



human energy™

NDE and Augmented Reality Tools

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Holographic Grid Display (Holo-Grid App)

The Problem and Opportunity:

1. New requirements per Chevron Specifications, requires scanning or gridding of components like elbows, T's and others
2. Initial target is elbows due to the larger population.
3. The time it takes to paint a grid compared with the actual NDE is in most cases the same for small diameters, and **5 to 10 times longer** for larger diameter elbows,
4. This process takes several times longer when the inspection is at **high temperature** elbows.
5. A 20 inch diameter elbow at high temperature will take about **7 hours** to paint a grid 2"x 2", with Holo-Grid the image will be created in less than **5 minutes**.

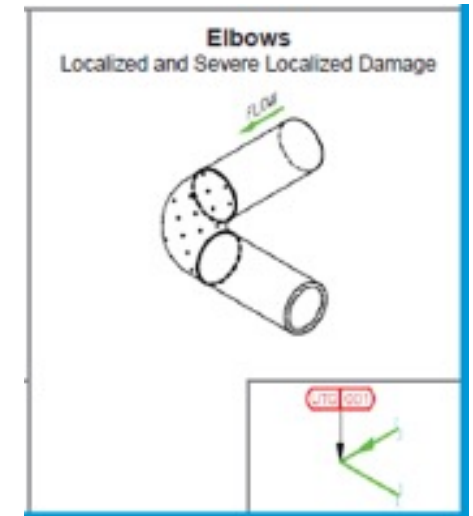
• Solution:

We developed a grid holographic projector using HoloLens to graphically impose this information. Allow the inspector to see “through” the grid to acquire UT thickness or other NDE.

Maintain the position of the grid independent of the inspector movement or head position.

• Installation:

The tool was developed by Quasset.



Holo-Grid



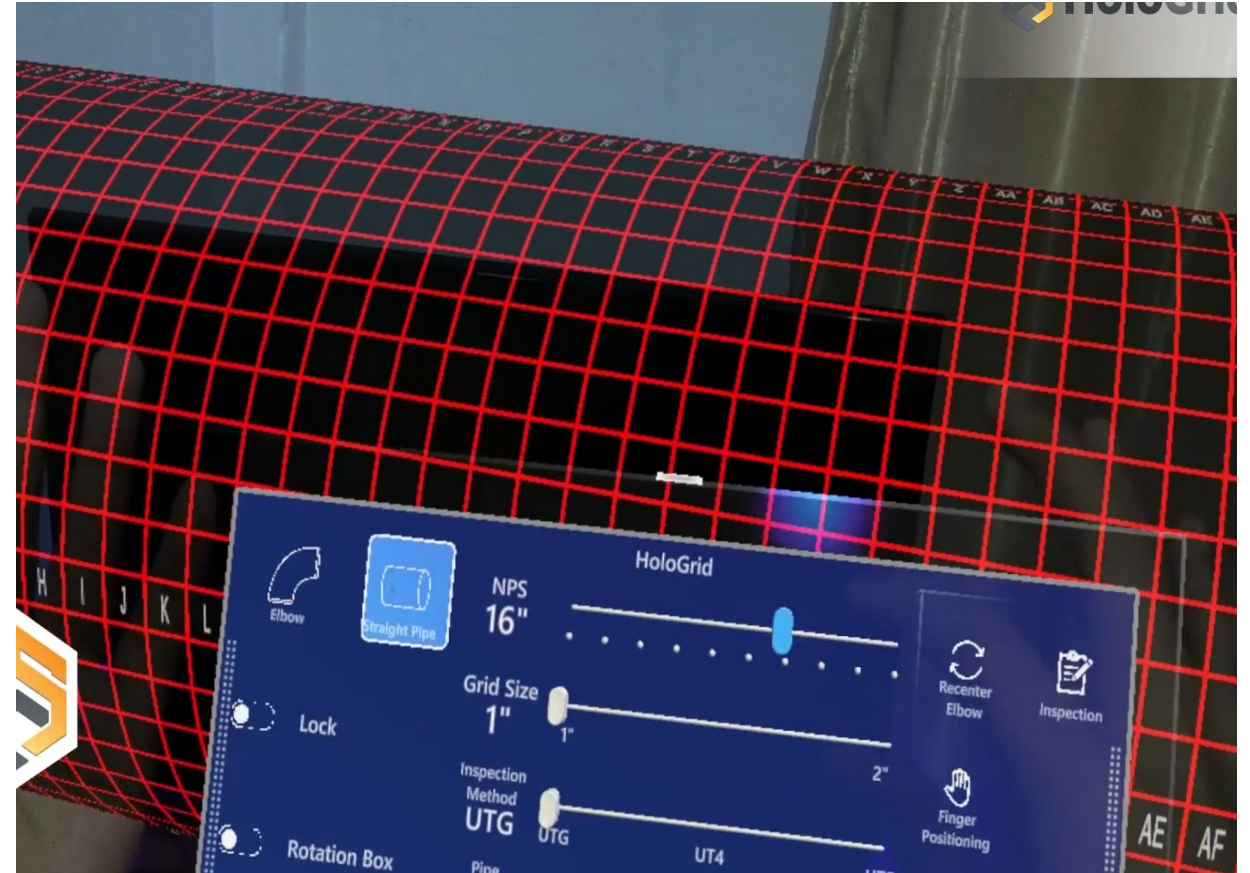
HoloGrid Capabilities

HoloGrid Functionality

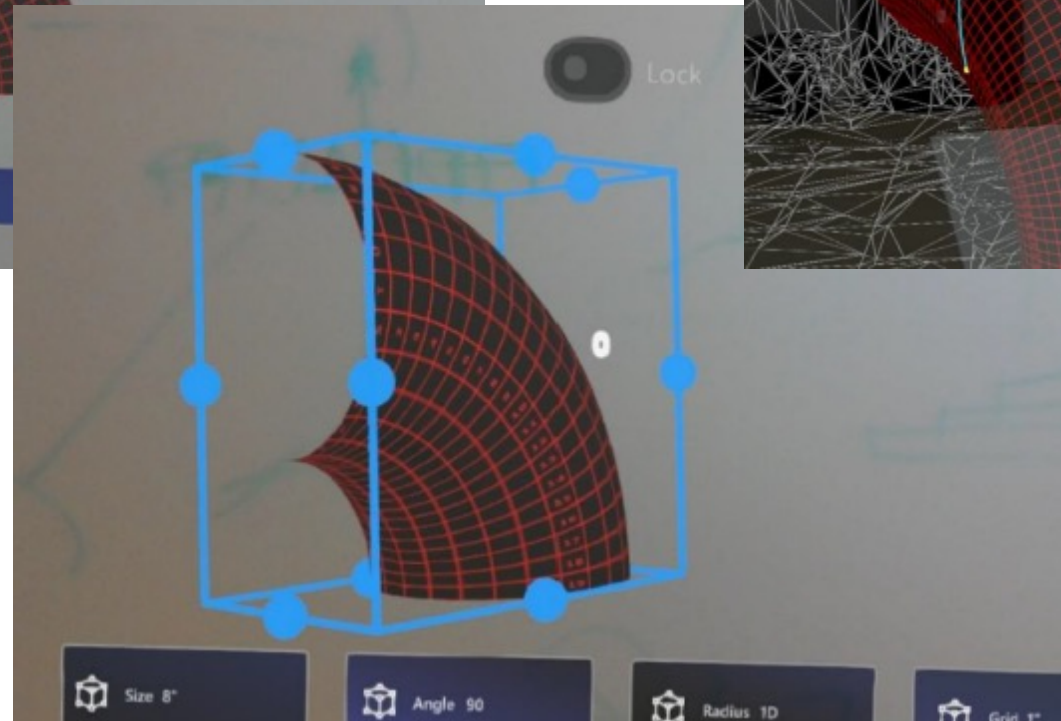
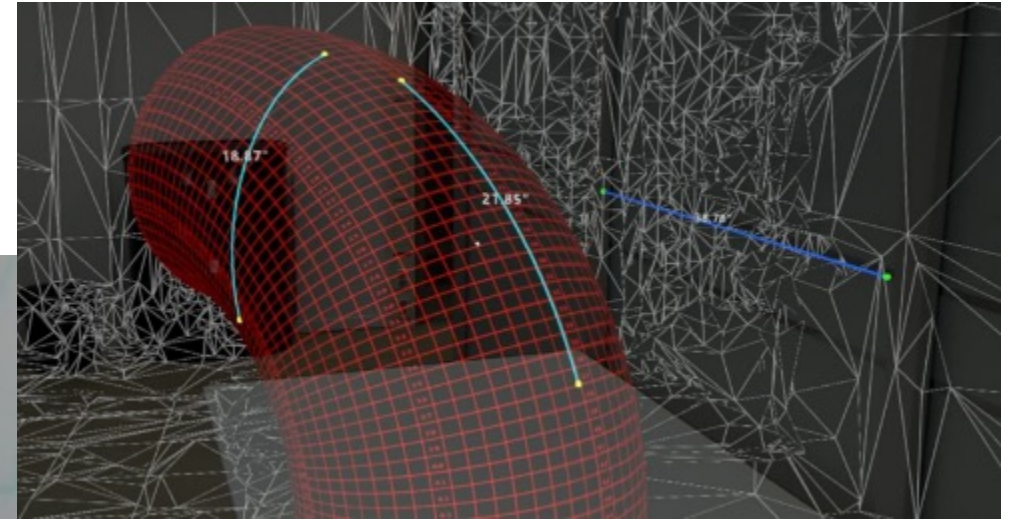
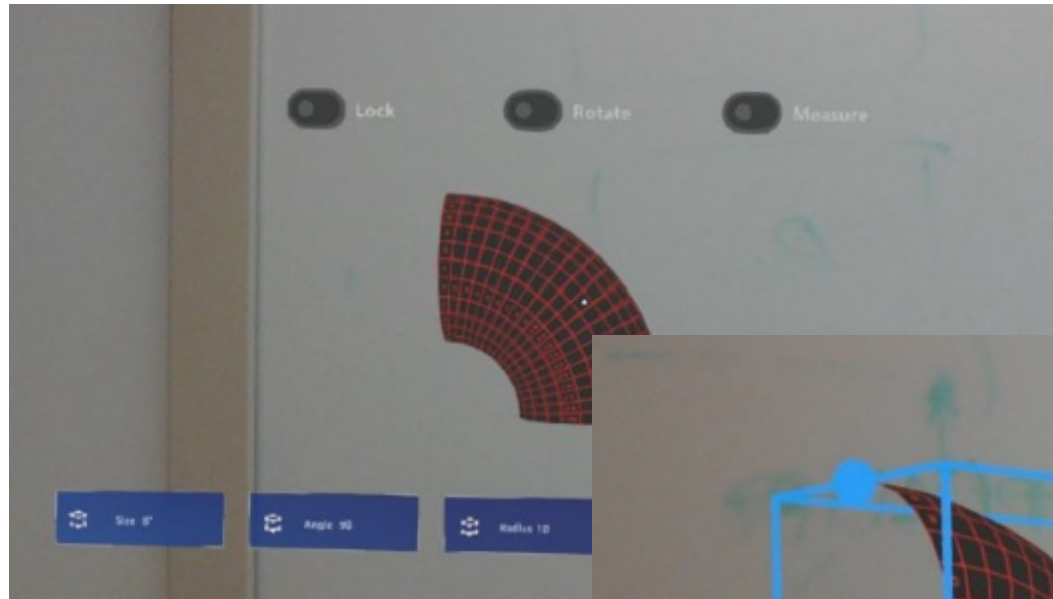
- Mixed Reality application for HoloLens
- Elbows (45-90deg), Straight Pipes, Reducers and Free Surfaces are available
- Grids for 1"x1" and 2"x2"
- Geospatial Lock
- QR-Code, Finger Positioning and Manual tools to place the grid on the component
- Cell identification

New Features in HoloInspect

- A-Scan and UT value HoloLens view and capture
- Different grid colors
- Results table to capture thickness
- Cell Center marker



Holo-Grid - Demonstration of Holo Grid Connected to the Projector



Comments and Conclusions

- It is possible to reduce time and increase the quality of inspection using HoloLens and the HoloGrid app.
- We are now working on the integration of UT Thickness tools to present the A-Scan and Value on the HoloLens screen and an NDE-Hub for document exchange.

