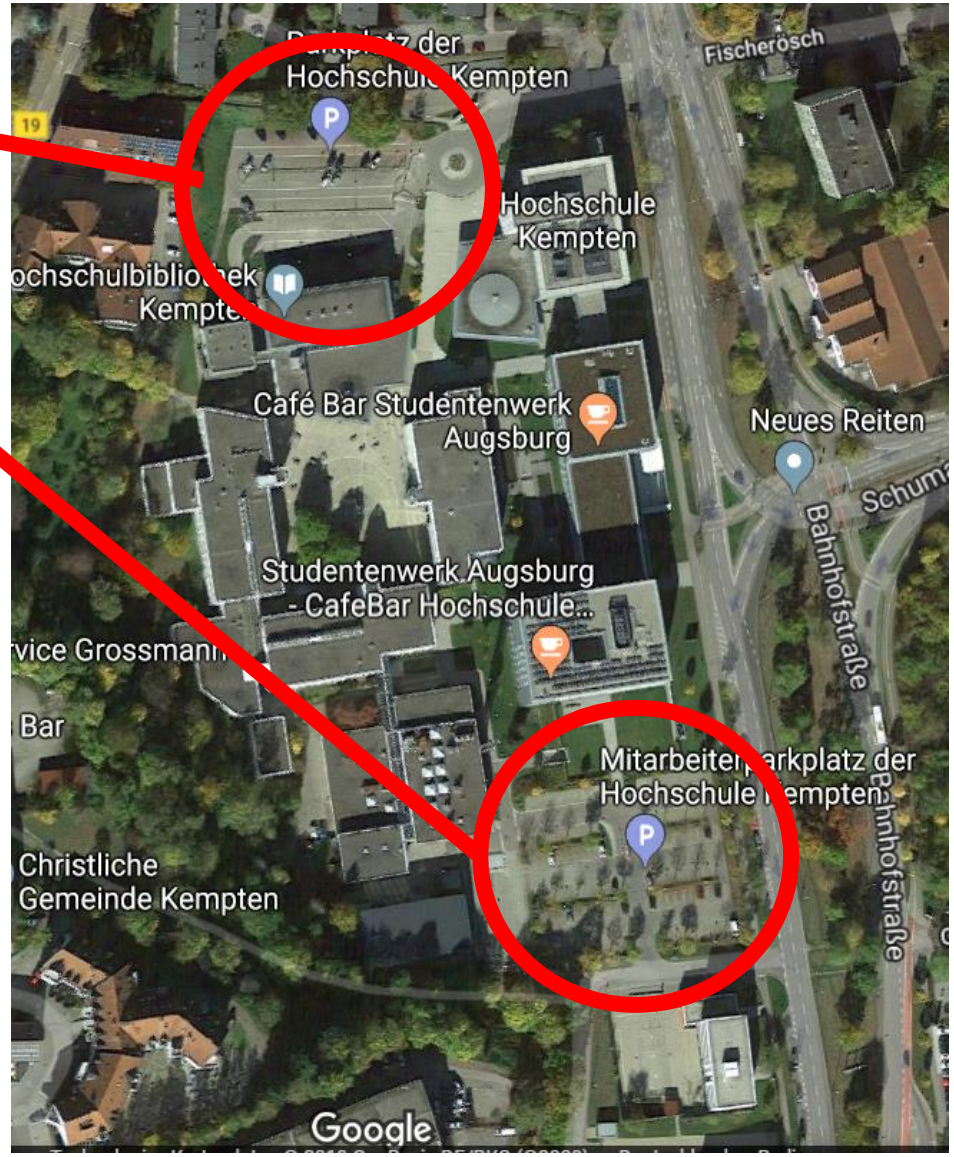
ANSYS, Dr. Kmeid Saad


Distanz / Lot [m]:
2.72
Erwartete Genauigkeit [m]:
0.04
Videos
Datum
Adresse / Achse
Richtung
10.4.2017
14.5.2014

Reference Route



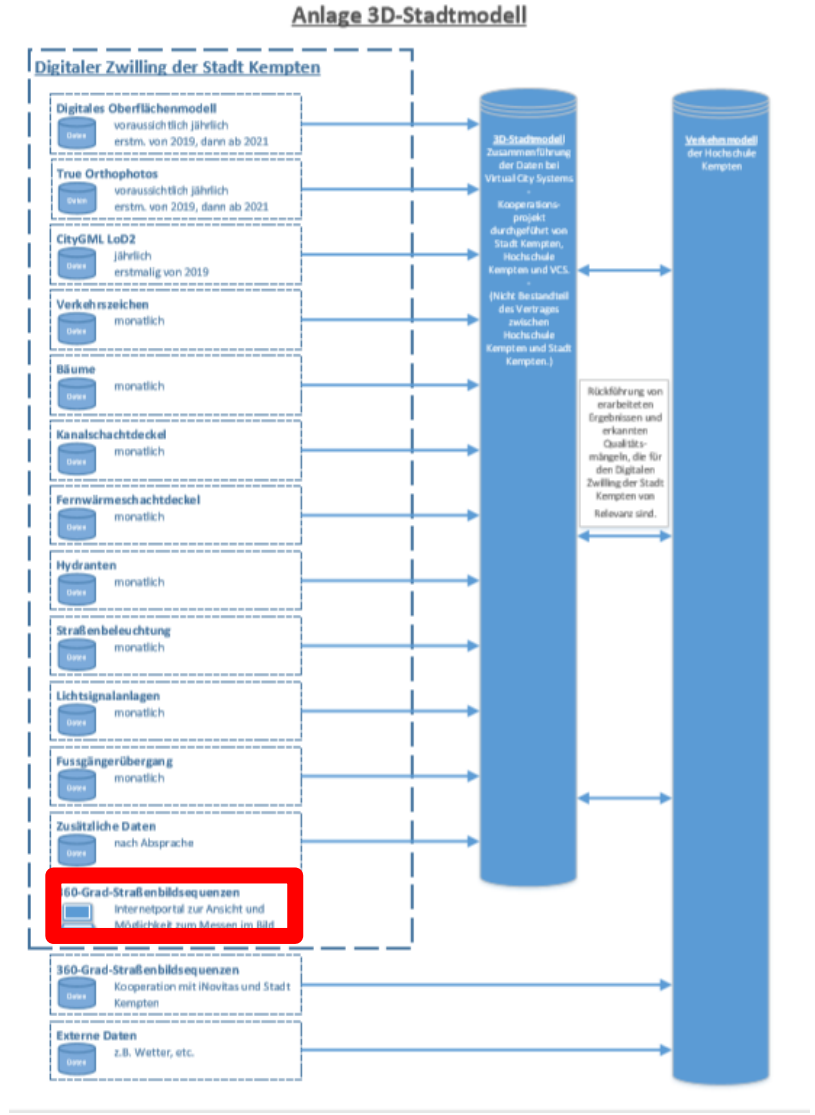
1. **Parking side of the UAS Kempten**
2. **Employee parking side of the UAS Kempten**



Google Maps

Activities in Kempten: 3d-CityData Model of the City of Kempten/Allgäu

Signing Licence Contract for Using 3D-Citymodel of Kempten, 19.12.2019



- **Team University Kempten**
  - Prof. Stefan Schneider
  - Dr. Jürgen Stübner
  - Peter Buckel
  - Juljan Sandkühler
  - Florian Frank
  - Marcel Sachse

- **City of Kempten**

- **PMSF IT Consulting**

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THANK YOU!

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