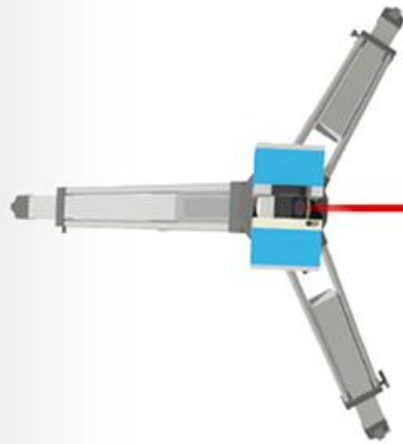


# UNderstanding HEritage through Augmented Reality Development



NARROWING THE GAP BETWEEN THE  
VIRTUAL AND THE REAL WORLD

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CAA  
SIENA 2015

Mensor<sup>3D</sup>  
culture



# Study goals

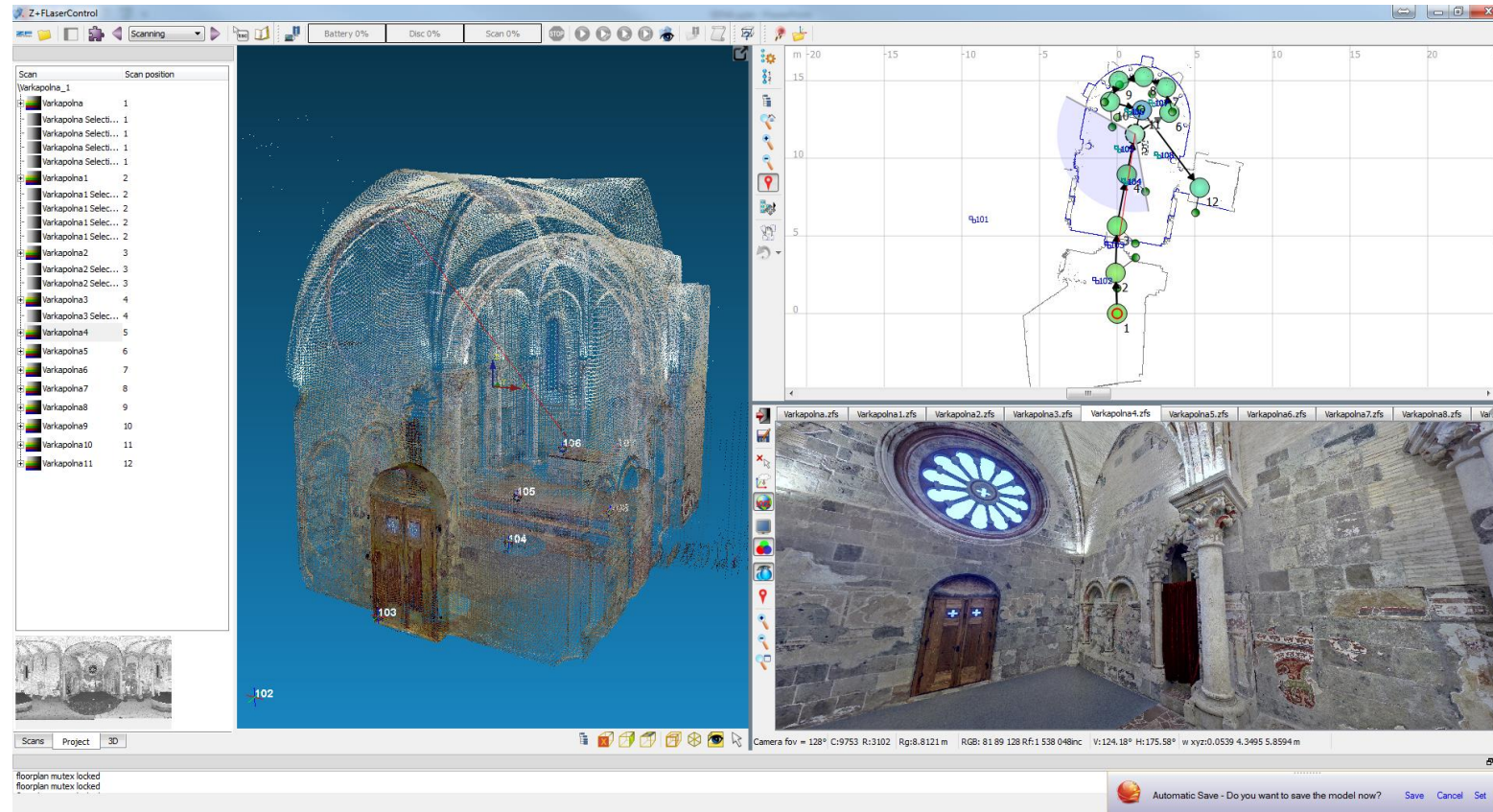
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1. Digitally scan real world objects, buildings and sites.
2. Document current conditions.
3. Preserve and present scanned items.
4. Enable deeper understanding and engage professional discussion.
5. Knowledge dissemination.

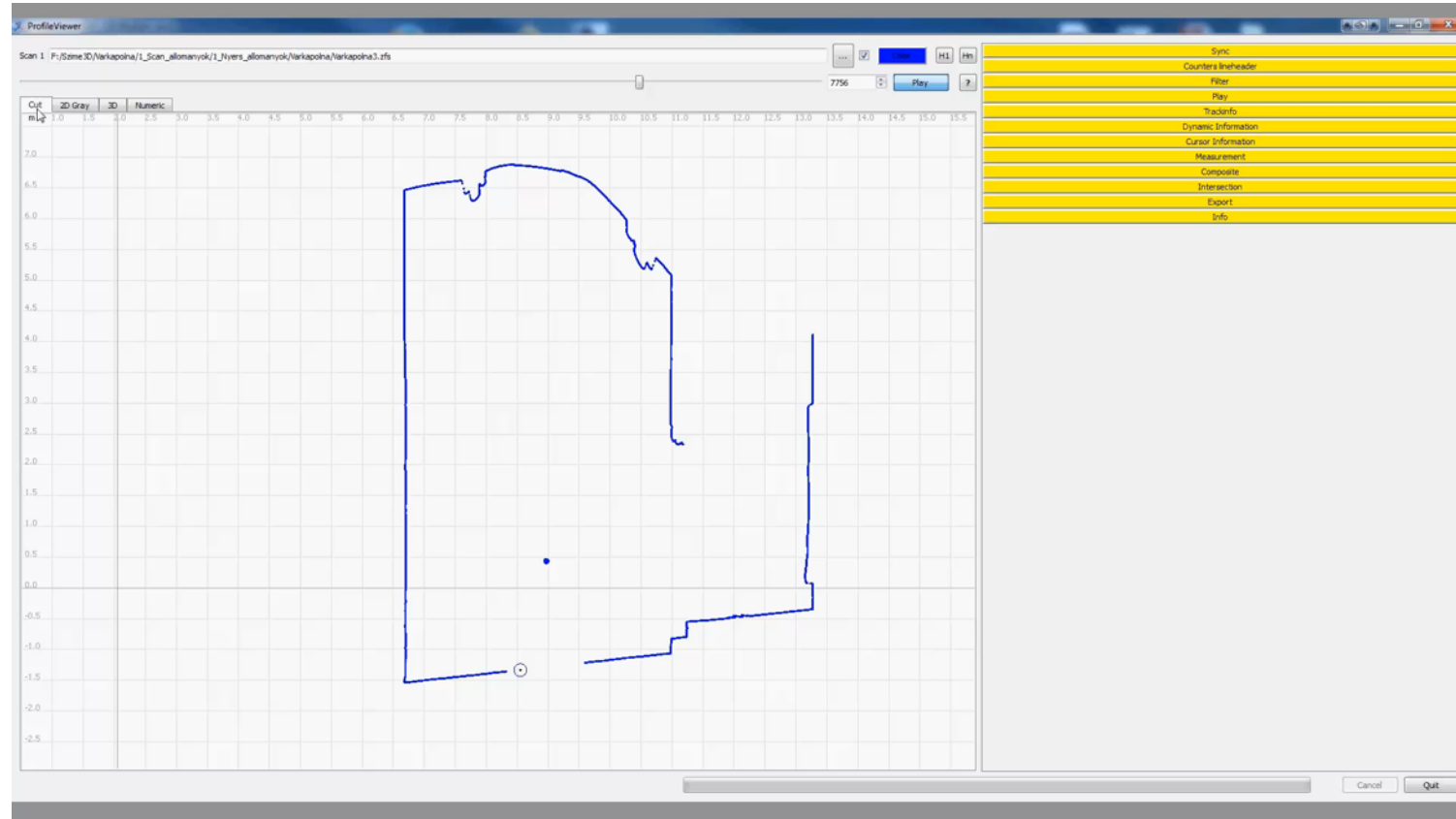
# TLS survey - The professional way



# On-site building survey: Esztergom - Chapel of the castle



# Survey and Data processing



# Short film of the Chapel – point cloud



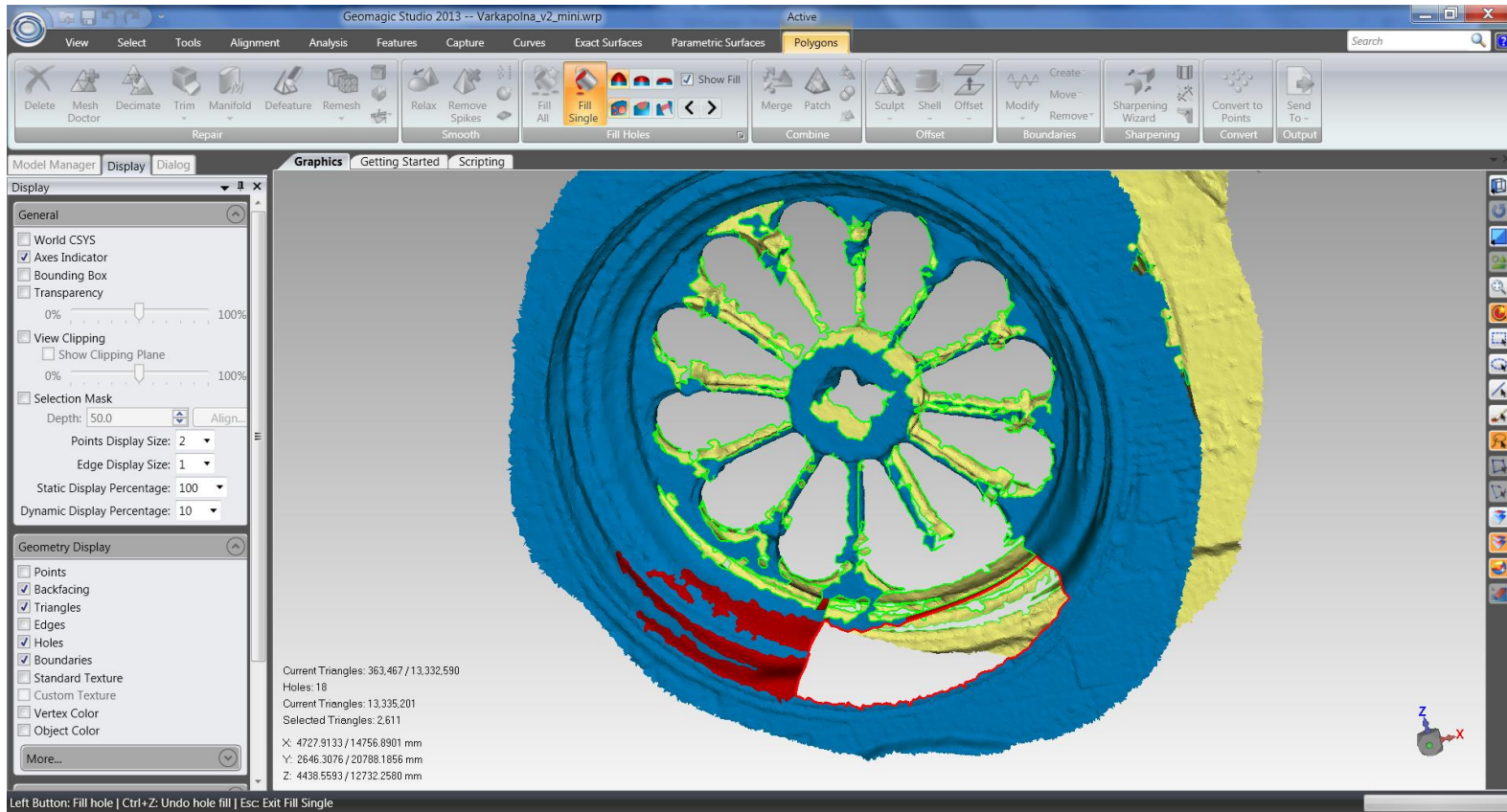
# Automatic point cloud conversion to a polygon object



Current Triangles: 1,225,984  
Selected Triangles: 0  
X: 14872.7951 mm  
Y: 20803.9295 mm  
Z: 12799.3107 mm  
RAM: 8032 MB free / 65461 MB  
Virtual: 39591 MB free / 90044 MB



# Model retouching





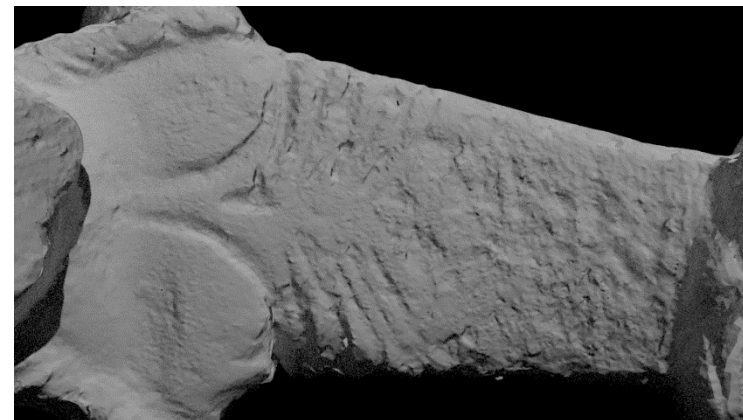
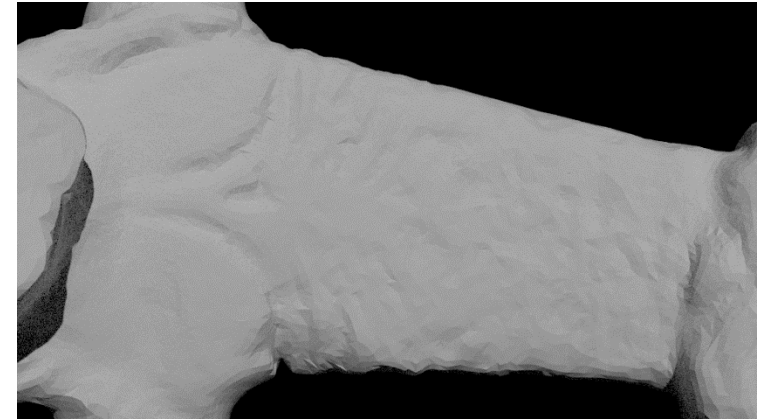
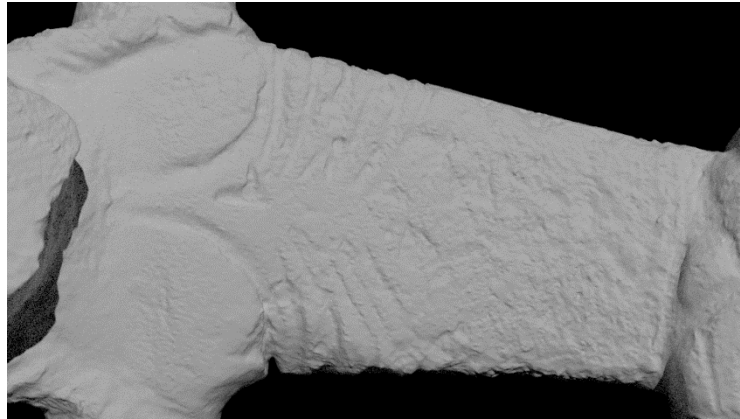
# SLS survey - The professional way



# Scanning artifacts: Byzantine bronze jug and Corpus - Christ figure



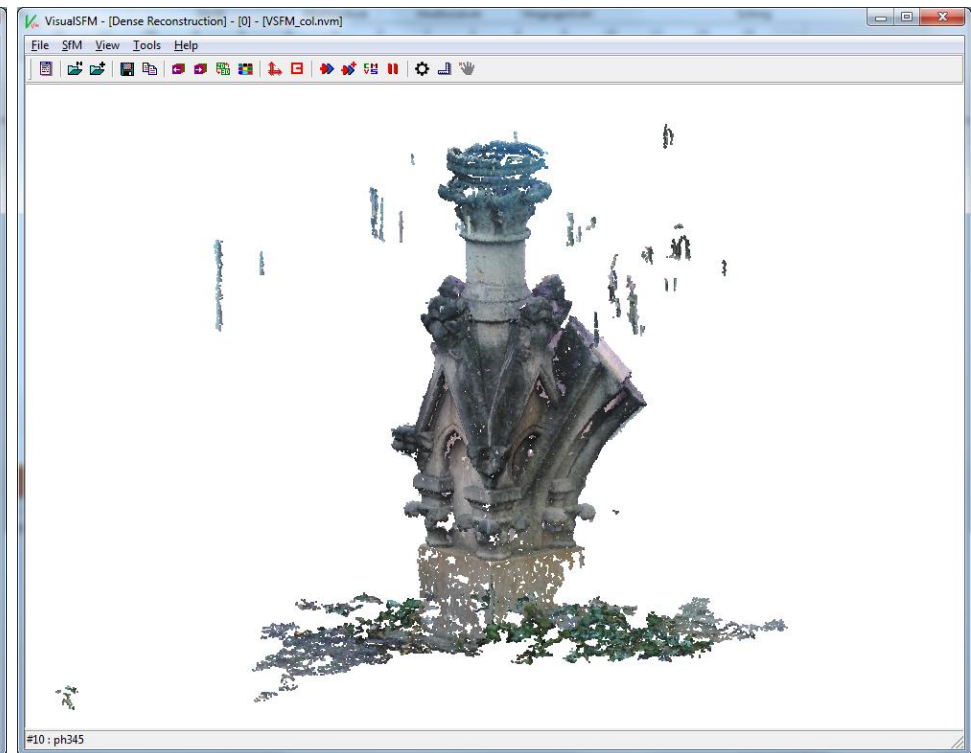
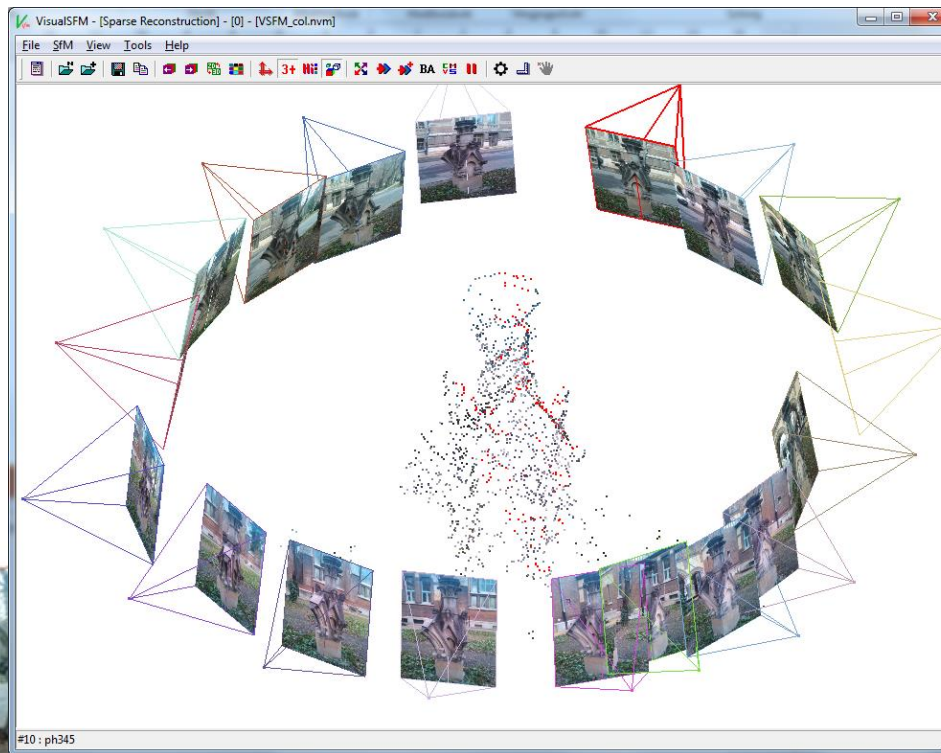
# Preparing for real time rendering— Retopology



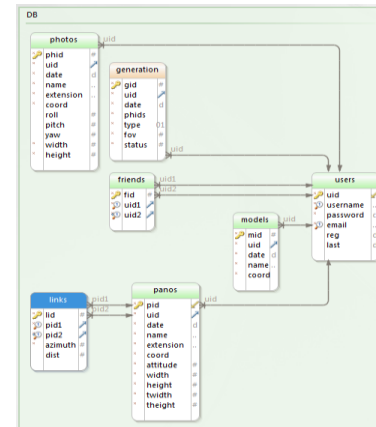
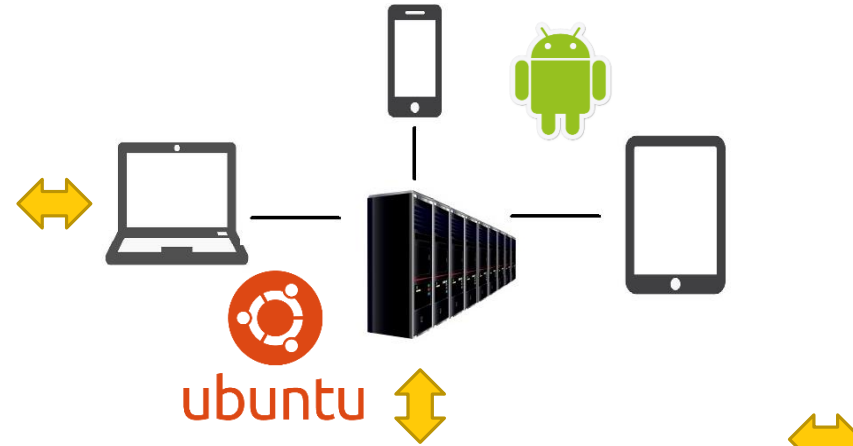
# Processed artefacts



# Open source method VisualSFM – developed by Changchang Wu



# Open source method Cloud Computing – a joint effort between Budapest University of Technology and Economics & Mensor3D Ltd.



Model created with MeshLab



# Augmented Reality

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1. Augmentation by image recognition.
2. It is a variation of Virtual Reality (VR).
3. Virtual and real objects superimposed or composited.
4. Supplements reality.





# Usage of AR

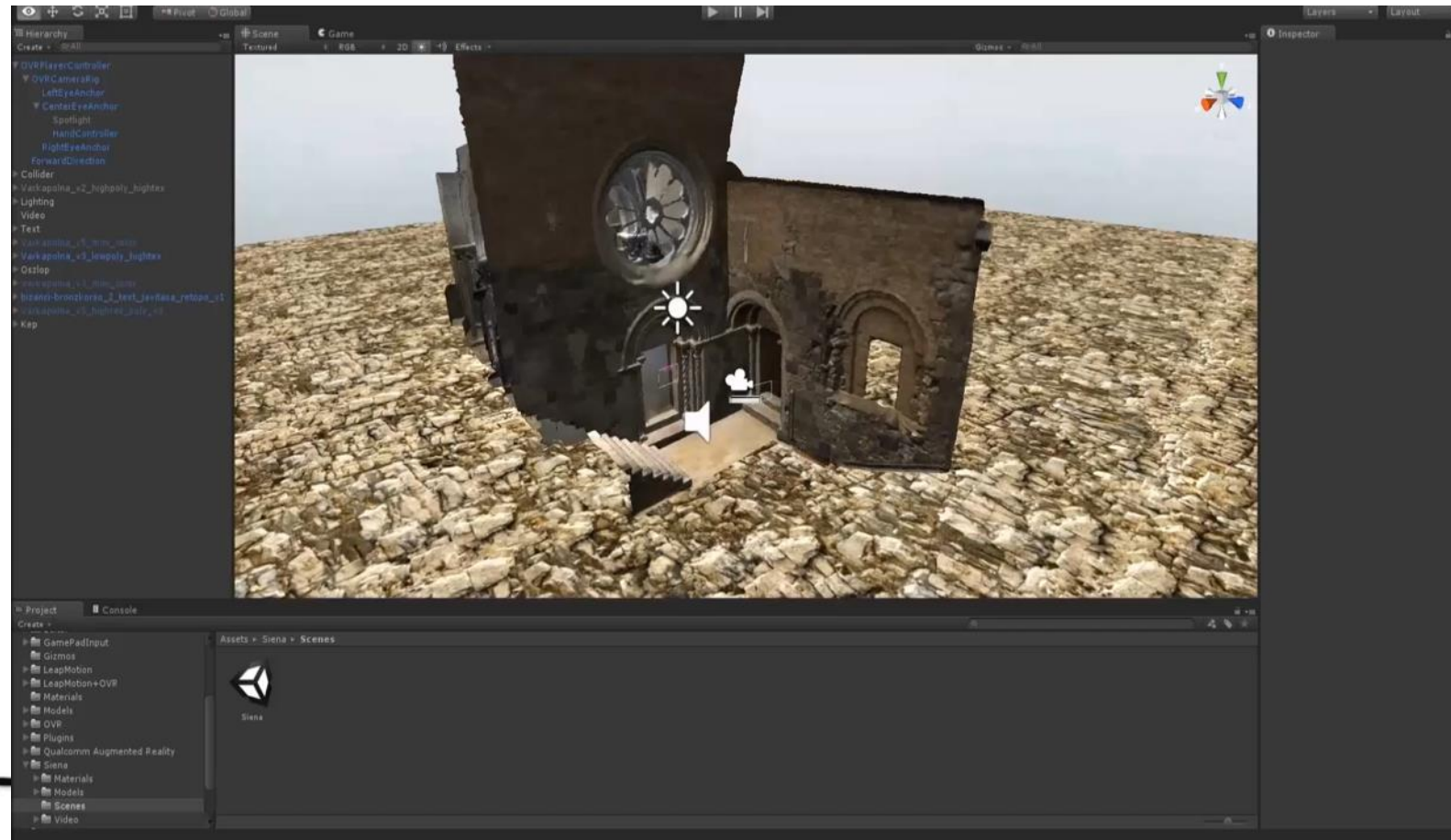
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1. Immersive experience.
2. Presentation of different levels of interpretation.
3. Real world physical objects can be imported into VR.
4. Information dissemination.





# Implementation of Real World objects into VR/AR



# Interactive Presentation

