Smart Space Subdivision of Polyhedral Models for Indoor Navigation (SIMs3D)

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Contents

• Completed work
  – Data acquisition
  – Google Tango investigation for indoor applications
  – Website / Promotion / Data sharing

• Ongoing Research
  – Investigation of different representations
  – Extraction of free space from vector models
  – Study of possible subdivision approaches

• Future plans
Completed Work

- **Data acquisition**
  - Scanning of fire brigade and Maassilo buildings with Leica.

Source: [SIMs3D.net](https://www.SIMs3D.net)
Completed Work

- Data acquisition
  - Scanning of fire brigade and Maassilo buildings with Leica.

Source: SLMs3D.net
Completed Work

- Google Tango
  - Investigation of the tablet for indoor scanning usage.
  - Tested on different types of scenes.
Completed Work

- Google Tango
  - Study of performance and quality
  - Accepted article at the 13th ISPRS Congress (to be published in July 2016).
Completed Work

• Website
  – www.sims3d.net

• Communication
  – Twitter account: @SIMs3DProject

• Data sharing
  – Private server / access on demand
Ongoing Research

- Investigation of different representations
  - Octree
  - Voxel
  - Vector models (Polyhedral, IFC, CityGML LoD4)

Production of test models

Source: BimVision

Source: Nagel et al. 2009
Ongoing Research

- Extraction of free space from vector models
Ongoing Research

- Extraction of free space from vector models
Ongoing Research

- Extraction of free space from vector models
Ongoing Research

- Investigation of different representations
  - What to do with such volumes?
  - How to make them suitable for indoor path generation?

Source: Zlatanova et al. 2013
Ongoing Research

• Study of possible subdivision approaches
  – Subspacing framework
Ongoing Research

- Study of possible subdivision approaches
  - Convex decomposition
Future Plans…

- Grammar based subdivision.  
  - Set of rules/operations to generate spaces

- Consider dynamic changes of spaces.
- Deeper investigation of the Tango tablet possibilities.
References

