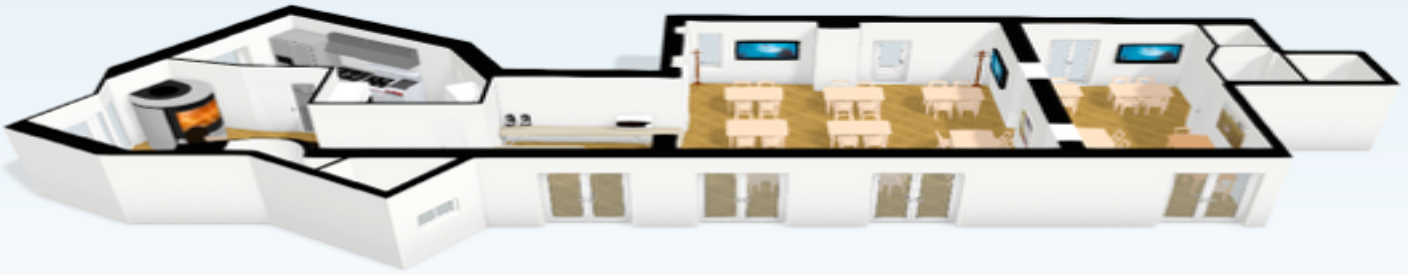


Student Project Creation of Architectural Floor Plans



University of
Zurich^{UZH}



Topic

The use of laser scanning technology is becoming a vital component of building construction and maintenance, since it enables the accurate “*as-built*” reconstruction of the building structure.

There are many real-world cases where the actual “*as-built*” condition of a building is different from the original floor plans, e.g. due to undocumented renovations, etc.

In addition, since most of the blueprints are in hard copies, their maintenance or usage is difficult and the possibility of losing them during the years is also very high.

Assignment

The main objective of this project is to generate a digital “*as-is*” model of the floor plan of the building from a 3D point cloud model. Further ambition of the project is to create a simplified architectural floor plan equivalent to the blueprint drawings created by CAD software, where proper symbols are used to indicate the specific architectural structures, such as walls, windows and doors, as well as the specific materials that each object is made of.



Point cloud.

To this extend, the tasks of this project include :

- the translation of the 3D point cloud to a projected basic line drawing;
- the conversion of line drawing to an architectural blueprint using specific architectural symbols and line styles;
- the artificial completion of the created floor plan with usual every-day objects;
- representation of blueprint dimensions.

Requirements

Interest in (3D) graphics and image processing. Application development in C and Matlab.

Work Load

- 20% theory

- 70% implementation
- 10% testing

Project Type

Based on the scope of the topic and optional tasks, this project can be done as Bachelor or Master thesis. Goals are adjusted depending on the project type and number of students.

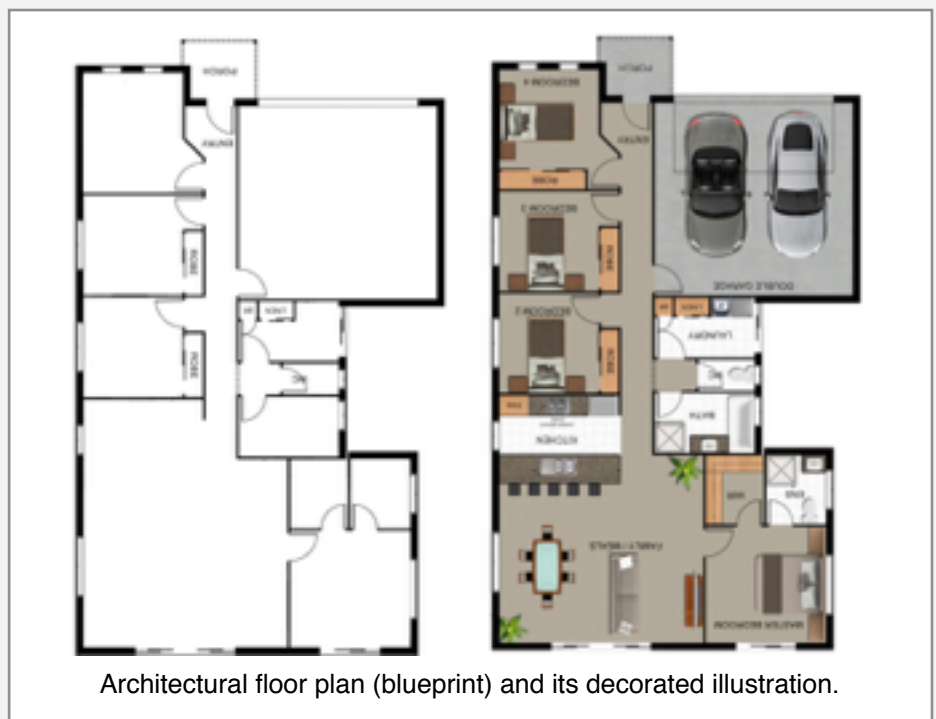
Supervision

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Architectural floor plan (blueprint) and its decorated illustration.