Positioning and Tracking of Deployment Forces Combining an Autonomous Multi-Sensor System with Video Content Analysis

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AIONAV – SYSTEM

AIONAV System

Hardware:

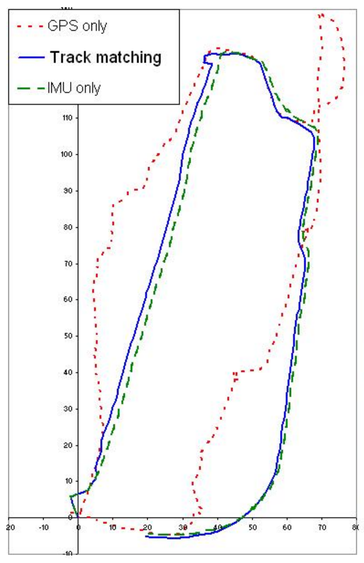
- Inertial Measurement Unit (IMU)
- Lightweight wearable computer / smartphone

Software:

- Motion pattern analysis
- Intuitive user interaction

AIONAV Benefits

- No installation in the building necessary
- High positioning accuracy
- Small and handy system
- Autonomous operation in case of transmission interruption
- Maps can easily be integrated from different sources



AIONAV-CAM – SYSTEM

Principle System Setup

- Extension of AIONAV – System with small portable Video Camera

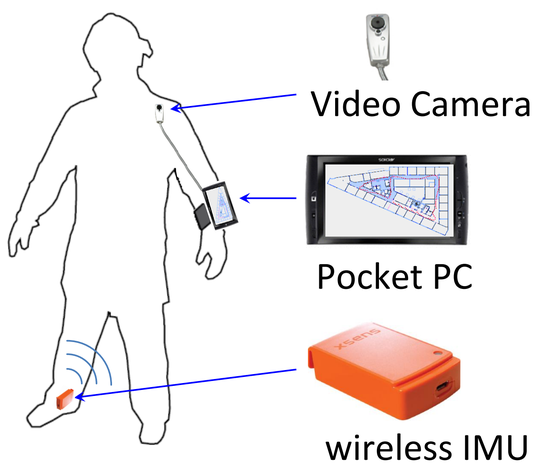
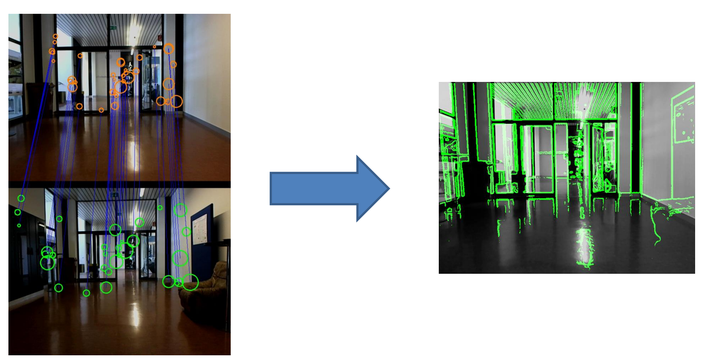


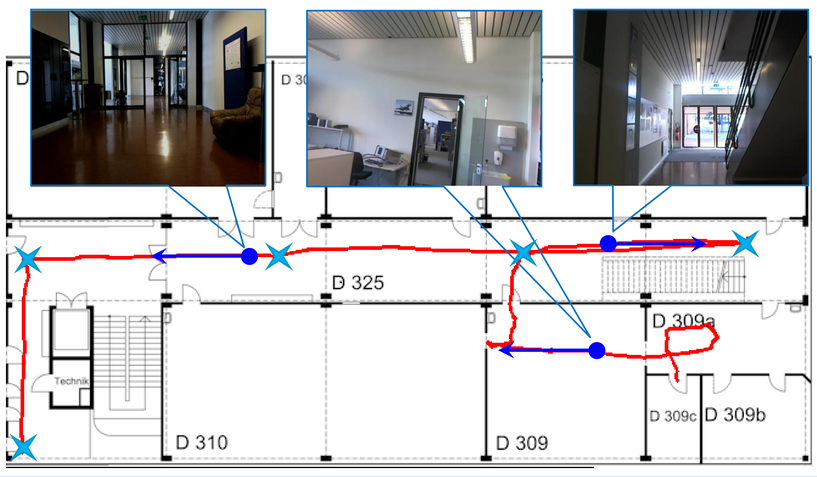
Image Correspondence

- SURF feature correspondences between current image and different reference images is established
- Optimum matching reference image through different criteria



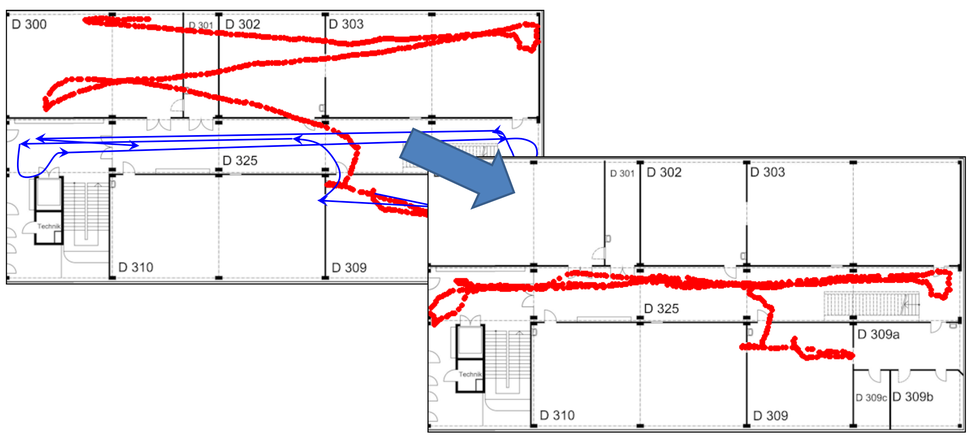
Recording of Reference Images

- Reference images are taken and stored to disk
- The corresponding position is taken from (manually) corrected AIONAV data



Position Correction

- Image feature correspondence allows to establish a position correction



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