

3D Model of Underground Canal “Aposa” Bologna

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SUMMARY

Aposa canal is the only natural waterway that passes through and underneath Bologna’s historical city center, originally running as an open canal in its entire 7.5 km length. Since the middle-ages, the lack of free lots within the city’s fortifications, caused some citizens to obtain the possibility of closing some of its parts with masonry vaults, to be able to build dwellings above them. In the following centuries, the whole canal was completely covered and built on.

In the past years, after serving as a communal sewer, it has received many maintenance works and after the creation of a new closed-system sewer in the early 90s, it finally became accessible. Actual maintenance conditions however, doesn't allow it to be a real tourist attraction, and Bologna’s Municipality has a limited information about the original canal pathways, its private sewer insertions, conservation state of vaults and arches etc.

The aim of this project, undertaken by the Collegio Geometri di Bologna, is to create a 3D model using two separate technologies: TLS and SLAM, and to handover to the Municipality of Bologna a georeferenced 3D virtual environment through which, the local government could achieve several purposes. For example, to record all the private sewer insertions, discover undisclosed ones, verify maintenance of public sewers, georeference all superficial exits, obtain information about the maintenance and conservation of arches, roman bridges and vaults to define a succeeding maintenance plan. All of these services will be available through a 3D Virtual Environment, as well as being a tourists’ virtual tour.

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