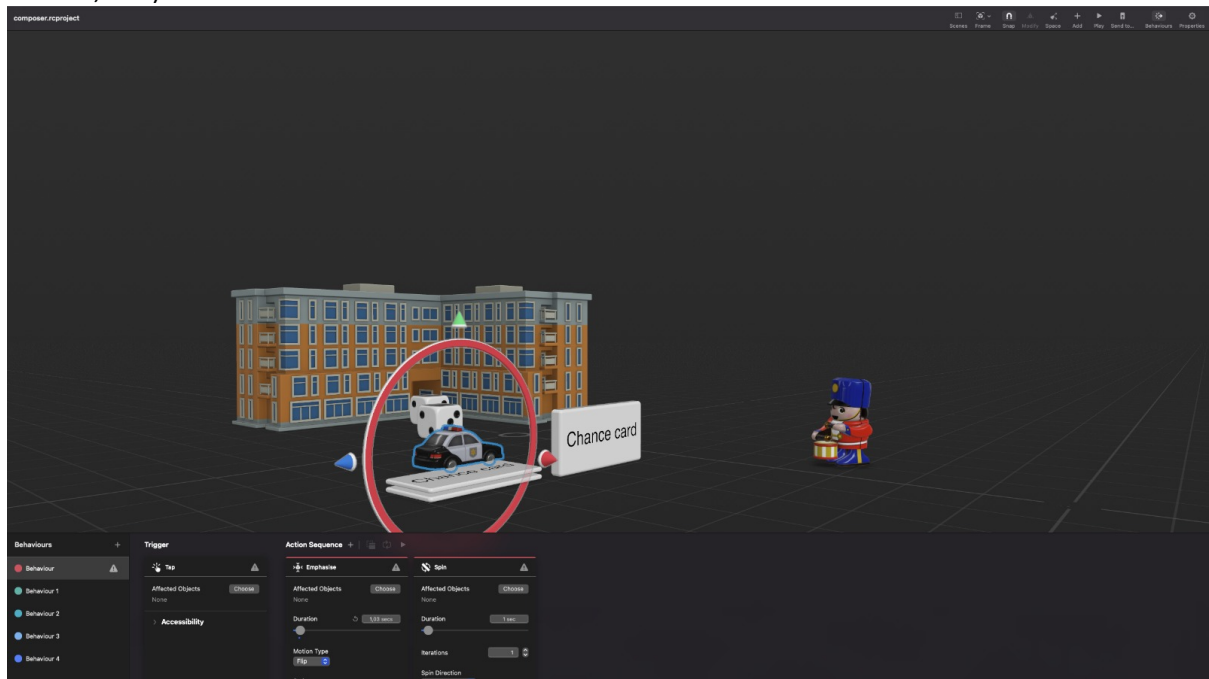


Research 3D modelling

After defining the concept we started researching how 3D modelling works so that we could add content for the board game. Our teacher recommended using Reality Composer from Apple which allows you to add and create 3D models to your app and add animations to them.

We tried some of the functionality of Reality Composer (adding animations, properties, importing 3D models, etc.).



After playing around we realised we had to find a way to make more complicated 3D models since there aren't a lot of usable, free 3D models available. Apple has a so-called [photogrammetry sample app](#) that allows you to turn photos into 3D models.

The only thing that we had to add is the path to the images, the path of the output folder and the type of detail (low, medium, full, or raw) we wanted the 3D models to be:

Create the Photogrammetry Session

Begin by creating a `PhotogrammetrySession.Request` with a URL that points to the desired output location for the generated USDZ file and the desired level of detail for the model. Next, use that request, along with a URL pointing to the directory containing your images, to create the `PhotogrammetrySession` object.

```
let inputFolderUrl = URL(fileURLWithPath: "/tmp/MyInputImages/")
let url = URL(fileURLWithPath: "MyObject.usdz")
var request = PhotogrammetrySession.Request.modelFile(url: url,
                                                       detail: .full)
guard let session = try PhotogrammetrySession(input: inputFolderUrl) else {
    return nil
}
```

We made a lot of photos from different angles and submitted this into the photogrammetry app. The first results were bad:



Photos



We researched [how to improve](#) the quality of the 3D models.

Apple advises to:

- Get a tripod and camera
- Put the object on a turntable and keep shooting images while the object is turning

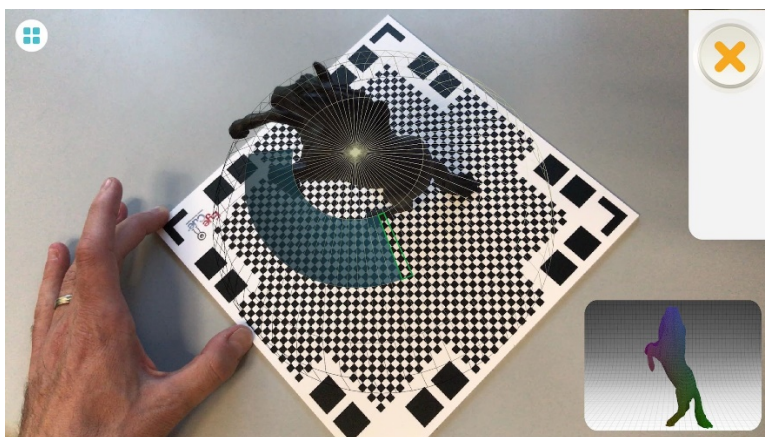


- Make sure there's enough natural looking lighting
- Make sure there's no reflections
- Make sure the background has a high contrast with the object, preferably a dark background

We didn't have all these resources so we tried to find a different way to make the photogrammetry more accurate.

Qlone

Qlone can track objects better. We printed the QR mat (see the above image) that Qlone requires and placed an object on it. The outcome was a lot better looking than the photogrammetry method. Unfortunately, the Qlone app's export function didn't work so we couldn't download the 3D models. We searched for more apps that are similar to Qlone, but the apps we found used the Lidar technology which is only supported by the newest iOS devices and the ISSD didn't have these devices yet.



Qlone in action



One of the photos we took so that we could generate a 3D model



The result with Qlone