

Figure 5. A sample of façade element with different window design elements seen in the image and relevant point cloud.

RANSAC algorithm introduced by Fischler & Bolles (1981) is an efficient algorithm that is widely used in computer vision for detecting simple shapes both in 2D and 3D point clouds. With the output we determined approximate shapes that are parts of the window features. Following this, the user can match relevant points to match the selected library elements (Figure 6 and Figure 7)

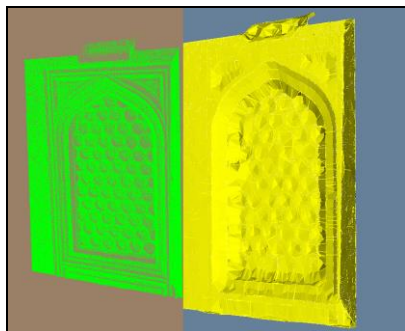


Figure 6. Detailed point cloud view of a window and its generated simplified triangulated surface as a intermediate.

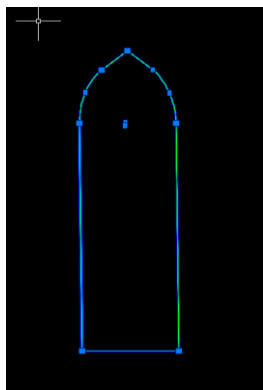


Figure 7. An example of window drawing with vertices, which is used to determine the window parameters.

4. CONCLUSIONS AND FUTURE WORKS

Şehzade Mosque is accepted as a key for the classical mosque design in Turkey and has been copied in historic and numerous new mosques. However, the façade plan design has been little researched. According to the first findings using the methodology presented here, we plan to extend the current window library to the different architectural elements of the mosque. The system will propose the window type according to the algorithm results and increase the automation in digital modelling. In addition, developing a semantic database and

converting the final product to BIM industry standards will be focused on long term implementation for architectural documentation, survey and management of historic mosques.

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