



“CS 386 HoloLens Project” by Stephen White, Jack Garrard, Colton Nunley, Daniel Williamson, and James Todd

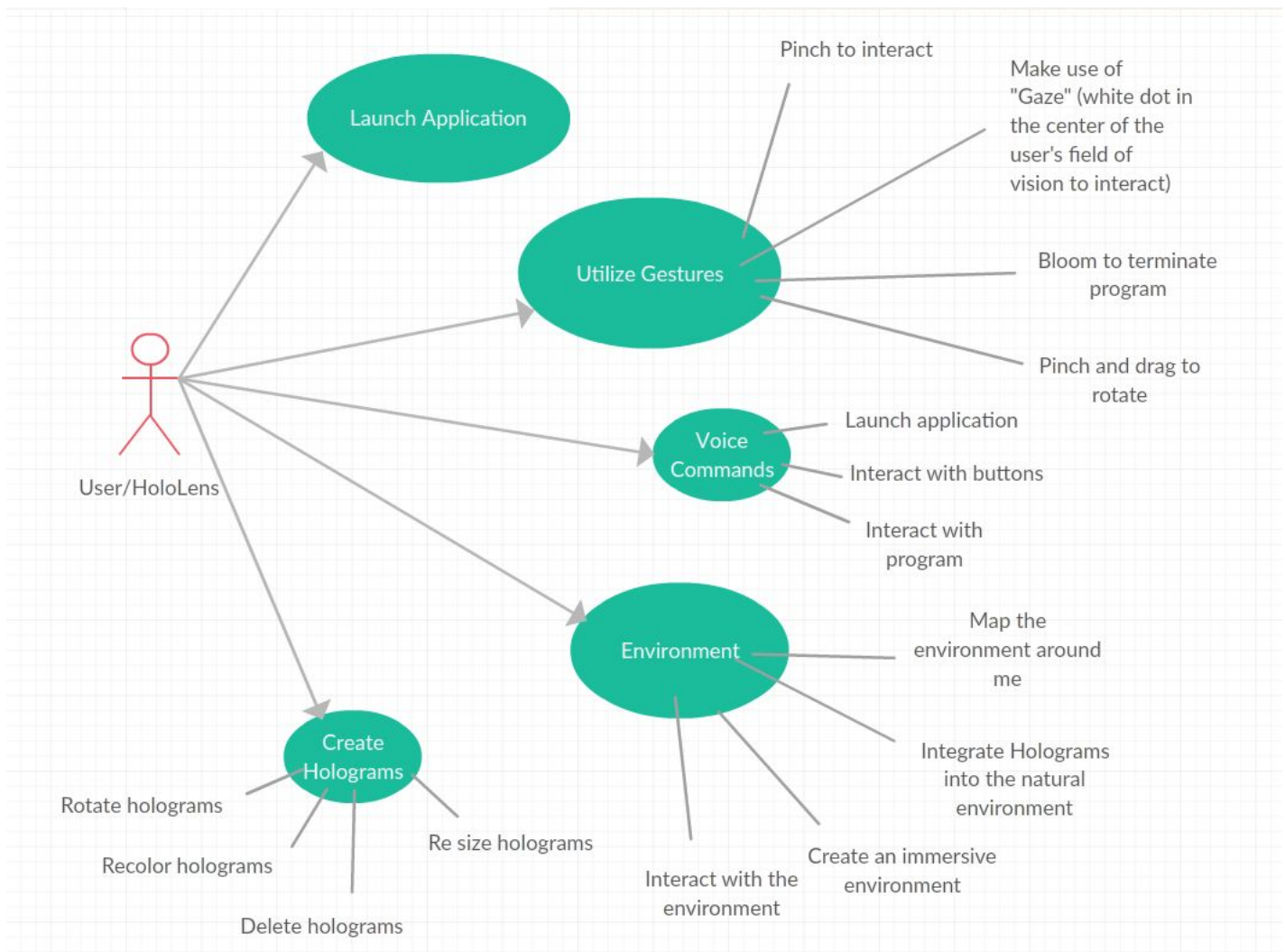
Github Link: <https://github.com/Swhite9478/CS386-HoloLens-Project>

CS 386 Software Engineering, Spring 2017

Instructor: Marco Gerosa

Deliverable 2.2: Use Cases

Use Case Diagram:



Daniel - Launch Application

1 Brief Description

- Starting an application to be used by the user.

2 Actors

2.1 User

2.2 Hololens

3 Preconditions

The Hololens is operating.

The user knows how to operate.

4 Basic Flow of Events

1. The use case begins by the user interacting with the hololens.
2. Use case accesses program files.
3. Use case executes application.
4. The use case ends.

5 Alternative Flows

5.1 Files not found.

If in step 2 of the basic flow Launch Application the use case:
Accesses program files does not complete successfully, then

1. The use case ends with a failure.

5.2 File does not execute.

If in step 3 of the basic flow Launch Application the use case:
Execution of program files does not complete successfully, then

1. The use case ends with a failure.

6 Key Scenarios

6.1 No Response from Hololens.

7 Post-conditions

7.1 Successful Completion

The application has been launched and is running.

7.1 Failure Completion

Error message is displayed.

8 Special Requirements

Hololens must be booted and running.

Stephen - Utilize Gestures

1 Brief Description

- The user will make use of different gestures to interact with holograms and the environment around them.

2 Actors

2.1 User

2.2 HoloLens

3 Preconditions

The user must have the HoloLens turned on, and the application already launched.

4 Basic Flow of Events

1. The use case begins when the user has launched the application.
2. The user will approach a hologram and point the "gaze" (the white dot in the center of their field of vision) at what will be interacted with.
3. The user will quickly "pinch" to select a hologram.
4. To rotate a hologram the user will pinch and hold, then move their hand in the direction of the desired rotation.
5. The user can "bloom" to exit the program.

5 Alternative Flows

5.1 The application crashes

If at any point the application crashes, then

1. The user will attempt to re-launch the application
2. The use case resumes at step 2

6 Key Scenarios

6.1 HoloLens does not respond

7 Post-conditions

7.1 Successful Completion

The User has interacted with all holograms that the application contains

8 Special Requirements

8.1: The HoloLens will not react to any non-recognized gestures

8.2: The HoloLens must be turned on

Colton - Voice Commands

1 Brief Description

- Using one's voice to interact and give commands to the HoloLens.

2 Actors

2.1 User - The actor who uses the HoloLens.

2.2 HoloLens - The system that we will be utilizing.

3 Preconditions

The HoloLens is active and ready for voice commands.

4 Basic Flow of Events

1. The User turns on the HoloLens
2. Waits till voice commands can be received
3. User speaks commands
4. Command, if heard and recognized correctly, is acted upon

5 Alternative Flows

5.1 Incorrect voice command

If user says command incorrectly

1. HoloLens ignores incorrect input
2. HoloLens waits for correct input

6 Key Scenarios

6.1 No response from HoloLens

7 Post-conditions

7.1 Command Accepted

Command that was desired is applied in the correct and expected manner.

7.1 Command Not Accepted

User has to give command again.

8 Special Requirements

HoloLens only recognizes a list of voice commands that are only said with a certain inflection.

Jack - Environment

1 Brief Description

- Being able to integrate the program with the environment

2 Actors

2.1

- User - The user of the hololens
- HoloLens - The system on which the product gathers information

3 Preconditions

HoloLens is active and has scanned the environment.

4 Basic Flow of Events

1. HoloLens is activated
2. User initializes environmental scan
3. User walks around to allow proper mapping
4. HoloLens loads in the surrounding environment for later use
5. Use case ends

5 Alternative Flows

5.1 Environment Scan Inaccurate

If in step <x> of the basic flow the <actor or system does something>, then

1. If the HoloLens fails to properly map an area of the environment when moving around
2. The user initiates a tap gesture to force a remapping.
3. The hololens resumes mapping the rest of the environment

6 Key Scenarios

6.1 Fails to accurately map area

7 Post-conditions

7.1 Environment successfully mapped

8 Special Requirements

The HoloLens fails to map too dark of an area or too light of one as well. Most environments do fall within this range however, excluding very dark objects

James - Create Holograms

1 Brief Description

- This use case describes how the HoloLens can project holograms within an augmented world

2 Actors

2.1 HoloLens

3 Preconditions

- The HoloLens needs to be on for applications to work.
- Correct applications needs to be running than an open placement and or creation of hologram.

4 Basic Flow of Events

1. The use case begins when the HoloLens turns on
2. All Holograms in memory will project in their position where they were saved.
3. Once fully started the ability to places holograms at the user's wish.

5 Alternative Flows

5.1 corrupted mapping

If in step 2 if the HoloLens fails to remember the surrounding holograms in memory will fail to load

1. Walk around to get the HoloLens to remember the area

5.2 Spawning Errors

If in step 3 holograms mash together and gui interfaces bug out, then

1. Restart the HoloLens

6 Key Scenarios

6.1 HoloLens failing to respond

1. Restart the HoloLens

7 Post-conditions

7.1 Correct display

The holograms were displayed and saved in the right spot, and were about to be interacted with.

8 Special Requirements

1. Holograms once placed have a fixed position.
2. When holograms first place, they cannot go beyond the world map.

-Group Member Participation-

Colton Nunley

- Communicated through slack
- Worked on product planning and implementation
- Finished jobs/tasks that were given
- Gave product requirement input

Stephen White

- Communicated through slack
- Created digital use case diagram on the front page
- Coordinated team and decided who would be doing which use case
- Setup google doc for editing
- Assisted other group mates with their content

James Todd

- Communicated through slack
- Contributed to use case diagram
- Discussed use cases with other members of the group

Jack Garrard

- Communication on slack
- Created user case on environment
- Assisted on creation of user case diagram

Daniel Williamson

- Communicated through slack.
- Worked on product planning and implementation.
- Helped create case diagram.