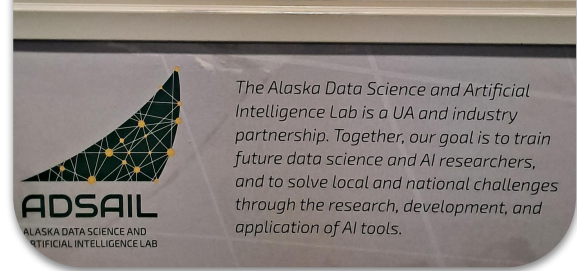

HoloLens 2 Interactive Experience

— Ashton Curry & Rane Murphy —

Motivation for UAA HoloLens 2 Guided Tour

- Two birds with one stone:
 - ADSAIL promotion
 - Recruitment for UAA
- Alaska Data Science and Artificial Intelligence Lab (ADSAIL) is underused
- UAA can use this resource to recruit students, and engage with the campus by providing an interactive way to learn and explore



Outcomes: Minimal Viable Product

- **Two modes:**
 - Tour Mode
 - Map Creation mode
- **Documentation:** User Manual and Developer Documentation to further develop and use our application
- **Wayfinding:** Application gets user to follow a guided path
- **Points of Interest:** Players can interact with a game, picture, or text to learn about places and engage with the tour

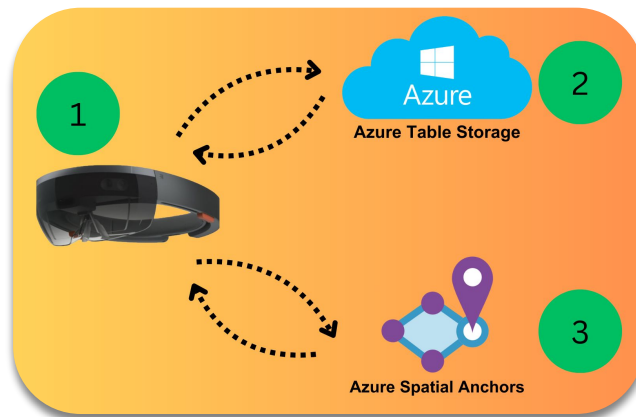


Demonstration video

<https://youtu.be/qcM-ZIn0ful>

Design: Tools used

- **Microsoft Azure**: the Azure Spatial Anchors service and the Azure Table Storage Service
- **MRTK3**: Mixed Reality Toolkit 3 developed by Microsoft for various aspects of the application
- **Unity**: The game engine behind all the tools for development



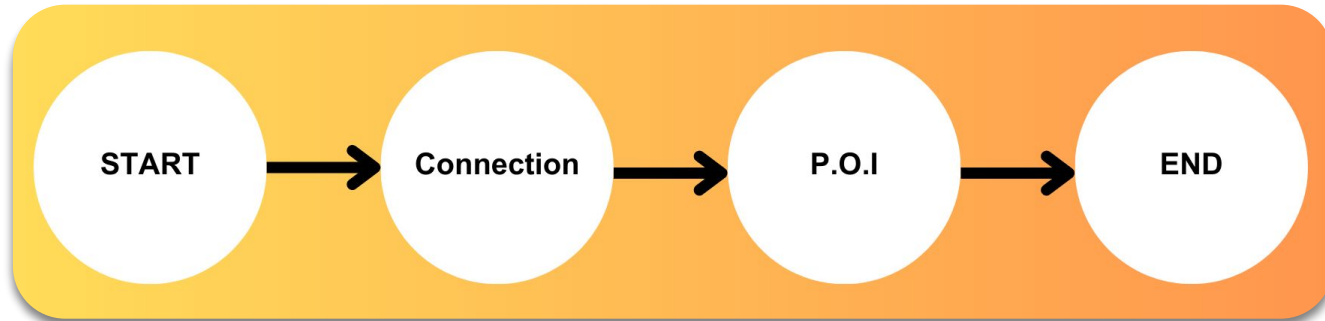
MRTK
MIXED REALITY TOOLKIT

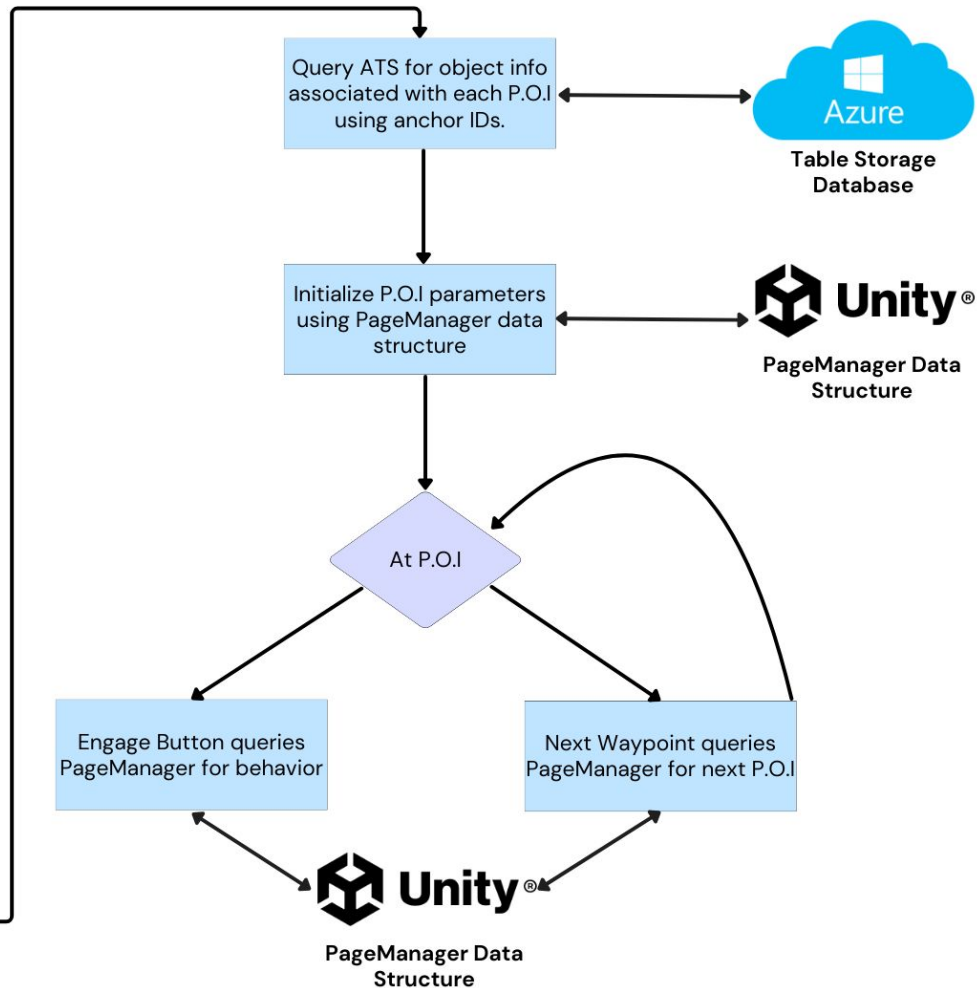
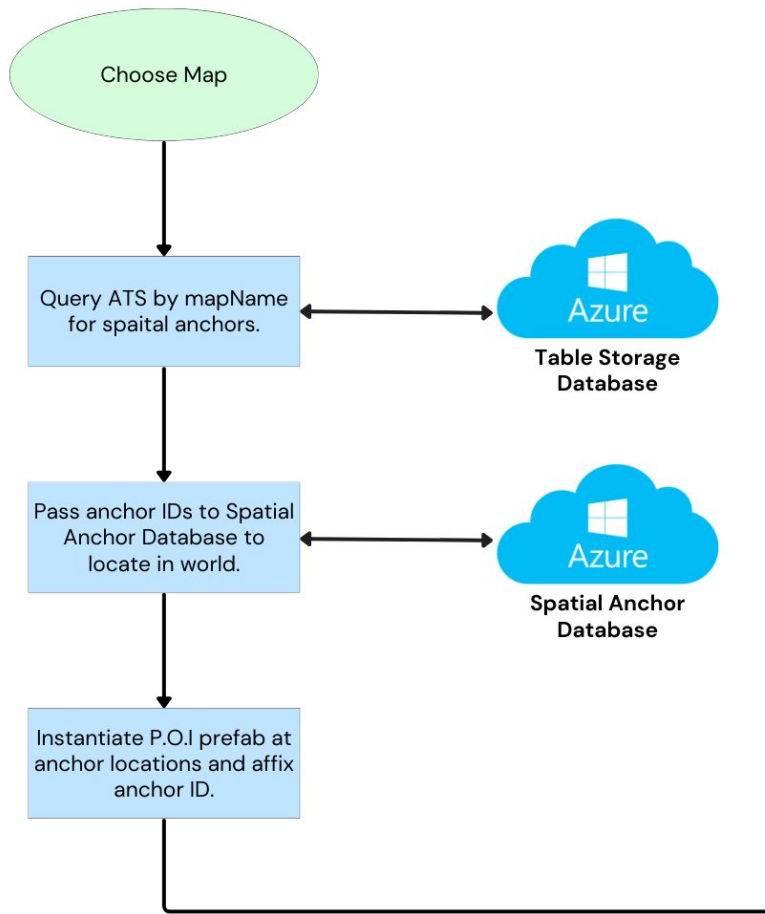


Unity®

Design: Data Structures and Databases

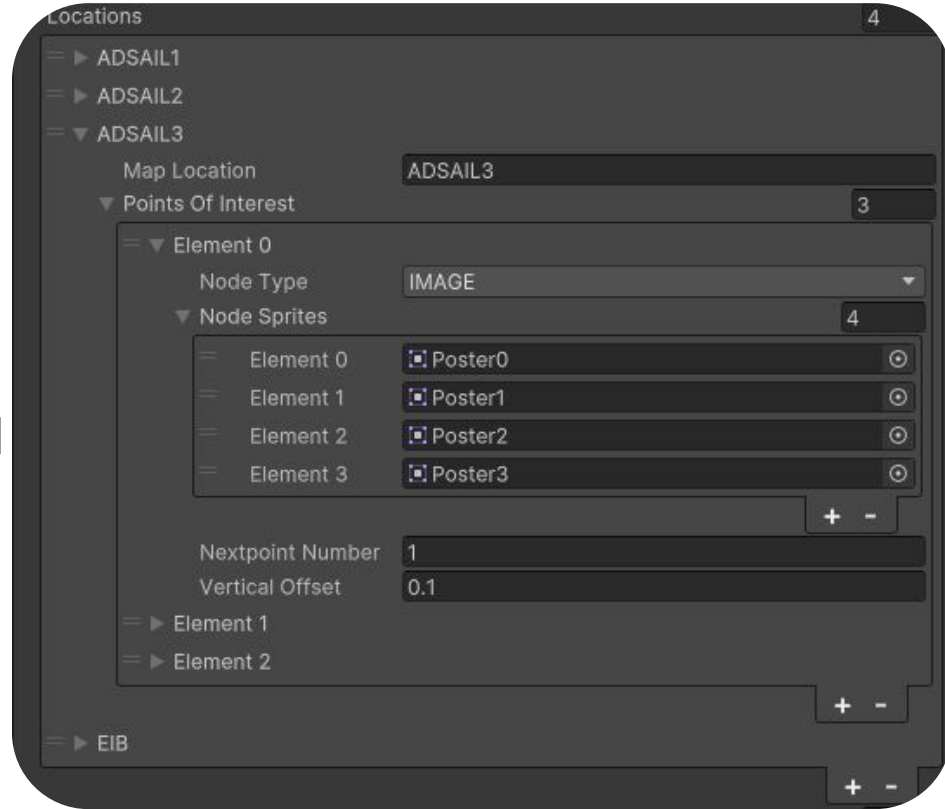
- **Spatial Anchors**: locations are stored along with environmental recognition details and spatial orientation
- **Table Storage**: holds static information associated with each point of interest (name, map location, spatial ID)
- **Page Manager**: holds dynamic information associated with each point of interest (P.O.I.)





More On The Page Manager

- Persistent, populated data structure that can be modified in Unity
- Lots of customizability to adjust appearance and behavior of P.O.I.
- New parameters can easily be added that can affect P.O.I. properties
- Enables plug and play for easy maintenance with minor instruction



We Built It As We Flew It

- Good documentation is sparse
- Learning occurred in bursts
- Developed with the knowledge we had at the time
- Difficult to estimate time required for many tasks
- Used example tutorials as foundation which leaves plenty of room for refactoring

Future Work

- Audio P.O.I.s that play a prerecorded script
- Video P.O.I.s
- Shared experiences between multiple users
- Dynamic experience:
 - Tailor tour to different age groups on startup
 - Adjust nodes based on user height

Rewarding But Challenging

- Documenting all recommended tutorials and Unity Pathways to complete
- Creating detailed use guide for maintaining project in current state
- Prior Unity experience essentially a must
- Good Resources, like a high performing computer, is important

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