

Point Clouds vs 360° Photos: Comparing the Workflow and Benefits of Viewing Laser Scans in VR

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ABSTRACT

Laser scanning and Virtual Reality (VR) are two advanced trending technologies for better project monitoring and visualization in modern construction projects. Their uses, however, were mostly separated, and the connection between them has not been much studied in previous literature. This paper investigated the workflow of using VR to view laser scans through two different approaches, namely by point clouds and 360° photos, and then compared the benefits between the two approaches. The study utilized a Native American earth lodge as an example of the built environment for laser scanning and applied two different types of VR devices. In the point cloud approach, the scans were processed by the scanner software and converted directly into VR mode for convenient viewing with a PC-based VR headset. In the 360° photo approach, colored photos taken by the scanner at various angles were first stitched together by the scanner software to create 360° photos, and these photos were then imported into a VR scene in Unity and compiled into an executable app for photo-realistic viewing with a standalone VR headset. The benefits of each approach were discussed, including the software and hardware requirements, efforts needed, and viewing experience. This paper provides valuable insights on the workflow of using laser scans with VR based on a real-life example.