# Mystic Quest

**Name(s):** Dallin Christensen, Maggie Jensen, Statler Smith
**Mentor:** Dr. James Gaskin
**Published:** Youtube: Linked Video; LinkedIn: Linked Post

## Executive Summary

**Problem:**
There are myriad ways to learn about other countries and their cultures. Videos, music, presentations, and food are all viable options, but they lack an immersive experience that's only found by visiting new places themselves. As a result, methods are popular, but lack engagement and excitement.

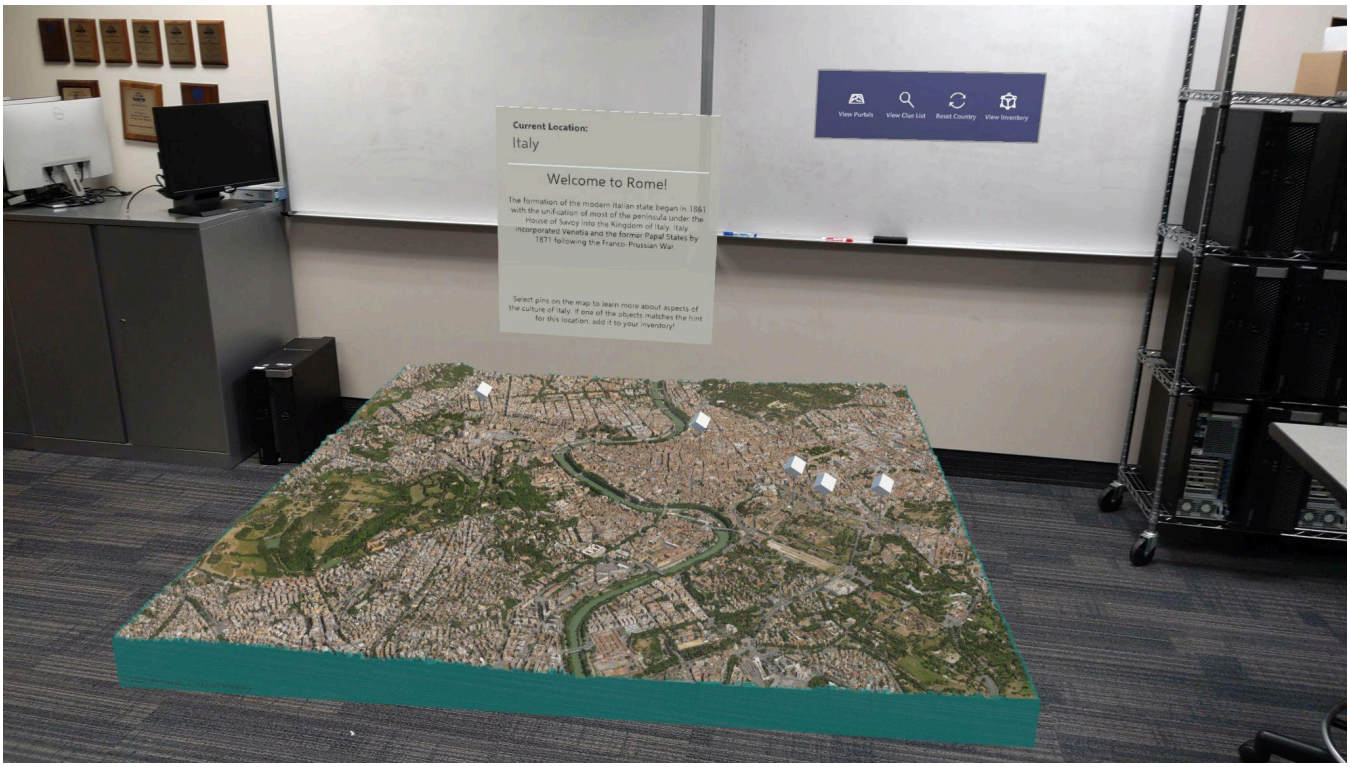
**Solution:**
Mystic Quest aims to solve this problem through a combination of AR (Augmented Reality), the Bing Maps SDK for Unity[1], and gamification. Users are exhorted to review clues and find the 6 corresponding objects (one in each country) to find and save Dr. Charlie Chase, a captured BYU anthropology professor who left the objects as breadcrumbs on his treasure hunt. Once users have read cultural descriptions of each object and identified the one that matches the country's clue, they add the item to their inventory.

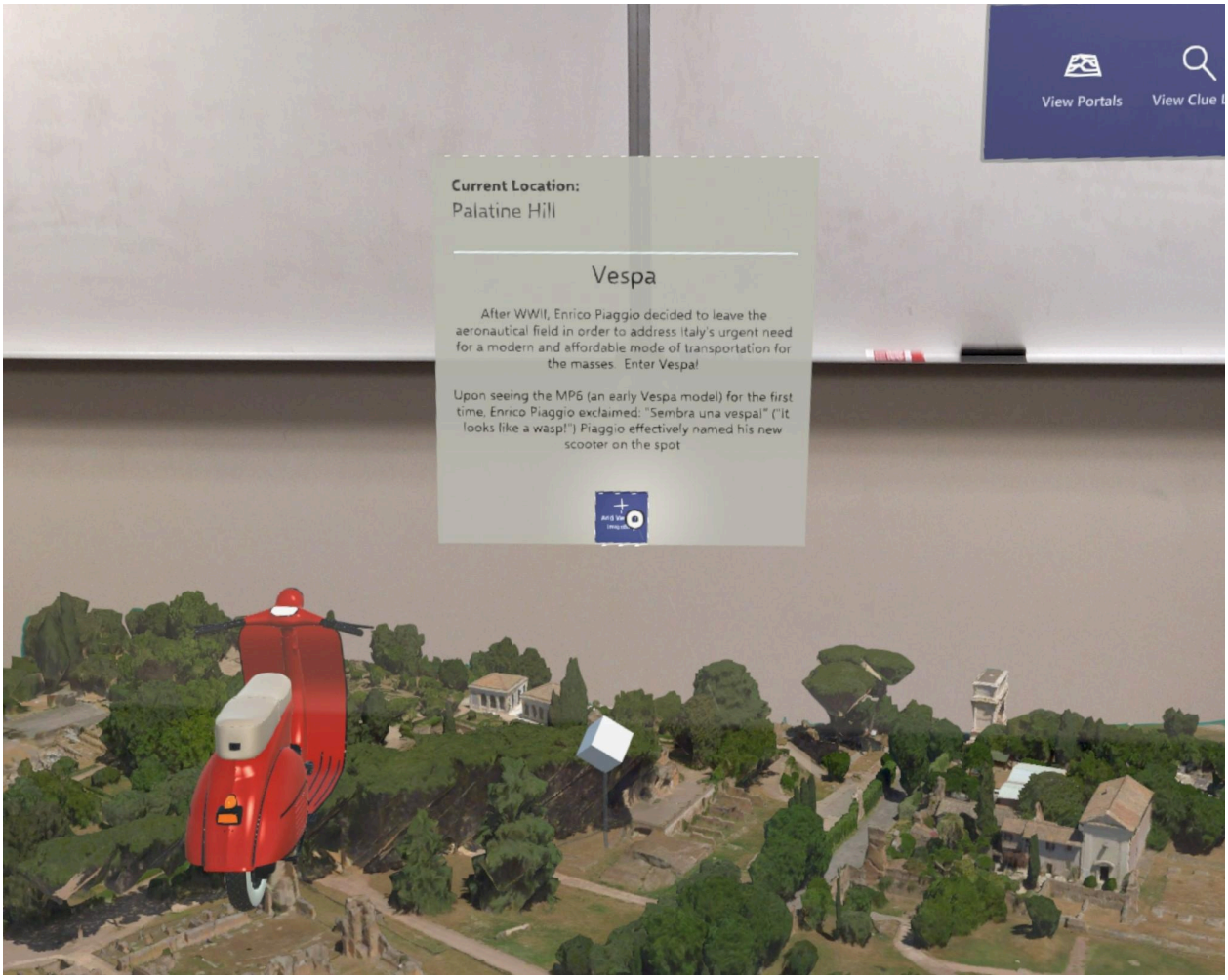
**Core Components:**
The combination of AR (Augmented Reality), the Bing Maps SDK for Unity[1], and gamification allows users to experience and learn about Western European cultures in a more hands-on and unique way. All components of our application are free to use under Creative Commons licenses.

1. **Microsoft Hololens 2:** Using the Hololens encouraged complete immersion in the game
2. **Unity Game Engine:** Unity allowed us to include objects and integrate easily with Bing Maps
3. **Bing 3D Maps:** Maps allow the users to get a feel for the cities they were "visiting"
4. **3D Models of cultural objects:** The models allowed users to physically interact with aspects of international cultures.
5. **Cultural Descriptions:** We researched each city in our game to provide educational descriptions of each city, including external influences, foundings, and geographic details.
6. **Object Descriptions:** Each object had a description with fun facts, cultural significance, and/or details on the origin of the object.
7. **Story elements:** We built out a story scene with an original script. We borrowed the names of Dr. Charles W. Nuckolls and Zachary Chase, professors in the BYU Anthropology department to form the name of our character.
8. **Game Tutorial:** In order to assist users unfamiliar with augmented reality and the hololens, we built a tutorial scene that walks users through some basic hand motions needed to navigate the game.
9. **Music:** We added culturally relevant music for a more immersive experience.
10. **Dialogue:** After user testing, we discovered that users struggled to read the descriptions of objects and cities. We added audio instructions to help users feel more comfortable in the AR environment.

**Evaluation & Outcomes:**
We performed two studies to evaluate the effectiveness of our components on the outcomes, which were to increase cultural education, increase excitement regarding learning about other cultures, and to provide an enjoyable way of learning about foreign cultures. The first study was done without a working MVP, but rather a limited number of the components mentioned above. From this study, we received valuable feedback about how we could make the experience better. The amount of feedback users needed to feel comfortable was easily the most interesting finding that we were not expecting to receive. We implemented this feedback for our second iteration, which resulted in an MVP that more fully fulfilled the core outcomes.

[1] https://github.com/microsoft/MapsSDK-Unity


View Portals
View Clue List
Reset Country
View Inventory
Current Location:
Italy
Welcome to Rome!
The formation of the modern Italian state began in 1861 with the unification of most of the peninsula under the House of Savoy into the Kingdom of Italy. Italy incorporated Venetia and the former Papal States by 1871 following the Franco-Prussian War.
Select pins on the map to learn more about aspects of the culture of Italy. If one of the objects matches the hint for this location, add it to your inventory!


View Portals
Current Location:
Palatine Hill
Vespa
After WWII, Enrico Piaggio decided to leave the aeronautical field in order to address Italy's urgent need for a modern and affordable mode of transportation for the masses. Enter Vespa!
Upon seeing the MP6 (an early Vespa model) for the first time, Enrico Piaggio exclaimed: "Sembra una vespa!" ("It looks like a wasp!") Piaggio effectively named his new scooter on the spot