Designing a Modular, Sustainable and Acoustic Phone Booth with a Comfortable and Safe Environment

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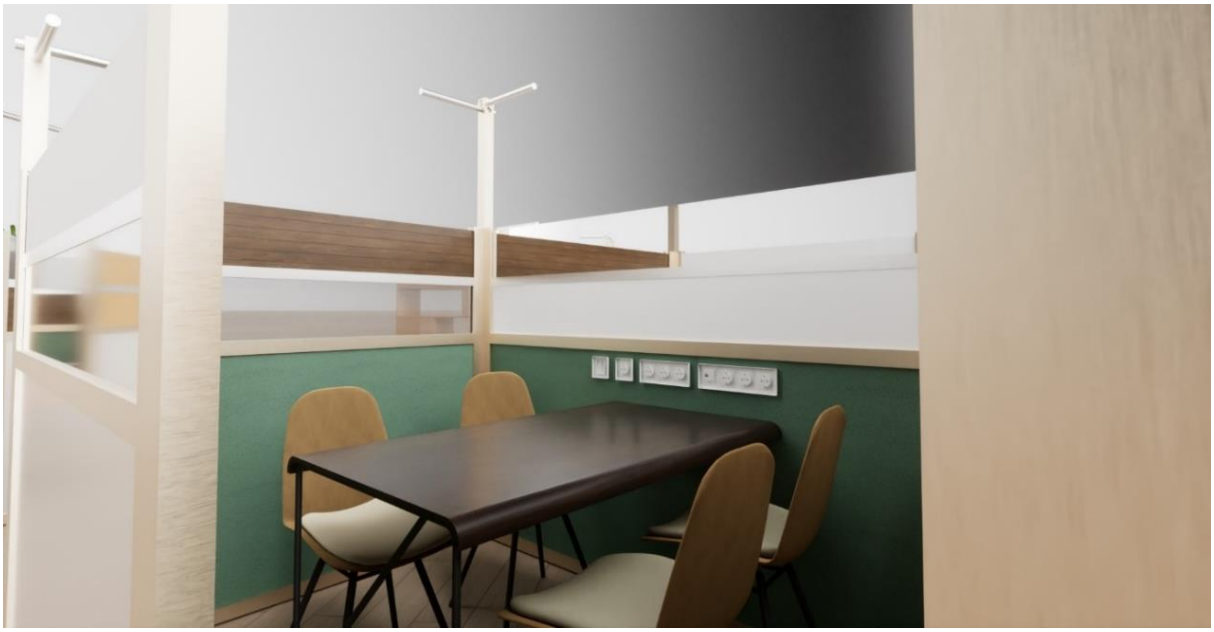


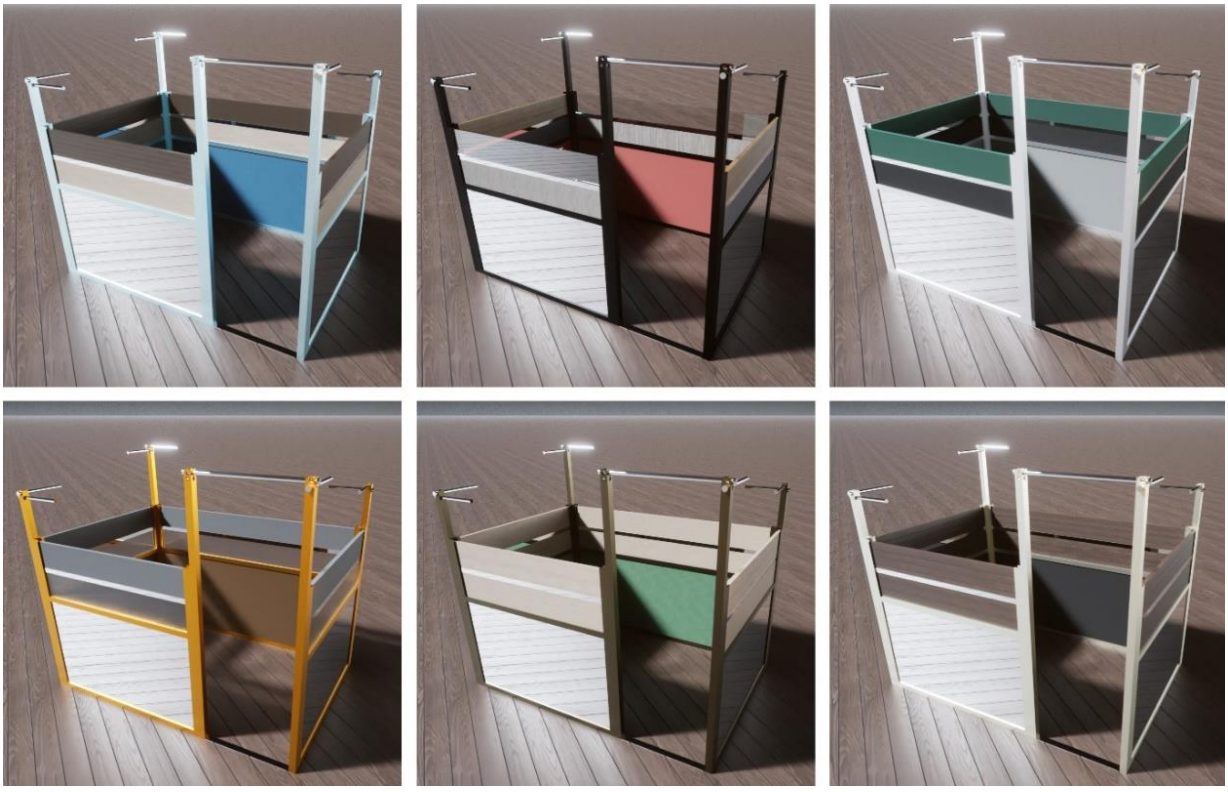
The goal of this research was to design a phone booth with a case study of the Horst building of the University of Twente as inspiration. This assignment was established as a result of the demand of the university for working spaces where users can work productively and efficiently while still enhancing one's autonomy. Due to their common interest in sustainability and the expertise of the company, this research was executed at Vepa. Vepa is a company that designs, develops and produces sustainable office furniture.

Based on this demand and other stakeholders of the research, three subquestions had been generated. Various methods had been carried out to investigate what Vepa's objectives are and how these could be realised, what the needs of the end-users were and what aspects and problems occur in existing designs. The methods used were desk research, field studies, focus group meetings, expert interviews and a scenario study. The findings from these approaches had been translated into product requirements. As a result, a foundation was created to be able to answer the main research question of this assignment, namely what the design of a phone booth should entail to meet these requirements.

A list of requirements regarding the functions, user interaction, design, user experience, ergonomics, production, maintenance, safety, sustainability and wishes had been established. In summary, the phone booth should be modular, ergonomic, sustainable and should contain a comfortable and safe environment. Furthermore, it should convey a sense of privacy and a homely feel and be suitable for all possible locations within the university.

To examine what the design should entail to meet these requirements, a step-by-step design process took place. First, ideation sketches and collages were made to brainstorm and envision potential features of the booth. Based on these ideas, a morphological chart was produced and utilised to generate cohesive concepts. The features of these concepts were rated per requirement, whereafter one concluding concept was created. Iterations of that preliminary design were made in SolidWorks, which functioned as a tool to make decisions and create parts. After a final design was chosen, details were added and materials and colours were selected.

The modularity was achieved by the implementation of wall modules. Different sizes of booths can be created by altering the wall module, while the other parts apply to all configurations. Therefore, the sustainability and maintenance of the phone booth had been enhanced.



An ergonomic working space can be achieved since no furniture is fixed. Hence, furniture that suits the useŕs specific needs can easily be entered through the door or lifted over the walls.

Sustainability is not only realised by the modular design but by the choice of materials too. The booth is mainly made from steel, wood, fabric and felt, which all can be recycled and/or reused and can be collected from the Netherlands or surrounding countries.

To achieve privacy, both noise and sight had been taken into account. The wall of the booth includes a layer of felt, wood and metal since this combination of materials realises the desired acoustic behaviour. Privacy regarding sight is implicated as the height of the booth is approximately 1500 mm, implying that sitting users feel encapsulated.

This simultaneously implies that the top of the booth is left open, which is the case for the roof as well. Due to this open design, no additional climate and safety regulation equipment is required for the booth to achieve a comfortable environment. Consequently, a lot of costs are saved. This decrease in costs could be interesting for potential buyers, as the goal of the booth is similar to existing booths on the market, yet the existing designs are more expensive.

The homely feel is conveyed by the inclusion of rods at the top, which can be used to hang objects like hanging plants, lamps, or coats. Furthermore, a combination of different materials is possible due to the changeable walls at the top. Even after complete assembly, these walls can easily be altered. This also enables buyers to choose certain colours and materials that suit the allocated destination of the booth.

To conclude, multiple attributes were incorporated into the phone booth such that it met the majority of researched and established requirements. Nevertheless, improvement could be made based on recommendations for implementation and further research. For instance, the rods need a minor redesign to thoroughly fulfil an additional function. Moreover, further tests should be done with a visual prototype to verify if the user experience requirements were met.