AUGMENTED REALITY DATA VISUALISATION

Introduction

The final aim of this project is to create a tool augmented reality tool for data visualisation.

Such a tool would allow for data to be displayed in a accurate and easy to understand format, an example use could be a buildings heat and energy ratings, allowing an individual to quickly see a 3D rendering of the relevant data. A second example use could be the contents of a fridge, displaying the use by dates of all items stored inside.

Technology

JavaScript: JavaScript (JS) was chosen for its wide use, JS allows the system to be accessed from a simple webpage from a wide verity of devices.

A-Frame: A-Frame is a entity component system framework for Three.js, using this allows for high quality 3D renderings.

AR.js: Is a lightweight JavaScript library which features the marker based tracking used, allowing users to point a AR capable device at the marker to display the 3D rendering of the data.

Augmented Reality (AR) Markers

AR markers are used to help position the 3D renderings by giving them an anchor within the real world.

The markers if unique allow for different renderings to be displayed in different locations.

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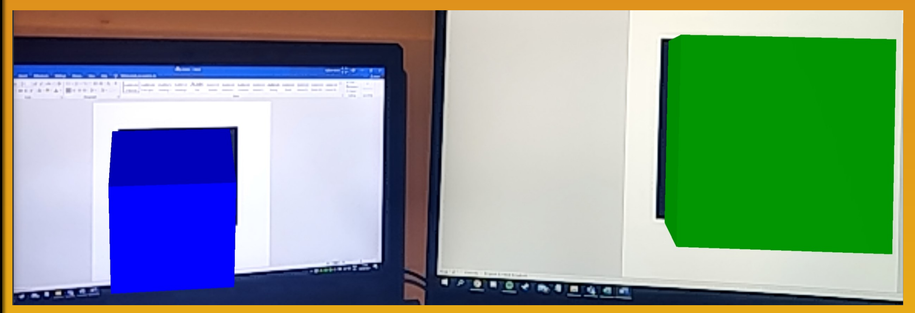
Results

The renderings display quickly allowing the required data to be quickly consumed whilst also being anchored perfectly to the markers. By visiting teallanter.github.io you can use the markers in the bottom corners to see the current version.



Future improvements

QR code integration within the AR marker would allow for the data for the renderings to be created on the fly using a JSON containing the relevant data.

Moving to a marker less based system with the use of GPS for location tracking would allow user to enter a GPS “box” to display the data. An example could be different information displayed depending on the room of a building the user is in.