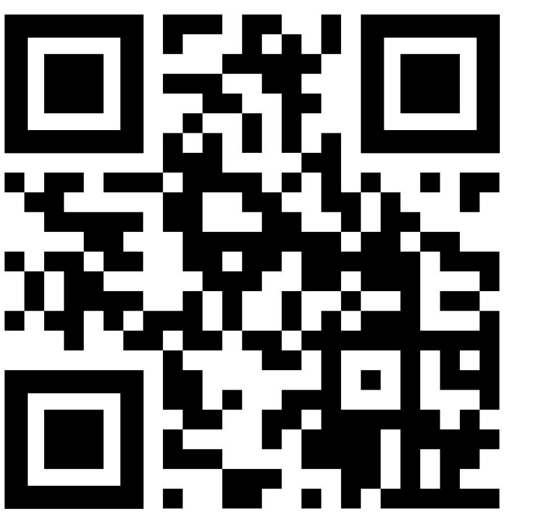


AR/VR Visualization of Data

Dominic Catena, Aiden Annis, Kashvi Shah, Azra Bano
Advisors: Jenny Shane, Ivan Seskar, Wade Trappe



Goal

- ❑ Develop an augmented reality (AR) app to view and edit 3D printable models in real time
- ❑ Create an AR/VR/MR curriculum for students

Background and Motivation

- ❑ CAD can be time consuming and unintuitive
- ❑ Viewing and editing 3D models on 2D screens is limiting
- ❑ Augmented reality enables users to modify 3D models within real-world space, allowing them to visualize and interact with their designs in a true physical context

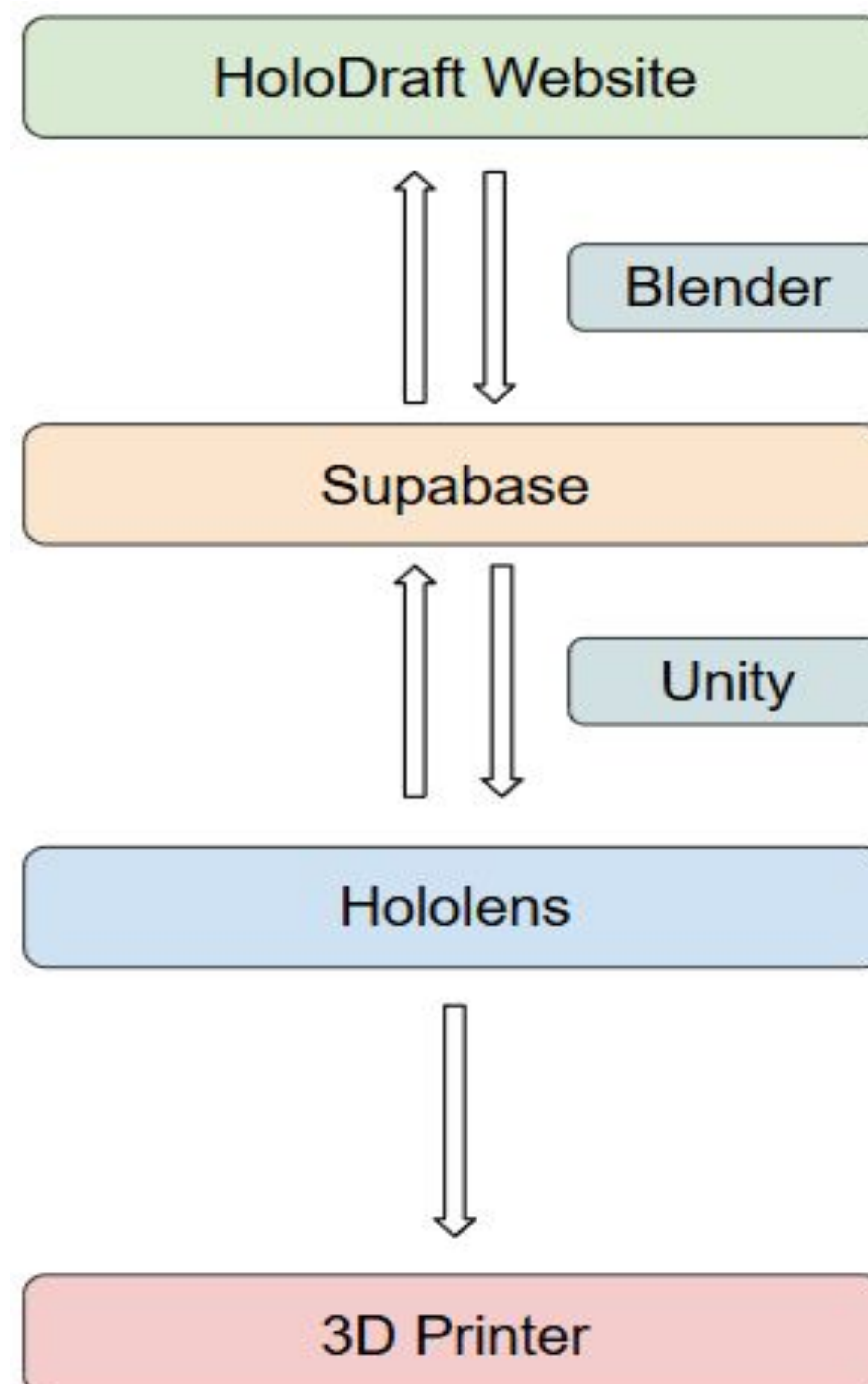
Hardware/Software

- ❑ Unity game engine with C# scripting
- ❑ Microsoft HoloLens 2
- ❑ Supabase/Postgres Storage
- ❑ Blender for file conversion



Methodology

- ❑ User logs in to website, and uploads or creates new 3D design.
- ❑ The file is converted using Blender to a Unity-accepted file format (GLB).
- ❑ User logs in to Unity built-app on HoloLens and selects desired project to view or edit
- ❑ Pushing export button automatically saves to website, ready for 3D printing



Results

- ❑ Created website for importing and storing 3D models in database
- ❑ Created HoloLens app with various tools (shapes, grouping, measuring, scaling, etc.) to edit and view 3D models
- ❑ Exporting from HoloLens back to website
- ❑ Completed rough draft for curriculum and tested on students in the lab



Conclusion and Future Plans

- ❑ Mobile integration
- ❑ Connect directly with 3D printer
- ❑ More shapes and tools
- ❑ Improve subtractive grouping

Acknowledgements

Thank you Ivan Seskar and Jenny Shane for the opportunity to learn and grow our skills at WINLAB.

