

The Sea Beach Alarm Systems of the Interactive Bracelet with Branding Design

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Abstract. With the growing climate change and human activities, the natural environment has been permanently changed. When people or families play around the beach, they will face increasing danger from the sea and extreme weather. This paper intends to minimize the threat from the beach and the sea when people play and swim. In addition, the method used in this paper is HCD (human-centered design) and the sustainability design with branding design and business map; to create a design system reducing the challenge of nature from the beach. After the search, the cause of climate change on the beach is increasing seriously. Therefore, the design system could help people around the sea and beach have safer living conditions. Finally, this paper responds to the Sustainable Development Goals of the UN. Meanwhile, thinking about how the environment affects us and what could this design do adapt the increasingly unstable nature environment.

Keywords: branding; interactive design; graphic design; HCD; climate change

1 Introduction

Two hundred ninety-one people died from drowning in the Australian waterway, and 17% drowned at the beach [1]. They drown because of unexpected changes in sea conditions when they swim at sea or fish around the sea. Many organizations, such as the Australian Surfers Foundation and UBC (Sustainable Cities Council), focus on the environment and the education of people. But these campaigns do not consider how design can be used to help people and reduce potential risks from climate change. So, the campaign could offer more choices and more functions to the end-users.

This paper is to research and help people around the northern beaches in Sydney know when tides are coming and keep them away from the unpredictable dangers of the sea [2]. Also, educate them about the necessary knowledge about oceans and climate change. Therefore, the major challenge they face in the region is global climate change. This paper will discover an interactive system, including the bracelet design to alarm the people when the danger from the sea is coming and the branding design with an educational function to help them prevent and understand the risks of the ocean. The location is on Sydney's northern beaches, and the stakeholders are small businesses. The client is the North Beach Council; the user is the resident, including children and parents.

There are four parts to the paper. The first part is the bracelet design and the interactive system. The bracelet design is designed to warn people when danger from the sea happens. The second

part is the website design and the interactive system. The social internet has tremendous potential to spread information, so the web and new media would be a great platform to show the campaign [3]. The website design with the educational function is to help people prevent and understand the dangers of the ocean. The third part is the interactive system between the bracelet and website designs. The bracelet will alarm people when hazards happen, and the information will also be found on the website. The website will also publish the time when the tide comes, and the data comes from the data collected through the bracelet. The fourth part is the interactive system between the campaign and the stakeholders, including the residents, businesses and the council. The local council will support the campaign and bring more business chances and safer life for the companies and the residents.

On the one hand, there are 25.4% young people in this area, and adults occupy 47.4% of this area, so this area has a large enough user base to do this activity [4]. Most (89.1%) have domestic internet. Therefore, it is easier to spread new ideas using new media, including the web and apps [4]. The local education level is higher than the NSW average, so locals may learn and understand new knowledge better [4]. Therefore, they can provide a better learning environment for children.

There was an excellent design precedent, a campaign designed by American designer Milton Glaser. According to Dezeen, graphic designer Milton Glaser behind the ubiquitous I love NY logo has launched a campaign to raise awareness of climate change. Glaser says, "It's Not Warming, It's Dying." [5] This campaign aims to move away from benign words like "global warming" and create a greater sense of urgency regarding climate change [5].

Moreover, a Finnish art stamp conveys the climate crisis and whose design changes with body temperature. The challenge of raising public awareness of the climate crisis is the same in every country. In 2018, the Scandinavian Finnish post office issued a gimmicked art stamp. The climate, birds, flow of people, etc., are expressed from the left side. This stamp uses heat-sensitive ink, and when your finger rubs, the design comes out. Finland has expressed the consequences of not responding quickly to climate change. Designed by Finnish design company BERRY CREATIVE. "We explored the effects of climate change deeply and made these three phenomena icons." The limited stamp space was able to express the uniqueness of the crisis and draw people's attention. He was the finalist in the graphic design category of the "Dezeen Awards", an architecture and design award sponsored by Dezeen Magazine. "Unlike stamps, the effects of climate change cannot be countered," said Dezeen [6], the company's representative. The consequences of climate change are long and deep, just as a finger returns when a stamp is released.

In light of this, this article aims to discuss and research how to use design to change our living environment and the world—using the methods of the UX and HCD with the business map and design methodology [6]. In the end, Finally, using a feasible design system to solve and alleviate the challenges faced in people's lives.

2 Methods

2.1 UX &HCD Design methods

In this research, this article uses the design structure of UX (interaction design) (Fig. 1). According to HUMAN-CENTERED DESIGN OVERVIEW, "Great design is based on observed, human need (human centricity) [7]." Thus, the design approach in this paper is based on the needs of users and customers to solve real problems [8]. According to Don Norman, "Simplicity is in mind". The designer's job is to take complex requirements and make them so comprehensible and appropriate that they are pronounced "simple [9]."

THE HUMAN-CENTERED DESIGN PROCESS

Overlaying the human-centered design principles onto the diamond model provides us with a design process that can be broken down into 5 phases.

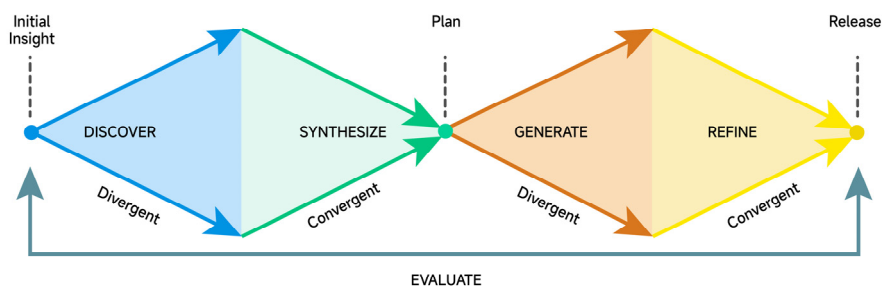


Fig. 1. "Human-centered design (HCD) is an approach to creating solutions for problems and opportunities by focusing on the needs, contexts, behaviours, and emotions of the people the solutions will serve." (Mad Pow, Human-centered design overview)

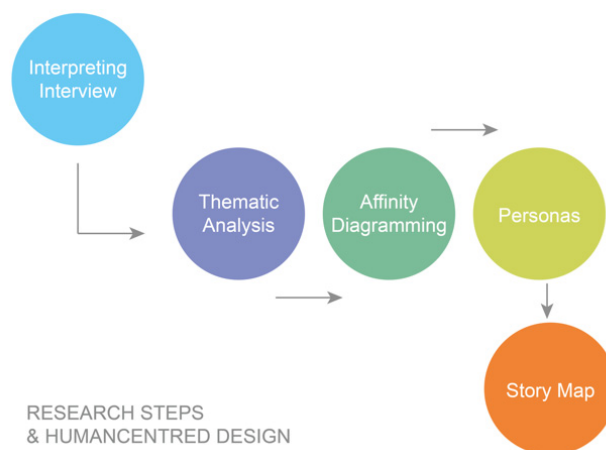


Fig. 2. Research steps

In this report, the research steps used the method of HCD; the whole process is based on residents' needs. (Fig. 2)

2.2 Business map and methodology

This prototype met the needs (safety and education features). In addition, this campaign can create a win-win situation for both clients and clients. Web design can be a platform for learning and updating the latest events or connecting to these wearables. The most unpredictable and innovative part is wearable design, web design, app design, and ad design to make it an organic and interactive system for users, customers, and stakeholders.

The ethical aspects of the campaign are also essential, so the design is designed for children and adults to ensure their safety while swimming and playing on the beach. In addition, the safety issue is one of the most critical issues in Royal Life Saving [1]. Two hundred ninety-one people died from drowning in the Australian waterway, and 17% drowned at the beach. Therefore, when the tide or rip of danger comes, the campaign and design could save people's lives. The network educates children and adults about global climate change issues so that changes can be made from now and make a difference in the future.

In terms of sustainability, the sustainable martial (Eco-resins for Bracelet is crucial and recycled paper for the campaign). Moreover, web design is much cheaper and less polluting than physical production. The area is highly educated, and almost everyone could access the Internet. This entire design process is making North Beach safer than ever.

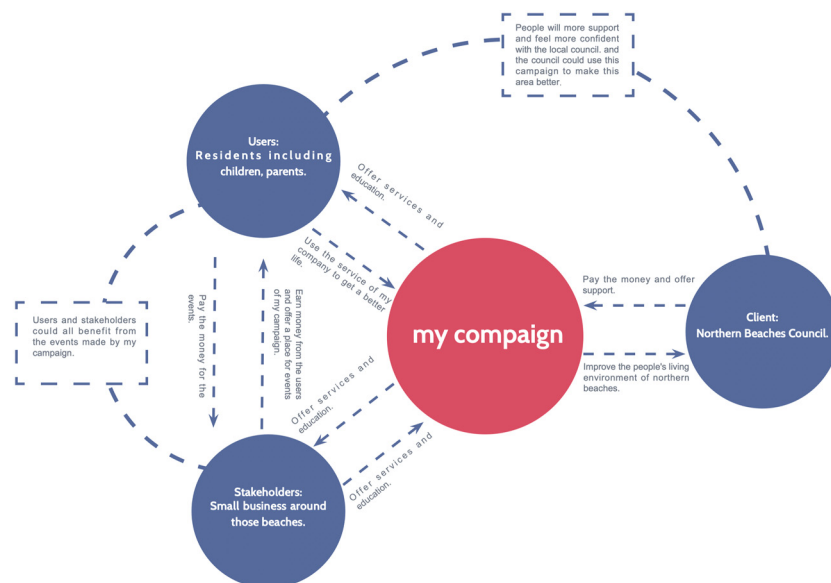


Fig. 3. The business map

This business map (Fig. 3) is designed for marketing campaigns and interaction systems. New channels have been established between small businesses, residents and local councils. As a result, there will be offline meetings and lectures on global challenges, and meeting places may be meeting places for small businesses. The City Council will provide financial support and resources for improving the living environment. And people around the beach will have better, safer lives in the future and are more concerned about climate change so that change begins in the region and spreads to a broader area.

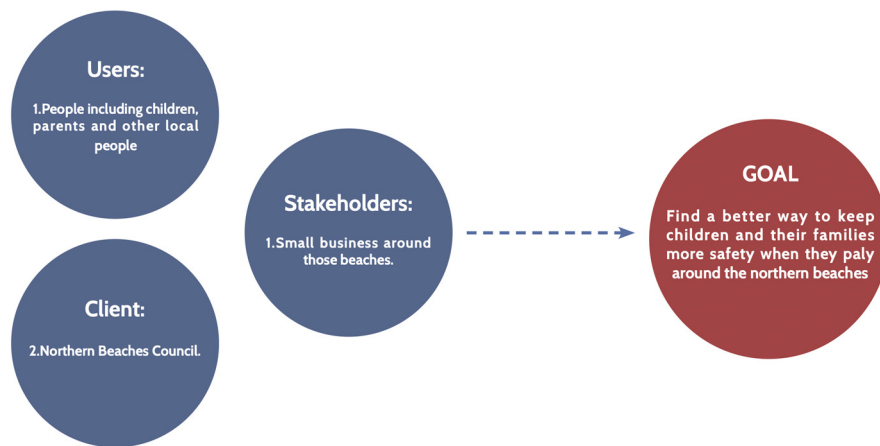


Fig. 4. The target group and goal of the design

This social movement aims to protect the people who live near the beach. As a result, the end-user may be people of all ages, especially children. Let them know what's happening now and what will happen in the future. This is an excellent opportunity to raise public awareness of climate change. As a result, people can learn from this movement, and their lives can be safer. The campaign is to protect the environment and the family by combining the interests of customers, stakeholders and customers (Fig. 4). There will be a variety of forms of design, including campaign branding, website design and wearable design. This design shows that various design media may be a great way to communicate with the target audience.

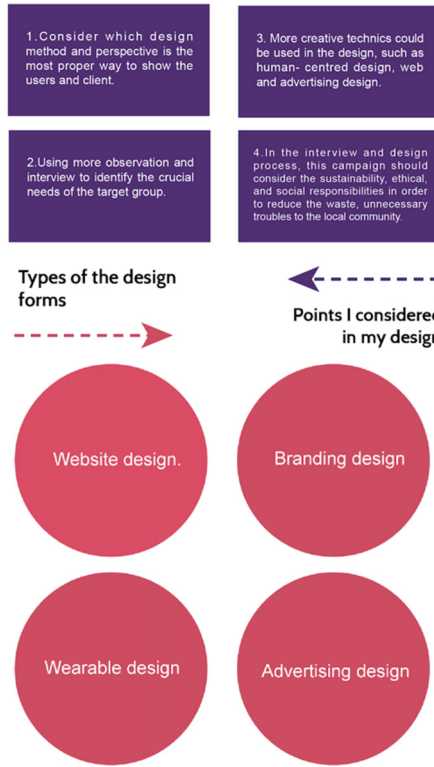


Fig. 5. The structure of the design system

The design system (Fig. 5) in this essay includes different kinds of design; each part has a vital role in the system. The design persona (Fig. 6) also lets the design target the users.



Fig. 6. Design persona

3 Design body

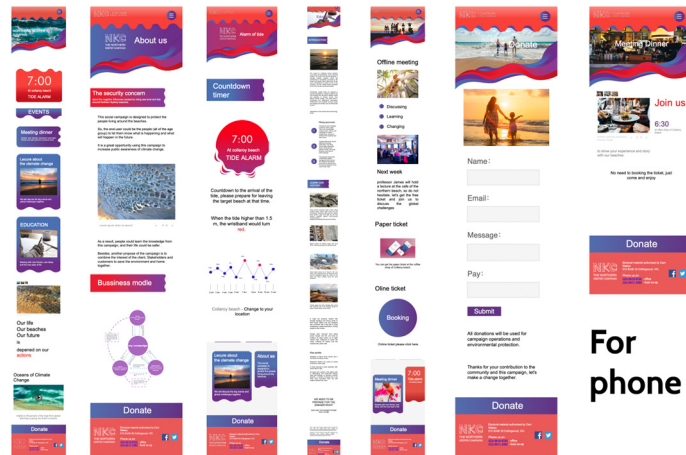


Fig. 7. Design for phone

The phone's design uses the wave and the colour red with purple (more vivid warming colours) to show the users critical messages and information (Fig. 7). The function is the same as on the PC platform on the phone platform. The web function includes the warming function, educational function (teach the users some valuable survival skills, etc...), and part of the registration system (the local universities and some environmental protection institutes could send some experts to the off-line meeting).

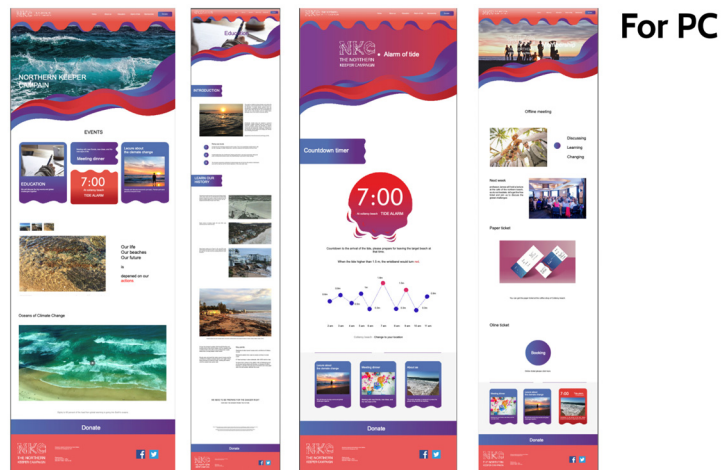


Fig. 8. Design for PC (1)

The primary function is the same as the platform of the phone. But the typographic has a little bit different. The design on the PC (Fig. 8) uses more prominent graphic elements and is more

suitable for reading on the PC. The picture chosen in the PC design is based on authentic images from Sydney, which could let people know the history and the presence of their beaches (Fig. 9).

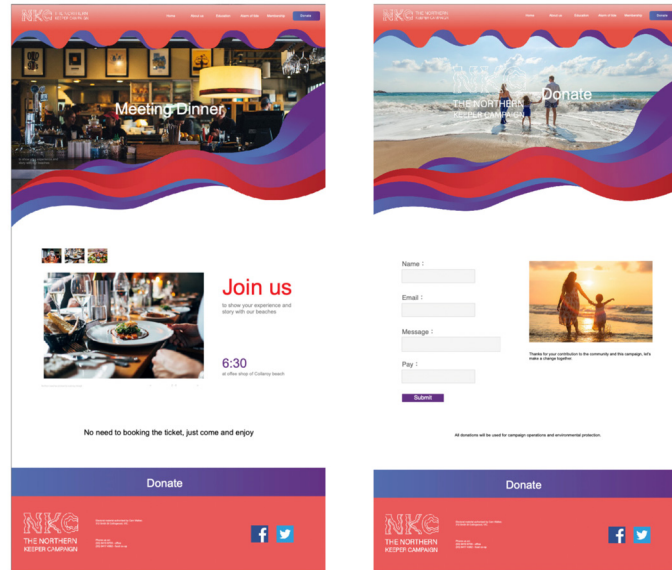


Fig. 9. Design for PC (2)

Bracelet design:

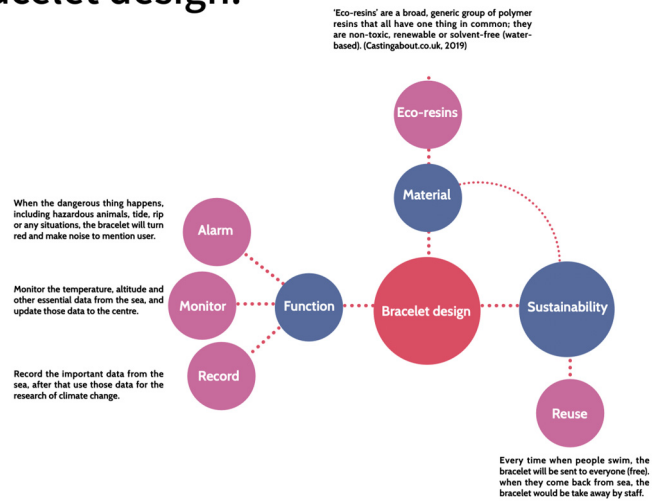


Fig. 10. The design system of a bracelet design

Bracelet design:

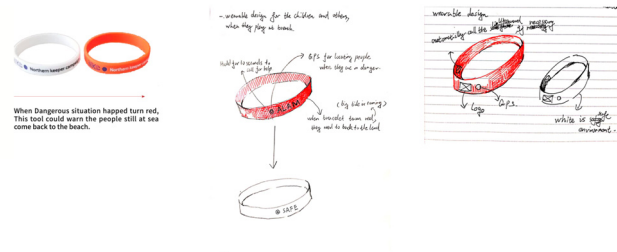


Fig. 11. The bracelet design

The bracelet is an essential part of this design system (Fig. 10). The piece shows how the design interacts with users. When people are swimming in the sea, if any dangerous situation happens, such as a big tide coming, or dangerous creatures like sharks approaching, the bracelet turns red to remind swimmers in the sea to hurry back to shore. The hazard warning function is also connected to the early warning system on the website so that people can learn about the day's sea conditions anywhere (Fig. 11).

Branding design:



Fig. 12. Branding design

In terms of sustainability, this essay considers using sustainable material [10] (Eco-resins for bracelets and recycled paper for the campaign). Moreover, web design is much cheaper and less polluting than physical production. The area is highly educated, and almost everyone can access the Internet. The entire design process is making North Beach safer than ever. Besides, new channels are established between small businesses, residents, and local councils. Therefore, there will be in-person conferences and lectures on global challenges. The meeting place may be in a small café or community center (Fig. 12). The City Council will provide financial support and resources for improving the living environment. People want to change their living environment and make their beaches more beautiful and safer.

Overall, the system targets the negative impacts of climate change (tidal, rip, storm and other dangers) that will bring unpredictable threats to local people [11]. Therefore, they need the campaign and design system to help them. Dangerous situations could be worse in the future because climate change is exacerbated. This design is designed for now and for the future.

4 The limitation and the focused group

The limitations of this campaign are focused on local people because they are more likely to participate and get the activities. In addition, the location of the campaign was initially locked near the northern beach. If the campaign is designed for a larger area, there will be many challenges that have never been seen before. This project may face costs, hiring staff, and other issues. Also, the limitations of this campaign are mainly concentrated in the local area, not globally.

Moreover, this design cannot directly address climate change issues but uses the power of knowledge to educate adults and children to make local changes. However, the interaction design (bracelet alarm system and the forecast at web design) could reduce the possibility of people drowning in the sea. The dangers of the tide, called "rip", may not be apparent now, but climate change will become more critical and fatal after ten or twenty years. Therefore, this design will be more powerful to reduce the dangers of the future.

When children want to play alone on the beach, the alarm system could warn them of the tides. In addition, while people are at home, parents and children can learn about climate change online and how to stay safe while swimming at sea [12].

The people cared about their children's safety and loved listening to the campaigns. According to the interviews and research, people want to use the internet (including the web and apps) to learn knowledge because it's convenient and fast. Moreover, wearable design can alleviate parents' concerns. If something terrible happens, the procedure will alert them (the bracelet will turn red from white and make a noise voice) and automatically call the lifeguard. They can follow the signal of GPS to find the people.

This design is located on the beach in the north. This place faces the challenge of beach erosion and rising sea levels. Therefore, this design could help them get a safer environment.

5 Result

This social movement aims to protect the people who live near the beach. As a result, the end-user may be people of all ages, especially children. Let them know what's happening now and what will happen in the future. This is an excellent opportunity to raise public awareness of climate change.

As a result, people can learn from this sport, and their lives can be safer. The campaign is to protect the environment and the family by combining the interests of customers, stakeholders, and customers. There will be a variety of forms of design, including campaign branding, website design, and wearable design. Using various design media may be a great way to communicate with the target audience.

The connection between the residents and local government with small businesses is essential. Not only improve the living condition of people but also make the local business gain more financial income. Therefore, the target group and stakeholders would have a win-win situation.

6 Conclusion

In conclusion, this essay uses a unique angle to show how to reduce the damage from climate change and unknowable threats around the beach by using the power of design, including branding design and interaction design. In this essay, the design methodology and the target group and stakeholders have been discussed and researched. Every step in this essay was designed for a more accurate and trustable outcome. Climate change has become an increasingly severe threat to everyone, not only living in the area chosen in this essay. Through the design campaign and the design system, people could have a safer living environment by using the interactive bracelet design to alarm them when people play around the beach.

Meanwhile, the branding design could make the design system more systematically and more convincing. Nowadays, design is no longer a separate entity but an organic whole. Each design part is like a piece of a whole puzzle, and only when they are put together can they function at their best. In the future, climate change could become increasingly critical. Therefore, this design system is designed not just for the current threat but also for the future threat of unpredictable nature. Overall, the safety of the people is always the first place. Using the design system (the campaign), climate change's current and future threats to the beach could be reduced.

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