**User Testing Questionnaire**

For this questionnaire, users will be shown a video of the app, demonstrating its key components; opening the app to the menu screen, using the buttons to transition between pages, toggling debug mode, and the main AR components.

To use the AR, the user will need to align the phone camera with the target image, before then pointing the camera towards the fry building’s sculpture in order to see the intended effect.

This questionnaire will be more of a template for obtaining information from users in order to develop our application. In some cases the interviews/conversations may extend further down one branch than others. This loose questioning strategy will allow us to get the most possible use out of our user testers as possible.

The questionnaire will also likely be adapted as the project advances, as some areas become more apparently in need of research, based on previous questionnaires. This will allow the questionnaires to produce as much valuable information as possible.

The questionnaire will be divided into these main sections

1. User Interface / UX / design
2. Voronoi Tessellations
3. Reliability
4. Further comments

**Questionnaire 1**

**Requirements of Video**

Video recorded of product for this questionnaire must contain:

* Permissions being requested and granted
* Use of app’s menu screen, and the ability to use the buttons to move between screens
* Showing settings page, how to interact with the options there
* Using the Information page, ensuring text is readable and showing how to move between tabs on that page
* Showing opening the tesselation page, and that the app uses the rear camera
* Aligning the camera display with the target image, and as a result the tesselation becoming visible
* Showing how the tessellation lines up with the sculpture on the phone

For erroneous testing, video could contain:

* Showing what happens should the user deny camera permissions
* The phone being moved too fast when tessellation is aligned
* Rotating the phone when on the various screens
* Locking the phone when the tessellation is visible, and then reopening the app when the phone is in the same or in a different position
* Opening phone’s swipe down menu when the tessellation is visible

**Section 1 - User Interface**

1.1) How easy is it to transition through the application?

1.2) How did you feel about the design of the app with regards to clarity? (Follow up?) Did you know the buttons were buttons, was it clear how to interact with the application?

1.3) Do you believe the app will be enticing to users from the age of 10-20? Why?

1.4) How did you feel about the formatting of the different features of the application? (Follow up) Did you struggle to read any of the words on the screen as a result of size/font?

1.5) What parts of the user interface did you struggle to interact with the most?

**Section 2 - Voronoi Tessellations**

2.1) To what level have you studied mathematics/linear graph theory in the past?

2.2) What knowledge did you have of Voronoi tessellations before seeing this app demonstration?

2.3) Have you learned more about Voronoi Tessellations from seeing this app, and do you think using it will teach you more about them?

2.4) Was there enough information provided for you to gain a basic understanding of what Voronoi tessellations are?

2.5) Do you feel like this app has made you more interested in the Fry building’s voronoi sculpture?

**Section 3 - Reliability**

**THIS PART IS FOR WHEN A USER TESTS THE APP THEMSELF. INCLUDE?**

3.1) Did you have any trouble finding, installing or opening the app? Describe if applicable

3.2) Were you asked to grant camera privilege permissions when using the app?

3.3) Were you able to use the camera through the app? Did the Camera’s view show clearly and function as intended?

3.4) Did you have any trouble with getting the app to recognise the target image? Describe if applicable

3.5) Was the 3D tessellation easily visible after recognising the target image? Do you feel like the image of the tessellation was clear/could anything be changed to improve it’s clarity?

3.6) Was the 3D tessellation in the correct position w.r.t the sculpture? Did it stay there when you moved around with the phone?

**Section 4 - Further Comments**

4.1) Is there anything you would add/change about the User Interface of the app, including the menu screen, settings screen and information screen?

4.2) Is there anything you feel could be improved with regards to the main camera/AR interface of the app?

4.3) Would you recommend your experience with this app to a friend? Can you think of a reason why you would not be inclined to?

4.3) Any other further comments?