

THE PROBLEM:
 SYNCVR CREATES VR APPLICATIONS FOR PATIENTS IN HOSPITALS. THESE HOSPITALS HAVE A STRICT REQUIREMENT FROM A HYGIENIC PERSPECTIVE AND THE CURRENT OCULUS GO DOES NOT MEET THESE STANDARDS.



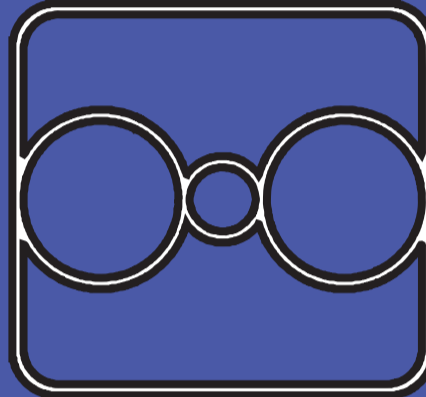
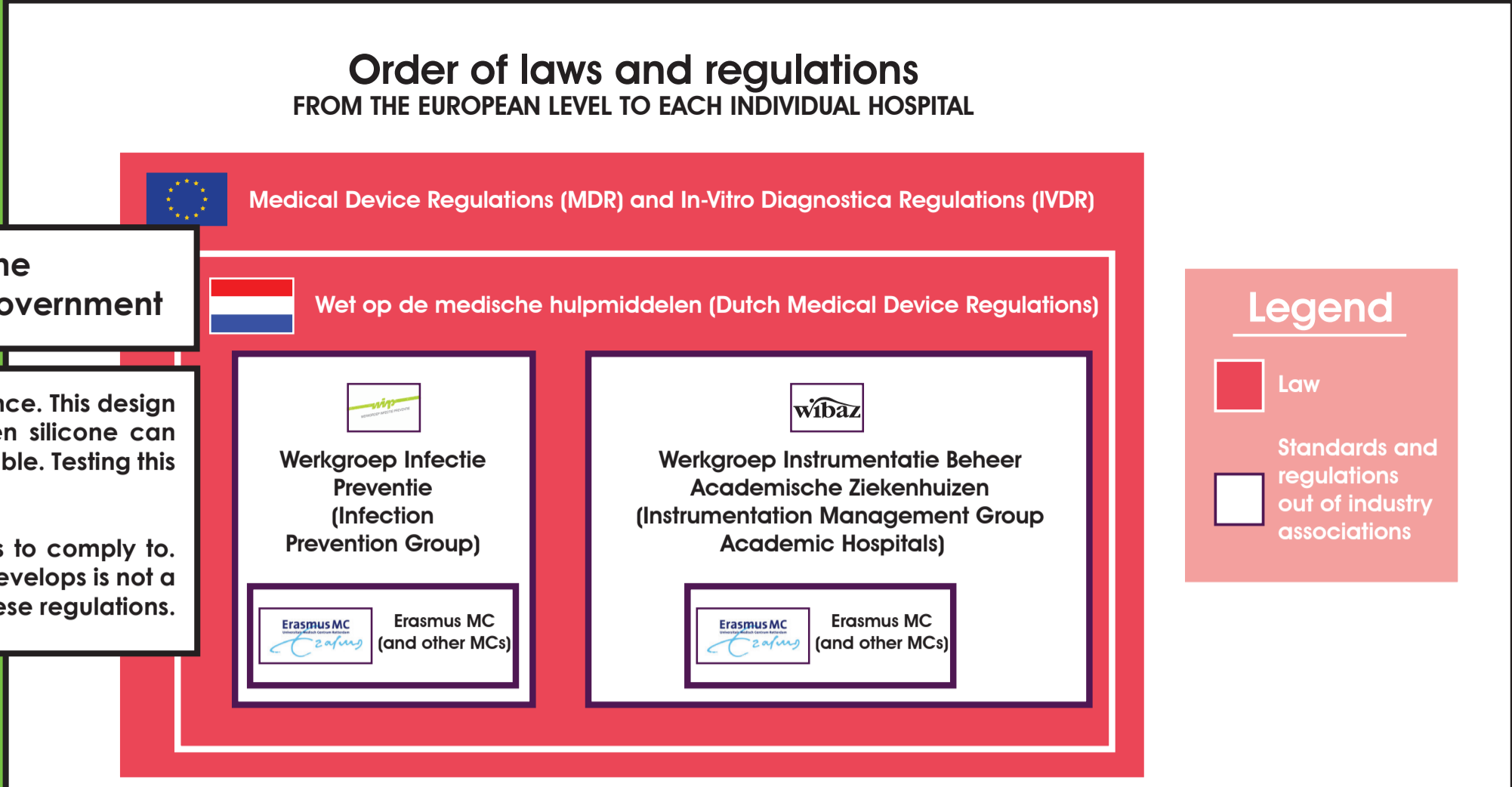
Project Challenge: Hygiene
 Stakeholders: Hospitals and the Government

Hospitals demands a certain degree of hygiene when working with anything that is being touched. The design of this project is of no difference. This design must be either be cleanable and disinfected or disposable. For feasibility purposes, cleaning and disinfection is chosen. The chosen silicone can theoretically be thermally disinfected and since the material is not porous and the surfaces are smooth, the cleaning process should be reliable. Testing this fell outside of the time and scope of this project.

With regards to the law, the European Medical Device Regulations are a long list of rules and regulations that a medical device needs to comply to. Manufacturers (in this case SyncVR) decides on whether their products are a medical device or not. In this case, the software that SyncVR develops is not a medical device and the design in this project supports the use of the software in hospitals. This design thus does not have to comply with these regulations.

$$A_0 = \sum 10^{(T-80)/z} \Delta t$$

(Δt = selected time period in seconds,
 T = temperature of the load in °C (lower limit-value = 65 °C), z = 10 (°C))



SyncVR

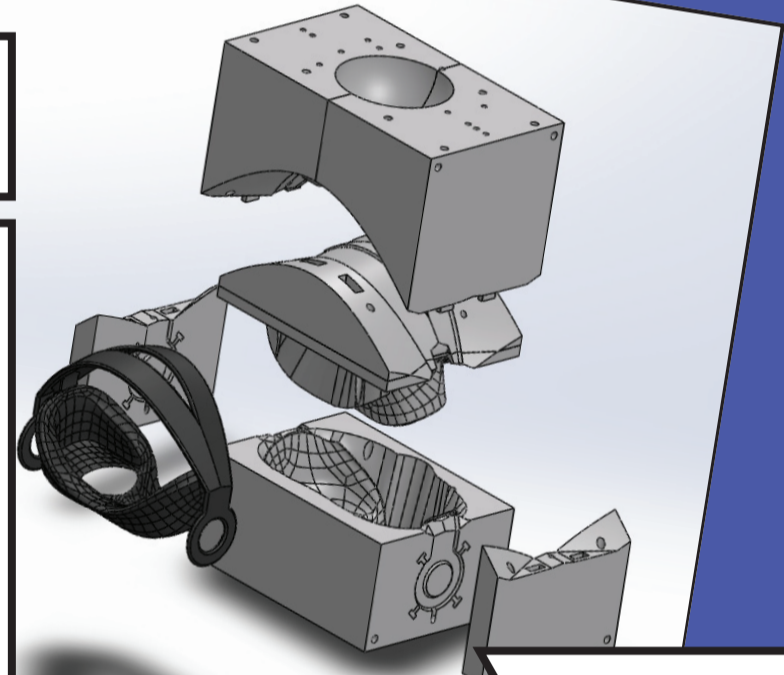
Project Challenge: Feasibility
 Stakeholder: SyncVR

The CEO and founder of this startup, Floris van der Breggen, describes that it is their vision to implement VR as a tool in aiding patients in various ways in hospitals and that they want to end up providing the all-in-one VR package for hospitals.

This does not stop at software. As the problem states, hospitals have their demands regarding hygiene and a physical product needs to provide a solution for this.

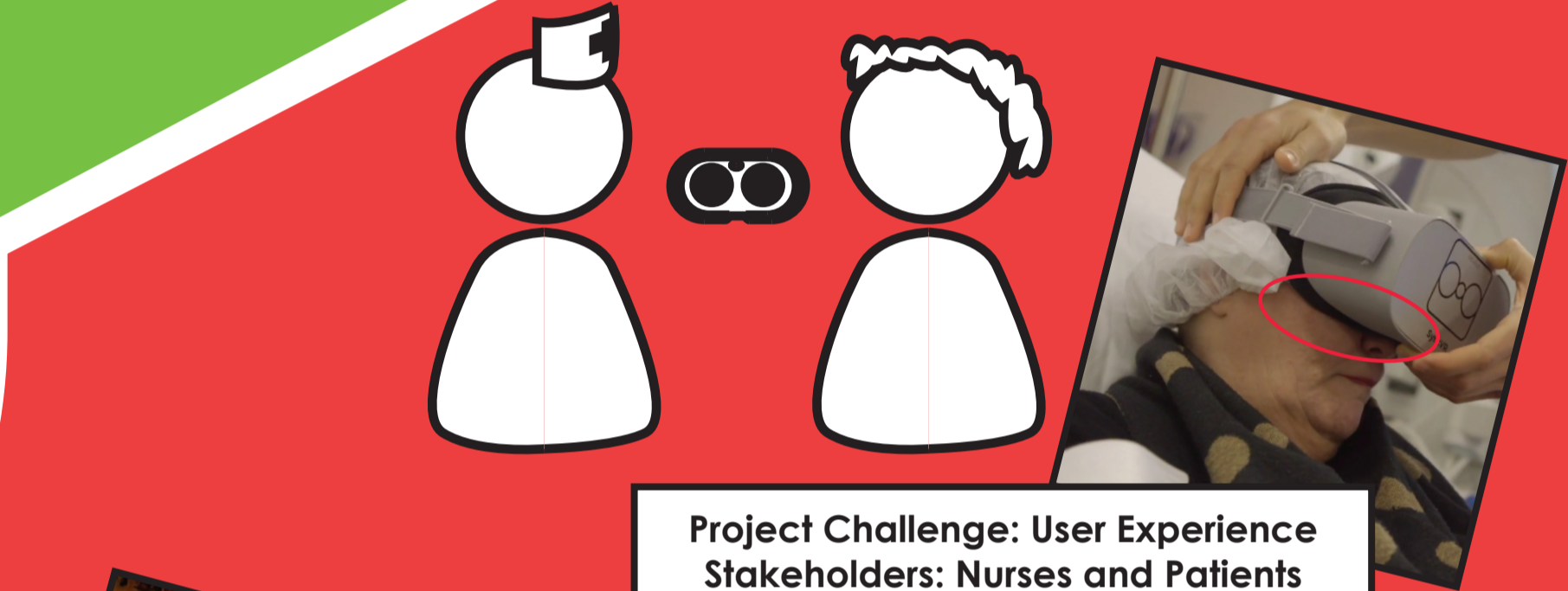
Creating a physical product needs to usually happen in large scales however, in order to earn a return on huge investments. As SyncVR does not have a large sum of money to spend, this project introduces the concept of room temperature vulcanizing silicones. The molds for this production technique can be 3D printed as demonstrated in the project. A physical silicon model is prototyped to demonstrate that this is not just a theory, but actually feasible.

The production method has been slightly optimized during the project to successfully remove bubbles inside the material and has been tested to show that it can reliably and easily carry the Oculus Go. A costs analysis is also made, which shows that at a production size of 1000 units, this washable and reusable product costs approximately 12 euros per unit.



How does a startup create a physical product to be used in hospitals without significant capital while meeting the needs of nurses and patients?

Project Challenges:
 Feasibility Hygiene User Experience



Project Challenge: User Experience
 Stakeholders: Nurses and Patients

Nurses use this product day in day out and currently experience the biggest problem with these glasses. In the situation prior this project, nurses have to apply a hairnet prior equipping the patient with the default headgear of the Oculus Go Virtual Reality glasses. This preserves some form of hygiene, but still leaves room where the face touches the porous headgear of the Oculus Go, which causes risks in terms of spreading of bacteria and thus contamination.

In order to properly clean the headgear, nurses should have to remove the headgear, dispose these into a washing machine and then collect them afterwards. Mounting this headgear onto the Oculus Go and equipping the patient with it takes over 100 seconds. This is way too much time for a nurse and needs to be reduced significantly.

The new design removes the brackets on the side and the necessity for the headband to be attached to the top. The loops on the sides of the design can be connected simultaneously onto the custom hooks that are 3D printed and clicked onto the sides of the Oculus Go.

This project also contains research with regards to the different sizes and shapes of heads the patients have. The chosen silicone has a large elongation, which allows it to adjust to any headshape between P5 and P95 of adults. The design has been adjusted to account for this elongation.



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 Creating hospital-friendly VR glasses
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