## Initial Project Overview

## SOC10101 Honours Project (40 Credits)

### Title of Project:

Real world object-capture in a mixed-reality environment.

### Overview of Project Content and Milestones

This project will look to evaluate the effectiveness of capturing real world objects using Vuforia on the Microsoft HoloLens. Initially, a method to capture a simple object will be developed, before attempts to capture more complex (or multiple) objects and real-time object manipulation will be implemented. The project aims to explore to what extent this can be done.

The milestones will be:

* simple object capture
* simple object manipulation
* complex object capture
* real-time object manipulation.

### The Main Deliverable(s):

Object capture and manipulation software.

Dissertation.

Poster.

### The Target Audience for the Deliverable(s):

Technical mixed-reality game developers looking for new game mechanics.

Enthusiasts interested in new game technologies.

### The Work to be Undertaken:

Research similar attempts at mixed-reality object manipulation.

Design a method to capture a cube (or similar object) using Vuforia.

Build and apply simple shaders to the object.

Expand on above methods to capture more complex objects.

Explore and evaluate the extent to which the objects can be manipulated in real-time.

Document and report findings.

### Additional Information / Knowledge Required:

Creating and managing Unity projects.

How to use Vuforia.

Improve understanding of shader usage.

### Information Sources that Provide a Context for the Project:

General Development Page for the HoloLens:

https://developer.microsoft.com/en-us/windows/mixed-reality/development

Some related downloadable tools:

https://developer.microsoft.com/en-us/windows/mixed-reality/install\_the\_tools

Vuforia Specific:

<https://developer.microsoft.com/en-us/windows/mixed-reality/vuforia_development_overview>

https://developer.vuforia.com/

### The Importance of the Project:

Mixed-reality is an emerging games technology with great potential for immersive story-telling and innovative game design. This project looks to explore an aspect of that and if successful could be beneficial to those interested in designing such games.

### The Key Challenge(s) to be Overcome:

Lack of similar projects documented.

Fairly niche / specialist / obscure software, mostly new territory.