



STRAY SPACE

PROPOSAL REPORT

Compass Nuggets

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STRAY SPACE

A One Team Concept by Compass Nuggets

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Physical Computing & Interaction Design Studio Proposal

1 THE CONCEPT / INTENDED EXPERIENCE

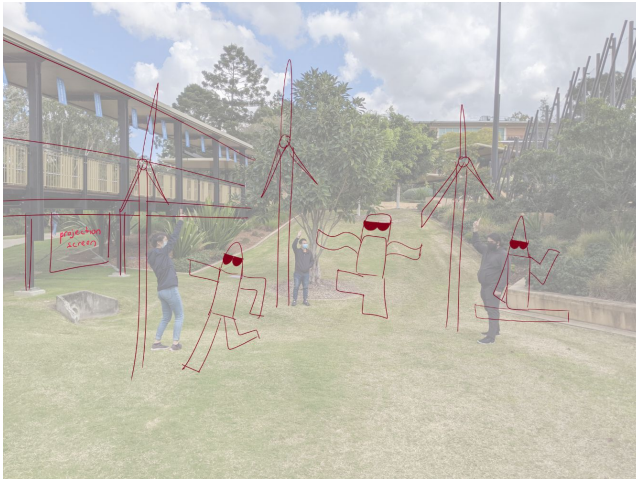


Fig. 1.1 Layout of Windmills and Projection screen, which is suspended on the bridge

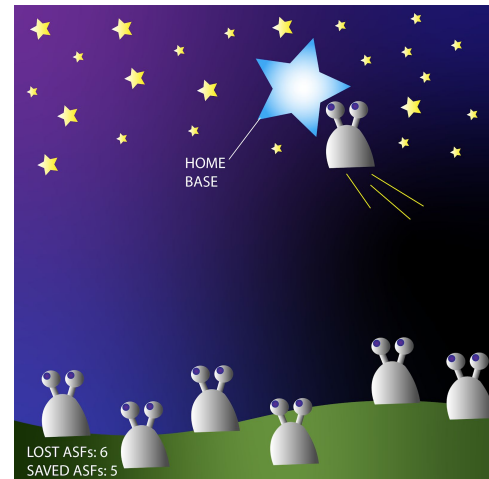


Fig. 1.2. Projection Display with example ASFs

Our concept is a collaborative three person installation where participants are tasked with “sending an animal spirit friend (ASF) home”. The concept’s physical components consist of three windmills and a projection screen (Fig 1.1). The ASFs are abstract digital creatures that are meant to look harmless, but unusual, coming into our world from a different dimension.

Participants interact with the windmills to control the scene. One windmill “opens the portal” to summon the ASF and the other two move the creature down a path on the projection screen (Fig 1.2), where other ASFs will also be. The participants have to dance in front of the windmills using large motions otherwise the windmills will be stationary. One windmill controls the X-axis movement of the creature on the screen and the other controls the creature’s Y-axis movement. If a player does not move, neither does the creature. Movement directly correlates with the motions of the user such that larger player movements move the creature further.

Responses to interactions are not immediate. The windmills require time to wind up, and as they get more ‘excited’, they produce sound (similar to screams) in several stages. The idea behind this feedback is to provide an otherworldly, surreal experience, because ASFs are being summoned from a different dimension. The windmills themselves are supposed to be creepy and disarming, which adds a layer of tension because the ‘screams’ can cause distress and anxiety, but the final result of the installation is altruistic, helping someone in need.

Compass Nuggets

2 DESCRIPTION OF THE CONTEXT / DOMAIN

StraySpace targets the altruistic nature of people with the use of the ASFs. People who engage with our installation will likely have strong traits of curiosity and risk taking as well as openness to collaborate with other strangers. Altruistic individuals tend to think about how their actions may benefit others, and feel good after helping someone.



Fig 2.1. Site of Installation: between UQ Lakes bridge and Playing Field 4



Fig 2.2. Inspiration for entrance (Van Gogh Path, 2012-2020).

We chose this site (Fig 2.1) for Stray Space due to the lack of paths and its closed off nature. People will feel like they may be trespassing because of these features (the area isn't usually used as a path), so the area under the bridge will act as an entrance into StraySpace to ease them into the atmosphere of the exhibit. Possible ways we can achieve this involve using glowing stepping stones or footprints to form a path towards the installation, similar to this photo (Fig. 2.2) of the Van Gogh Path (2012-2020).

The rich experience quality we have in mind is the Eerie (Fokkinga, & A. Desmet, 2013). At the start of interaction, we want people to feel intrigued, uneasy and a bit creeped out due to the environment. For the overall experience, we want to encourage a sense of compassion and kinship by working together towards the same goal.

We characterize altruistic people as being proactive and selflessly helpful. To get the ASFs home safely, these players are likely to embrace their selflessness and empathy to focus on the game to avoid isolating the ASFs from coming home. It highlights the importance of compassion in the community. Teamwork also plays an important role in our concept since effective communication is crucial to achieve the task. Skill sets will differ depending on the players which can make collaboration more challenging. Therefore, to successfully run the game the team needs to share the workload, communicate well and support each other.

3 RELATED WORK

3.1 ATTRACTIVENESS OF AN INTERACTIVE PUBLIC ART INSTALLATION

This paper discusses the authors' installation (Blobulous), meant to address multiple individuals simultaneously in public, using the term "social connectedness" (Hu, Le, Funk, Wang & Rauterberg, 2013) to define the intended outcome. The installation used wireless heart rate sensors, and responded to movements and heart rates detected to create projected avatars for all individuals present. What we were most interested in was how motivated participants were in using the installation. Our idea strongly relies on the willingness of participants to perform in public, to some extent, and we were interested in furthering the investigation into methods to pique the interest of first time users and curious observers.

3.2 EVOLUTION OF COOPERATION: COMBINING KIN SELECTION AND RECIPROCAL ALTRUISM INTO MATRIX GAMES WITH SOCIAL DILEMMAS

The authors here discussed how in situations with two separate individuals, not explicitly strangers, the natural tendency would usually be to defect or betray, taking the benefit for oneself while not returning the favour (Ale, Brown & Sullivan, 2013). Their description of "reciprocal altruism" applies to our project most. Since StraySpace involves multiple users, most likely strangers, collaborating to complete a task, some participants might not be as enthusiastic as others. The paper itself covers a few different scenarios in which multiple individuals give and take. We can use this as a basis to explore how communication is meant to occur between participants, whether this needs to be part of the system, or if participants need to make eye contact and speak to each other.

3.3 TEN WAYS TO DESIGN FOR DISGUST, SADNESS, AND OTHER ENJOYMENTS: A DESIGN APPROACH TO ENRICH PRODUCT EXPERIENCES WITH NEGATIVE EMOTIONS

This paper was influential in shifting our understanding of the different effects negative emotions have on people and how we could trigger negative reactions with much more purpose and empathy, resulting in the changes that involved establishing a goal to complete. The authors posit that to elicit a specific emotion, simply deciding on the emotion that is meant to be promoted is insufficient. There needs to be a purposeful decision on the manner in which the emotion is triggered as well as a protective frame which acts as a 'padding' to avoid overwhelming participants with the emotion (Fokkinga, & A. Desmet, 2013: 21). This will ensure that if a negative emotion is called on, it's done within an appropriate context. Without proper 'padding', the negative emotion focused aspects of our concept could unintentionally scar participants which does not align with the user-centred design approach of doing no harm. Further, the authors also outline and discuss how specific combinations of negative and positive emotions (rich experience qualities, or just qualities) can be used to trigger more granular reactions (Fokkinga, & A. Desmet, 2013: 23). We are particularly interested in extending what the authors called the "eerie quality" centered around anxiety and fascination, as a tool to strengthen the essence of the initial concept which was the surreality of screaming windmills.

3.4 BEAT SABER

Beat Saber is a Virtual Reality rhythm game where players use “sabers” to slash blocks representing musical notes as they fly toward the player. On the surface of every block is a specific colour and direction indicating where the saber needs to hit it. The blocks run on two parallel tracks, a red and blue one. The need to make massive motions to a rhythm while in an immersive VR space conveys the feeling of doing something heroic, almost as though the player is battling the song (Fig. 3.1).

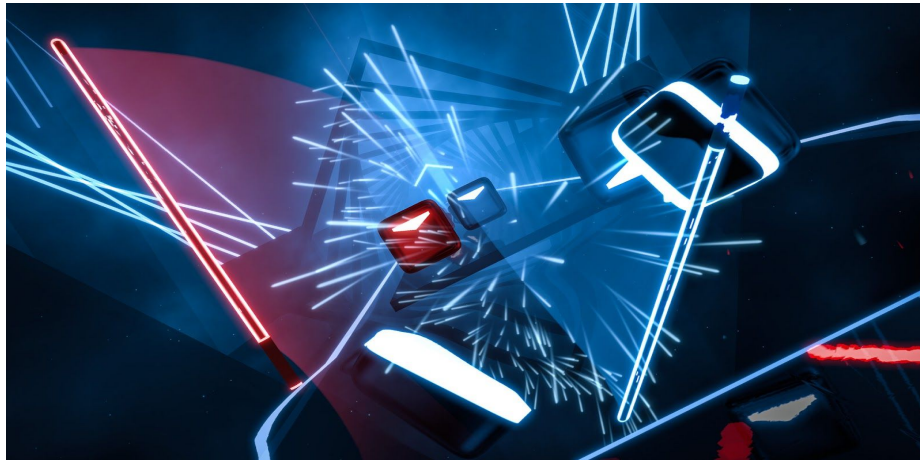


Fig 3.1. Slashing a block in Beat Saber (Beat Games Beat Saber, 2019)

Since our project encourages players to make large motions for the interaction, we can take inspiration from how it manages to create the feeling of tension and speed. The blocks in Beat Saber move faster as the game progresses. Our project can explore how players react to cues (colours, music, sounds etc.) so understanding how Beat Saber creates an environment to do so will aid in developing our interactions between the players and the windmills.

3.5 BOKTAI

Boktai: The Sun Is In Your Hand is an action-adventure video game by Konami in 2003. This game's unique quality is the novel use of a solar sensor on the cartridge (Fig. 3.2). Players need to collect real sunlight to recharge their weapon in the game, defeat the monsters, light the dark mazes and grow the sun tree. There are many uses of solar power and this game encourages playing parts of the game outdoors.



Fig 3.2 Boktai game cartridge with solar sensor (Boktai Cartridge Arrow, 2012)

We were inspired by this game since StraySpace will also be deployed outdoors. This old game inspires us with how to interact with environmental elements seamlessly. For our concept we may not use the sun, but wind may be an option as there are three windmills in our project. The interaction with the wind and its effects is something we can explore further, and will likely have to be considered anyway as it will affect how the physical components of the project would be built.

3.6 POKEMON

Pokemon is a Japanese animation series, and its affiliated video game Pokemon Go briefly became one of the most popular games in the world. Short for “pocket monsters”, Pokemon boasts more than 800 fictional species of collectible monsters (Fig 3.3), each having unique appearances, personalities and skills. The design for diverse species are inspired by creatures from daily life such as animals and plants (Distasio, 2019), and each of the species is divided into lists due to the large number of pokemons.



Fig 3.3. Collection of Pokemon monsters. (List of Pokemon, 2020)

These are relevant to our idea of “otherworldly animal spirit friends”. We’re interested in extending the abstract features on fictional animals to promote an empathetic reaction among participants. The ASFs have to look cute so people want to help them, but shouldn’t be facsimiles of real life animals, they need to be different enough that you know there is something “off” about them to indicate their otherworldly origin.

3.7 WINDMILLS

The Digital Windmill (HomeMadeGarbage, 2016) offers a good starting point for an interactive windmill. It uses breath as the input to make the LED “blades” spin. This example can help with implementing a reactive LED display in our windmill blades.

The Motorised Pinwheel (Programminginarduino, 2016) is also arduino based and shows how to use a motor to spin the blades. We can use this as a starting point for the spinning mechanism of the windmills. The Electronic Wind DIY Pinwheel (Guerri, 2016) is another example in the same space with a pinwheel form for the blades.

4 RESPONSE TO FEEDBACK

The initial idea did not include the ASFs or projection screen. There wasn't an objective to complete, and instead it focused on the surreal experience of interacting with the sound producing windmills. The windmills would produce eerie sounds and music when activated by participants dancing.

However, only having audio responses, and the lack of a goal meant that participants would leave the experience with negative emotions (fear, confusion, anxiety), without a specific purpose. There had to be a reason for why they experienced the negative emotions or we would alienate and potentially demotivate participants. Providing a goal requiring multiple people to collaborate in a specific way allows us to shift the focus from promoting human connection through mutual anxiety at the surreal, to promoting human connection through achievement, using the surreal as a medium, or obstacle to do that.

The ASFs exist as a tool to foster altruism. If the objective was purely to complete a task, we believed participants would likely only participate for bragging rights. Creating creatures allows us to give them distinct appearances and personalities, providing a sense of ownership even after the interaction ends. As a result, we could possibly get participants to think "that's our ASF over there, we saved them in particular". From a practical perspective, the existence of ASF's allows us to create a story that is easy to explain: you're summoning them out of the environment to bring them home and to do so, you must dance.



Fig 4.1 The initial location for the concept

Additionally, the initial location (Fig 4.1) for the concept was on the other side of the bridge, closer to the walkways making the installation more exposed. We wanted to have participants perform in a way that could drive interest in the installation, but this meant participants would also feel exposed. In the current iteration, being on the side of the bridge that doesn't have a walkway, participants have to first pass a threshold under the bridge into a more secluded area. This allows participants to know what they are getting into. There is a point of no return so that they're not confronted with the installation out in the open. Instead, it's something that has to be sought out, and provides the feeling that "I shouldn't be here" to participants, amplifying the otherworldly elements.

The final change was to turn the windmills into controllers, rather than just the mechanism for feedback. This was done for practical purposes. While there are other alternatives for input, we felt like part of the identity of the installation involved making big, wind-like movements that cause the windmills to activate.

5 INTRODUCTION TO THE TEAM

AIZEL REDULLA

Aizel is a final year Bachelor of IT and Bachelor of Arts student with strengths in project management and user experience evaluation. Her aim for the course is to connect strangers by creating an experience where they can walk away with memories of each other. She has confidence in using different technologies to achieve the goals of the team but can struggle to adapt to those new technologies in a tight timeframe. Her skills in project management will be useful to keep the team on track to meet each milestone of the project. In addition, she has interests in music which can aid in the project's sound design.

AMRAJ SINGH SUKHDEV SINGH

Amraj is a final year Bachelor of IT student with experience in psychology and freelancing, which allows him to provide the team with some knowledge for exploring a variety of different spaces. His aim for the course is to make nightmares become real life, using emotional design and science fiction inspired elements to create a focused experience around negative emotions. He has experience programming with arduino, creating music (with and without arduino) and illustration, but is rarely confident in his work, which could mean a tendency to throw a lot of work away and restart from scratch, potentially discarding interesting ideas. His background may be useful in bypassing parts of the initial exploratory phase for some elements of the project, allowing the team to focus effort elsewhere.

GAI (LANCE) JIANG

Gai (Lance) is a final year Master of Interaction Design student. His aim for this course is to make the prototype beyond the imagination by using Arduino which he never used before. He is familiar with the Adobe Creative Suite and project management. He has strengths in interaction design and feedback analysis and is interested in the elements of the concept related to game mechanic design. He is interested in managing the players' expectations and how they are likely to interact with the windmills. However, he is not confident with himself and sometimes he can struggle to come up with new ideas, or keep ideas to himself when unsure how to describe them.

ZHISHAN (SUZY) YAN

Suzy is a final year Bachelor of IT student who has a passion for data analysis and front-end development. Her aim for this course is to familiarise herself with the process of building physical installations and improving communication skills. She is confident with testing in later stages of project development but has low confidence in professional writing. She is currently reading books about psychology and hopes to make use of this knowledge during the design process. Her skills for Adobe Creative Suite and front-end development might be useful in future development and prototyping.

6 DISCOVERY AND CONSTRAINTS

During the concept ideation process, we have identified a few concerns for our project. The first concern is the undecided form of the abstract creatures that appear in the game. They need to look harmless enough to evoke empathy in passers-by so it can make people want to help and care for them. They also need to be designed bizarre enough to retain the exotic charm since those abstract creatures are from another dimension in the story setting.

To resolve this, we have considered two potential discovery activities. The first one is to co-design with playdough, which allows users to mold ASFs to look however they want. The other is a subsequent activity, where we can gather the common features of ASFs created in the first session, then conduct another co-designing session where users are free to combine existing parts like Mr Potato Head from Toy Story.

Another area for discovery is the sound design for the concept. Environmental signals, sounds the ASFs should make, progress indicators and musical cues when the ASF reaches the home base all need to be carefully designed in order to elicit the eerie experience. With our limited experience in sound design, we will need to consult with more experienced peers in the field so that we can achieve the right sounds for our exhibit within the tight time frame.

Regarding constraints, the outbreak of Coronavirus has a huge impact on daily life, especially for schooling. As a result, our designs will involve touchless interactions to prevent the spread of COVID. The solution for this constraint is to follow the health measures in place. StraySpace contains three physical installations, and sensors will be implemented in each of them. To activate and interact with them, the player simply stands close and moves around then the sensor will detect movements. To further lower risk, each installation will be set at least 2 metres apart with frequent cleaning as a precaution. However, if cases spike and the physical exhibition gets cancelled, we may have to digitize all components. In this case, the windmills can be substituted with alternative visual elements such as animations.

7 PLAN OF WORK

The following table gives an overview of the major milestones required for us to successfully accomplish the final prototype with estimates for length of task (e.g. 1h for 1 hour etc) where appropriate. We will utilise a Trello board to ensure that each team member understands the status of the project at any given time. Weekly check-ins will allow for us to adjust the plan of work realistically.

Week	Deliverables and <i>Milestones</i>	Activities and Tasks
6		Discovery Research: <ul style="list-style-type: none"> - Co-design abstract creatures (freestyle, then from a constrained set of parts) (2h) - Consult musically-inclined peers on sound design (1h) - Explore appropriate sensors for prototype (2h per member) Prototype 1: <ul style="list-style-type: none"> - Explore options for form & material at UQ Innovate (1h) - Motion sensing to activate windmill (3h) - Projection display with placeholder creatures (3-4h) Documentation: <ul style="list-style-type: none"> - Record the decisions made based on discovery activities(1h per member)
7	<i>Prototype 1</i> (14/9)	Testing & Evaluation: <ul style="list-style-type: none"> - Deploy base-prototype (1 windmill) to gather user feedback (2h) Prototype 2: <ul style="list-style-type: none"> - Identify goals for Prototype 2 (1-2h) - Improve prototype with response to feedback - Build prototype with intended materials (X & Y windmills) (3h) - Sound design for how both windmills work together (3h) Documentation: <ul style="list-style-type: none"> - Record the decisions made based on the feedback and research - Interaction plan and user journey finalised for next week (2h)
8	Prototype 2 (22/9) Prototype Demo & Documentation (23/9)	Prototype 2: <ul style="list-style-type: none"> - Record live-action video demo - Submit documentation Documentation: <ul style="list-style-type: none"> - Identify what worked well and what can change
Break		Prototype 3: <ul style="list-style-type: none"> - Identify goals for Prototype 3 - Build all 3 windmills with final materials/form - Adjust visual design of projection - Sound design of how all 3 windmills work together

9	Prototype Appraisals (6/10)	Prototype 3: <ul style="list-style-type: none"> - Continue from previous week Website: <ul style="list-style-type: none"> - Write the content for the website (3h) - Theme & styling (wireframes, style guide) (3h)
10	<i>Prototype 3 (13/10)</i> <i>Draft Website (16/10)</i>	Testing & Evaluation: <ul style="list-style-type: none"> - Evaluate the user interaction (2-3h) - Deploy in target site at target time (2h) Website: <ul style="list-style-type: none"> - Gather peer feedback - Improve accordingly
11	<i>Final Website (23/10)</i>	Final Prototype: <ul style="list-style-type: none"> - Incorporate points for improvement from P3 - Establish the set up & pack down routine for exhibition (1h) - Pitch written of key points to talk about (2h) Website: <ul style="list-style-type: none"> - Should be complete with improvements from the Draft Website
12	Final Prototype Website (26/10) Exhibit (27/10-31/10)	Exhibit: <ul style="list-style-type: none"> - Routines and rotations established for each day - Debrief (1hr) every day to identify what needs to change

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