



**Politecnico
di Torino**

Honors Thesis

Master of Science in Sustainable Architecture

Abstract

**Geomatic methods for the built heritage of Canosio valorization. Redeveloping
Casa Corte by proposing an emergency housing**

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Abstract

The thesis is based on the geomatics survey techniques performed on “Casa - Corte” a Village house particular to the municipality of Canosio. An in-depth research is carried out on the different types of geomatics survey methods, namely UAV photogrammetry, the hand held system named Zebbi Revo by GeoSlam which is based on SLAM technology, LiDAR which is a laser scanner used to convert analog information digitally and Gis, a tool that allows to analyze the territory based on geographic information.

Along with team Direct DAD Polito, we students carried out a survey to analyze Valle Maira and particularly Casa Corte. We did an extensive 3D survey on cutting-edge geomatics techniques for Casa Corte, which enabled us to produce an integrated 3D representation of the building's current state. This survey data was later processed in the Laboratory of geomatics, Polito, and 3 different point clouds were generated, which on merging provided us with a detailed textured mesh of the house, given that it would have been impossible to generate a similar model as the house is in a state of ruins.

An additional mobile survey was carried out by us, with the help of 3D scanner application on an I-phone, which helped us study the interior spaces and merge the data with the previously generated point cloud.

History of a place is always interesting and for us the data was scarce as it has been difficult to map out the area of the Maira valley. Here, a compendium of the historical cartography consulted is suggested, showing the territory of Canosio wherever possible.

The territorial analysis necessary for the production of the design has been performed on GIS, giving us all the necessary details to keep in mind during the design phase.

To provide a conclusion on the application of the geomatics survey as mentioned in the thesis, the two main problems that are focused upon are: 1. The depopulation of the territory of Maira valley, and 2. The current scenario of war faced between Ukraine and Russia.

To address these, a common solution was to adapt Casa Corte by giving it new functions and providing the refugees a place where they can reside with safety and also blend in the community by making a livelihood out of the extra touristic and productive activities.

A study of the construction phases of Casa Corte helped us in understanding the architecture and redevelop it by keeping in mind the social, political and economic aspects.