Reusability of Assets Across Platforms – AR/VR Interoperability with 3D-printing, BIM, CAD, etc.

- Category: Software > Content Reuse

Problem this Research Would Address

- A barrier to widespread adoption of AR is the murky interoperability of AR/VR with existing assets including models used for 3D printing, CAD drawings, 360 Tours, LIDAR mapping, GIS files (Geographic information system) and BIM files (building information models).

- PROPOSAL: This study will investigate the potential for reuse and interoperability of assets across platforms (CAD, 3D printing, point clouds, Unity, Unreal, WebXR) in order to propose the outlines of a standard to be published though one or more agencies (ISO, IEEE, ASTM, etc.).

Whose problem would be addressed?

- *Providers of enterprise wearable AR platforms* would be able to more quickly/reliably
  - build and implement solutions leveraging assets available in the customer organization.
- *Enterprise safety managers* would
  - have more and higher-quality environments for training and assessment of skills.
  - have living Building Information Models (BIMs) that represent the current state of the facility.
- *Regulatory agencies or groups* would
  - be able to perform remote audits for some cases.
  - help promote a standard that advances AR/VR.

Deliverables of this Project

1. Catalog the 50-100 most common file formats utilized in AR and VR environments, 3D modeling, BIM, 360 tours, LIDAR mapping, etc1. Prepare a brief description (scope) of content stored in these formats.
2. Test the interoperability of the content from the file formats (identified in #1), for use in AR and VR environments. Prepare a table documenting the compatibily, including workarounds.
3. Present an update to the AREA research committee on or before 19-May with the results of #1 and #2, highlighting the three most compatible (across multiple domains) file formats that can be leveraged in AR and VR environments.
4. Engage one or more file format standard(s) owner and/or standards agencies (ISO, IEEE, ASTM, etc.) to determine their willingness to amend their file format to address incompatibilities and make it explicitly AR/VR compatible (or to create a technical committee or sub-committee for a AR/VR file format standard).
5. Develop an estimated timeline and estimate the effort required to successfully publish/amend the standard.
6. Provide final report to the AREA research committee on or before 19-June, detailing:
   a) Final version of the file format compatibility table (a format that can be readily utilized by all members)
   b) Results of engagement with file format owners and/or standards agencies – highlighting any who are willing (or resistant) to work with us and a recommended potential path forward with timeline

Benefits to AREA Members

- **Enterprise AREA members** will be able to more quickly integrate AR/VR solutions with existing enterprise data and models and accelerate value to the organization.

- **Platform developer AREA members** will have a simplified and standardized process to implementation of their platforms and a repository of reusable models to use across clients.