

Intro

This document is a blog of the Camilla in Chronospheres project.

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First meeting with the ACI Students 16-3

We just had our first meeting with our new group members, they follow a Transmedia minor at the Academy of Creative Industries at Fontys Tilburg. We have introduced ourselves and talked about the project. So, this meeting was mainly to get up to speed and have an idea of what to do next.

Meeting with Camilla Blue

Meeting up with Joyce resulted in a good feedback session. We explained how we see a possible augmented reality prototype in the live show.

She immediately sparked with new ideas. A rollercoaster flying on stage ...

Or zooming in to her head and seeing what is going on inside her brain. ...

Getting started with AR in Unity

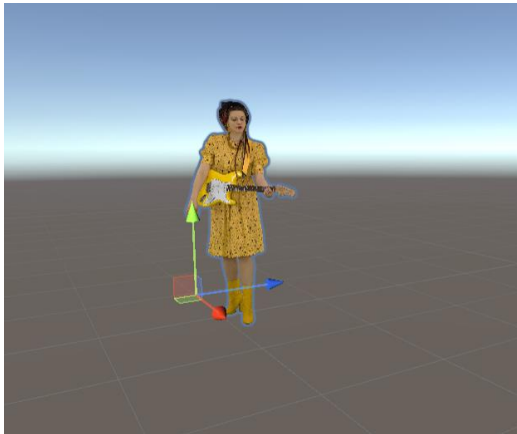
We as a team decided to use Unity, which is a game engine mostly used for 2D and 3D games, but it also supports AR (Augmented Reality) and MR (Mixed Reality). Unity is very known and has a lot of documentation. We checked what kind of AR/MR devices are available at the ISSD. The Hololens popped up and after a bit of research the Hololens was an excellent option.

I downloaded Unity Hub and installed the latest version, then started a new project with the AR starter pack. I am planning to pick up a Hololens at the ISSD tomorrow to get the hang of AR development.

The footage we got from the chronosphere recording is saved as a `.4DS`. I found a tutorial on how to import these files into Unity, which is surprisingly easy.

<https://www.youtube.com/watch?v=QChm63ddmC0>

The recording now shows in the editor and it looks very good. The recording plays on repeat and I have a few parameters such as speed and a range of frames I want to see.



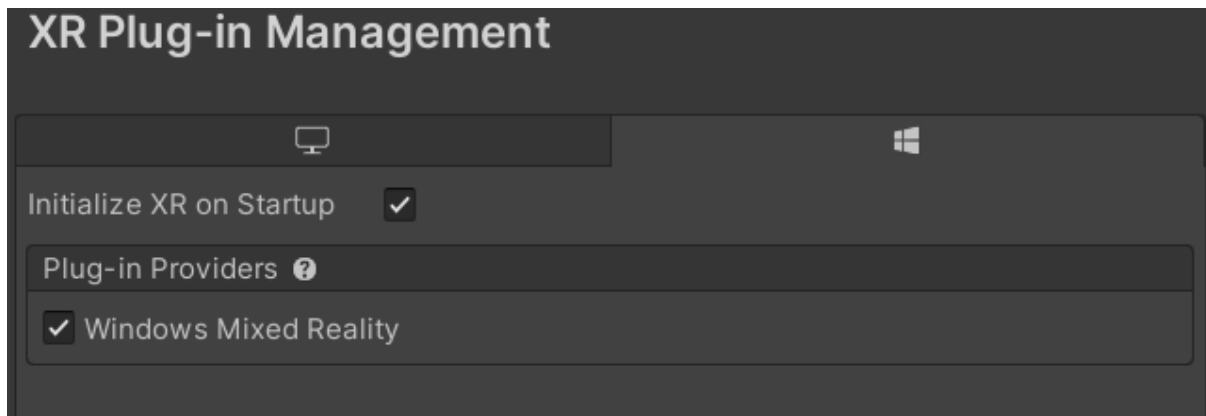
After two days of research and experimenting with the Hololens 1st Gen, I finally got a build from unity visible on the Hololens. I followed this step-by-step guide from Moira Walker.

<https://medium.com/@mkryaz/step-by-step-hololens-1-with-unity-and-visual-studio-tutorial-4601d5dfcc8f>

First problem, it is in 2D and it is in a window... But it *is* a start.

At the end of the guide is a summary of a useful tool for Mixed Reality, which I saw on other sources before when I was researching. This tool has a collection of useful scripts and components for the Hololens to make developing in unity easier. I tried to download this tool, but I get an error every time.

To get the application in 3D I need to include the “Windows Mixed Reality” plugin in the build. Which I did via this screen below.



I placed the recording of Camilla Blue in the scene, built the game and uploaded it to the Hololens. And it worked, it is in 3D. But the game is very laggy and the frames per seconds are very low, https://www.youtube.com/watch?v=JX_y98n0H9o. As you can see this is not really immersive.

I think the 4DS recording is causing the lag somehow, so I replaced the recording with a particle system. <https://youtu.be/cPsJqbmwdVA>. This worked, so that proves that the 4DS recording does slow the Hololens down. That might be a big problem in the future, but then again we were asked to deliver a prototype of a live performance that would be enhanced by AR. And they would use an AR wearable that would use 5G which could eliminate the limitations of a small Hololens. So I don't want to focus on that too much right now, the experience itself is a bigger priority.

New concept 'The room'

We brainstormed about idea for a visualization for the songs. Our problem was having multiple different visuals would not work as they would be too different. We should have one constant to have some stability in the show. We came up with the idea to recreate her childhood bedroom, as the story of the album Yellow stands for her growth and growing out of her younger self. This room would then change over the songs and we would have our freedom to create very different visuals as long as they hand in hand with this room.

One of the ACI students, used The Sims 4 as a tool to create the first visualization of how the stage could look like.



Then we made a sketch in photoshop of the room.



Feedback Judith

I had a short feedback session with Judith where we discussed what the freedom and connectivity of the technology that we are using is worth for an artist like Camilla.

Judith mentioned 'priming', "Priming is a phenomenon whereby exposure to one stimulus influences a response to a subsequent stimulus, without conscious guidance or intention." (wikipedia, n.d.).

Priming can be used to enhance the user experience. And we could use the effects of lighting and sound to enhance the experience we want to give to the user. This would add a deeper feeling and experience to the prototype as this is a subtle way.

Using the MRTK with Unity

Aidas shared a YouTube tutorial playlist that shows a complete walkthrough and explains what the Mixed Reality Toolkit can do. But this playlist was outdated and was using the MRTK version of 2017 which goes along with Unity 2017. That is really something we want to avoid as we are using cutting edge software/technology of the 4DS/chronosphere.

To get a clearer view of what needs to be done I sketched important points on a whiteboard and then digitalized them. The first thing we need to do is, place the room somewhere on the stage. Then place it in the right position. To do this we need the two corners (A and B) of the room and the two edges on the bottom so we can calculate C and D. A face can be created from these points, this face will be the floor of the room.

The choreography represents all the animations that will take part during the song. Because there are some technical limitations of the Hololens 1st gen regarding the 4DS recording, a placeholder is needed. This may go for some other pieces that would take more time or skill to make. To get the intended picture across we will make a placeholder dictionary to translate these placeholders. Animating all the pieces and placeholders together with the song is the last part.

STAGE

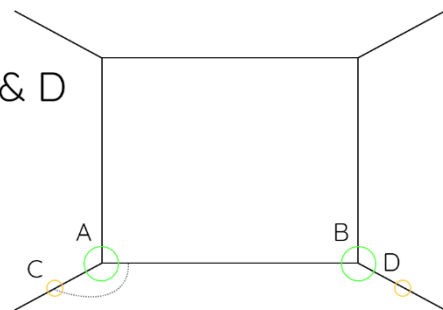
- 1 Place it somewhere





- 2 Place it right



Find A & B
Calculate C & D



CHOREOGRAPHY

- 1 The magic cube 
"Placeholder of everything"
- 2 Placeholder Dictionary
- 3 Animate! 

Position = relative
Size = Absolute



Meeting at the Effenaar

This was for me the first time that I got to see the location of the event. Aidas, Mitchel and I decided to scan the whole space with the Hololens. This creates a 3D model of the whole space and can be used to create anchor points on the stage for the room.

So instead of letting the end-users scan it themselves, it just loads a pre-scanned room. This saves time and possible human error. This also removes the calculation of the four point that creates the room floor, which is great.



Aidas found out that there was a Hololens 2nd gen at the ISSD available. This gives us the opportunity to make use of the new software and tutorials. Just a 'lil review here, it feels like very light on your head and the fact that you can flip the screen up like those outdated clip-on-sunglasses is phenomenal and made my day.

The downside is that the Hololens 2 came too late to turn the prototype around, the difference in the software is big so just switching platforms is not an option.

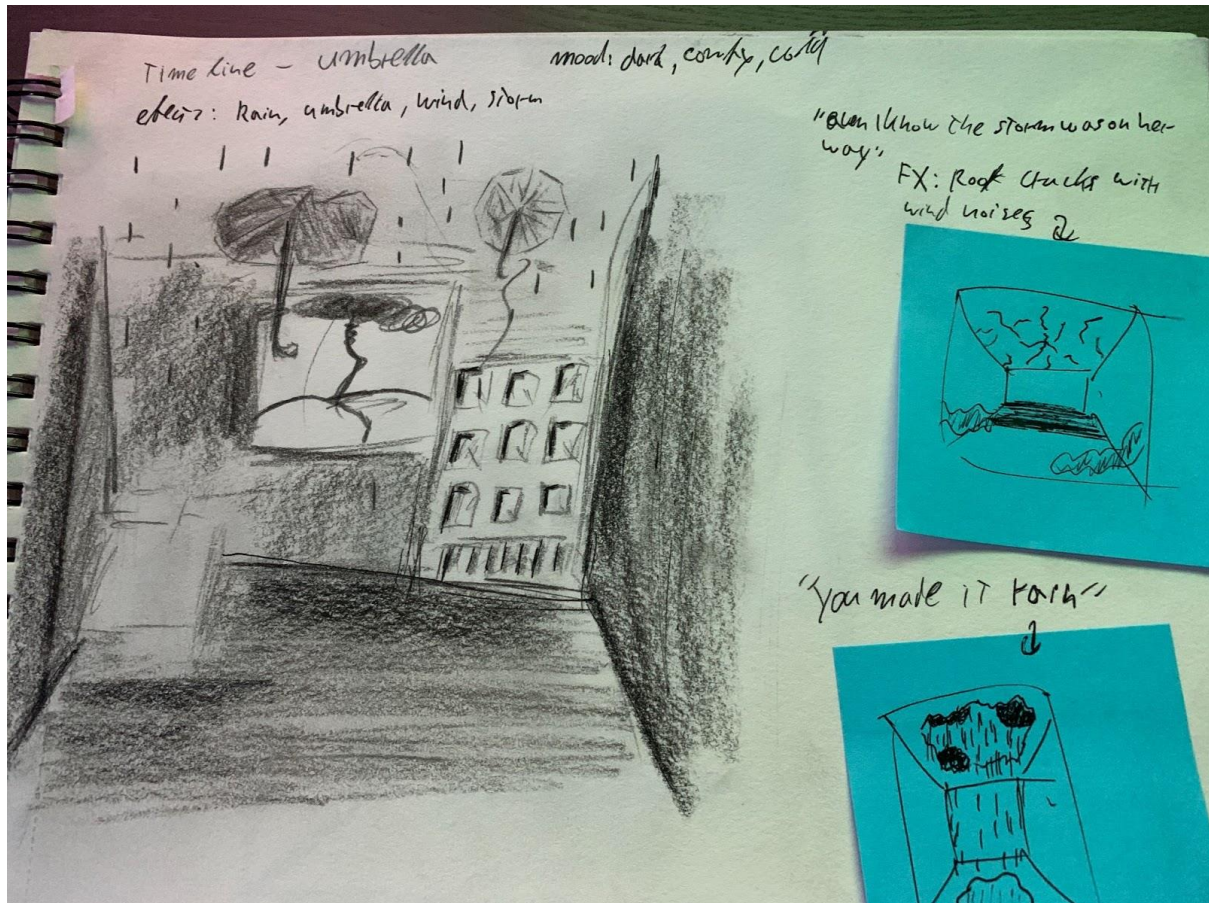


Change of plans (prototyping)

Instead of making the virtual room for the presentation. I think we should focus on the most fascinating piece of the concept, because the purpose of the project is to tell the story of Camilla's songs. And that is using the HoloLens and the chronosphere footage. So, from now on we are going to create a hi-fi prototype first, and then a few low-fi prototypes.

The low-fi prototype:

To help imagine our concept of 'Umbrella', I created a sketch of how this experience should feel like. Imagine you see a room on stage with heavy rain in the window, umbrellas floating around. Camilla sings "Even I know the storm was on her way", you hear the ceiling crack and the swooshing wind. "You made it rain", the ceiling drops, rain falls inside a big clouds can be seen.



We created a visual in photoshop to give a better understanding of how the realization would look like.



I made a few drawings that would help imagen the concept of Black Star. We made a table with an explanation of what is happing while lyrics are spoken.

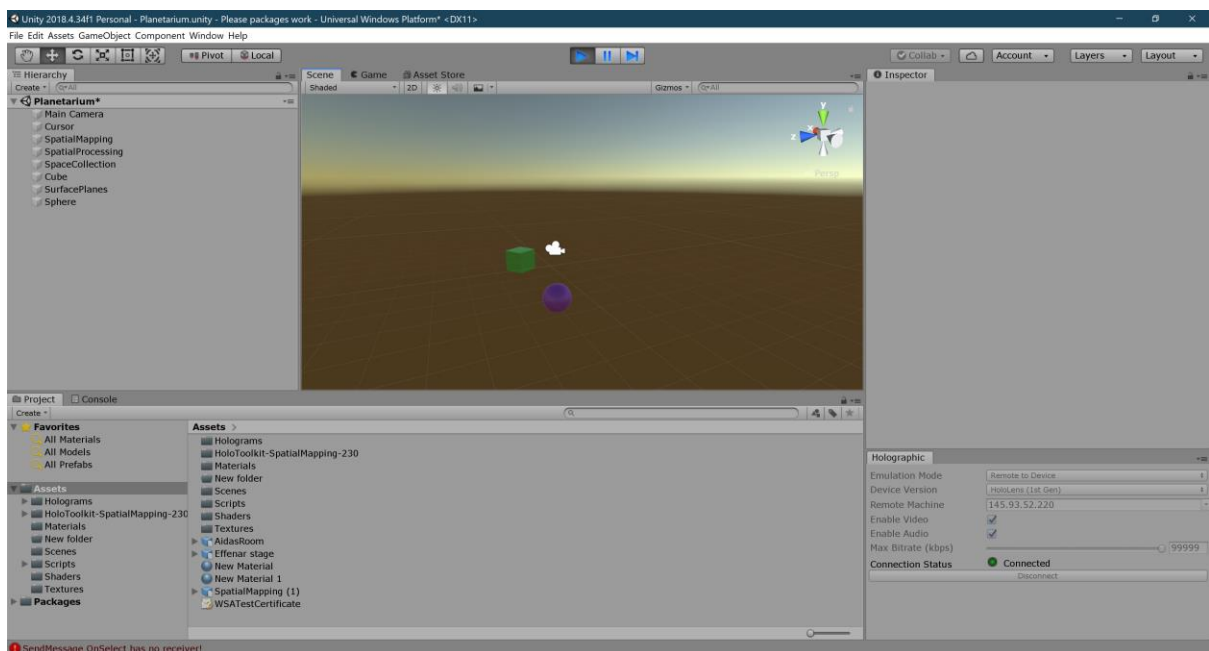
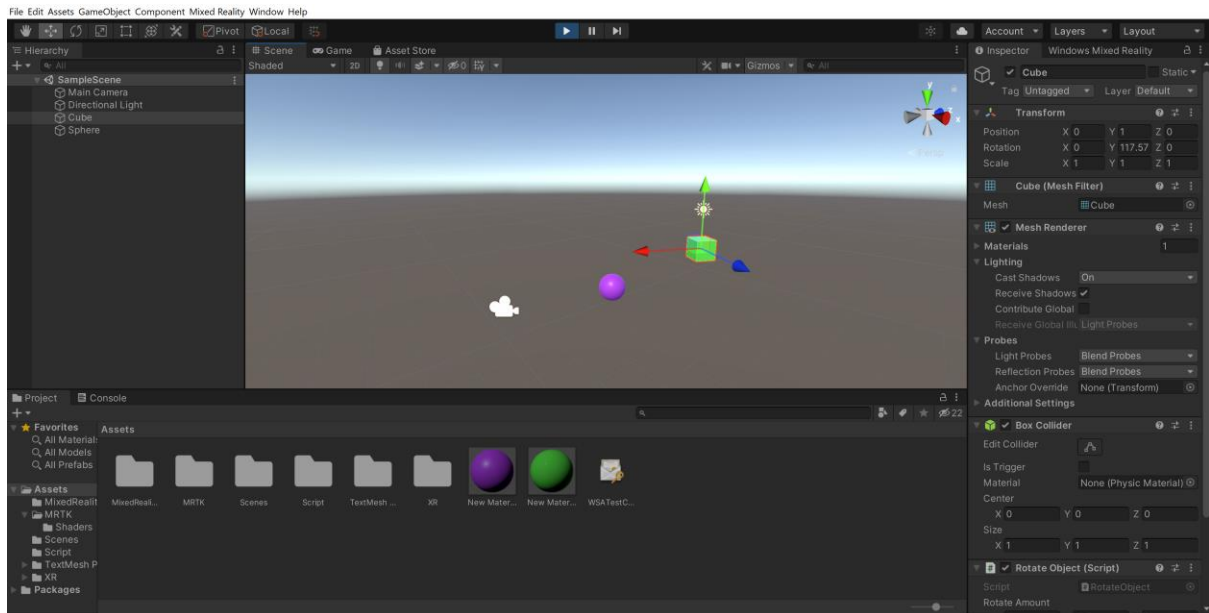
Center of a black star

LYRICS	WHAT WE WANT TO VISUALIZE
It's a strange sensation Every transition And that night Only bullets to bite	Night scene With face which is clearly visible
I was never meant to hurt you I was never meant to let you down But here we are, here we are, here we are	Night scene With face going almost ice transparent
The shape of your face Transparent as ice I know I've been mean Two outta three	Face, started to melt Transition into sphere
So here we are, here we are, here we are In the center of a black star In the center of a black star	Sphere orbiting around a person. Ominous vibes, alien like. Violent Start changing to weather
But when the weather changes The weather cha-changes I step out of the dark	Change between weather scenes- example. Rain, storms, summer etc. Going from darker scene to bright scene
I'm full with desire But I am fighting with hope And while the flames getting higher I am starting to choke	Flames around the person. Person in center. Make flames go higher while black star is still circling the person. Stay on last weather scene
So here we are, here we are, here we are In the center of a black star	Black star circling person, while flames go out
So when the weather changes The weather Cha-changes I step out of the dark	While flames go out and black star circles Change the weather scenes again
Stuck in the center of a black star...	Only black star orbiting person
When the weather changes... changes When the weather changes... changes.. I'll step out of the dark	



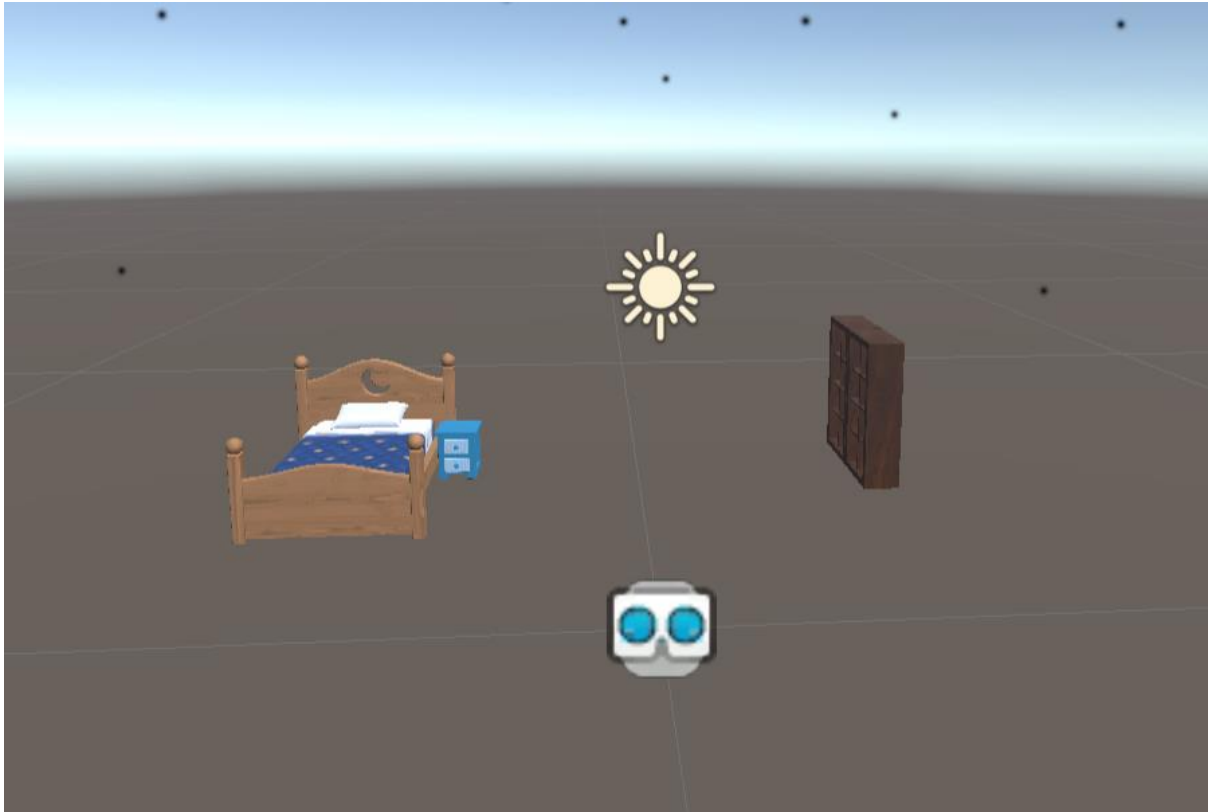
The hi-fi prototype:

The current prototype is missing some features but it's an actual proof of concept of how the AR environment will be showcased in the live show. It is lacking the story telling part and its focused more on the technical features.



I tried two unity versions, 2020 & 2018, to make the first prototype. Only the 2018 version connected via 'Holographic remoting' to the Hololens. And the 2020 version works via building the game and uploading it to the Hololens via Visual Studio. This version also supports the 4DS views plugin, where we can use Camilla's footage. We discussed and we want to have the opportunity to add her in just for the presentation.

I wanted to recreate the room so that we can give a better understanding of the concept.



I added an image of one of the stages created by our group to create a better idea of the concept:



[Hi-fi Prototype, Camilla's Room](#)

Now with a floor.



Then I added the visuals without the bed and perspective and created the room in full 3D.



The idea is to make a slideshow of the different themes of the songs, playing the music through the Hololens and switching in every 15 seconds.

In our concept of the song Blackstar, there would be a face floating in the air that eventually melts. I found a facemask that fits in the theme and placed it, angled so it adds more emotion, above the room.

















I also placed Camilla in another scene so that we can give an indication why we did not want to use this footage.



TICT

We did a Technology Impact Cycle Tool ‘quickscan’ on our project

QUICKSCAN - CANVAS		Augmented Reality	
<p>NAME: Augmented Reality </p> <p>DATE: May 19, 2021 5:46 PM</p> <p>DESCRIPTION OF TECHNOLOGY We are making augmented reality application for Camilla Blue with a goal to expand her story during concert with the aid of interactive visuals</p>	<p>HUMAN VALUES </p> <p>The user can be exposed to visuals which can have negative effects e.x. person afraid of heights can be shown scenes from top of Eiffel tower. Also this technology does not take in to account people with visual disabilities.</p>	<p>TRANSPARENCY </p> <p>The Hololens design follows natural mapping quite well, the controls are firstly showed once you start the glasses and the controls are intuitive (for selecting item you pinch it). The technology itself is well documented with a lot of examples and guides provided by creators.</p>	
<p>IMPACT ON SOCIETY </p> <p>Expand the story of an artist with the help of augmented reality technology, including volumetric video capture technology, during her musical performance.</p>	<p>STAKEHOLDERS </p> <ul style="list-style-type: none"> - Effenaar - Rose Media - Camilla Blue - Mitchell Kruijs - Shihaab Rouine - Aidas Svezgda 	<p>SUSTAINABILITY </p> <p>To our knowledge the power consumption is in the norms of reason, the energy could be generated by renewable energy sources.</p>	
<p>HATEFUL AND CRIMINAL ACTORS </p> <p>Using the implemented cameras in the Hololens the developer could abuse it to steal video and audio to spy on the user.</p>	<p>DATA </p> <p>The Hololens scans the environment in realtime. This will create a model as close to real as possible by the technology provided.</p>	<p>FUTURE </p> <p>The biggest perspective for this technology is in education. It would be revolutionary to experience subjects, like history, biology or geography seeing models up close from the comfort of your desk. The topics could be explained more efficiently by providing fully interactive visual aid.</p>	
<p>PRIVACY </p> <p>The glasses register audio, video as well as connection to internet.</p>	<p>INCLUSIVITY </p> <p>Yes, against people with visual disabilities.</p>	<p>FIND US ON WWW.TICT.IO</p> <p>THIS CANVAS IS PART OF THE TECHNOLOGY IMPACT CYCLE TOOL. THIS CANVAS IS THE RESULT OF A QUICKSCAN. YOU CAN FILL OUT THE FULL TICT ON WWW.TICT.IO</p> <p>    </p>	