

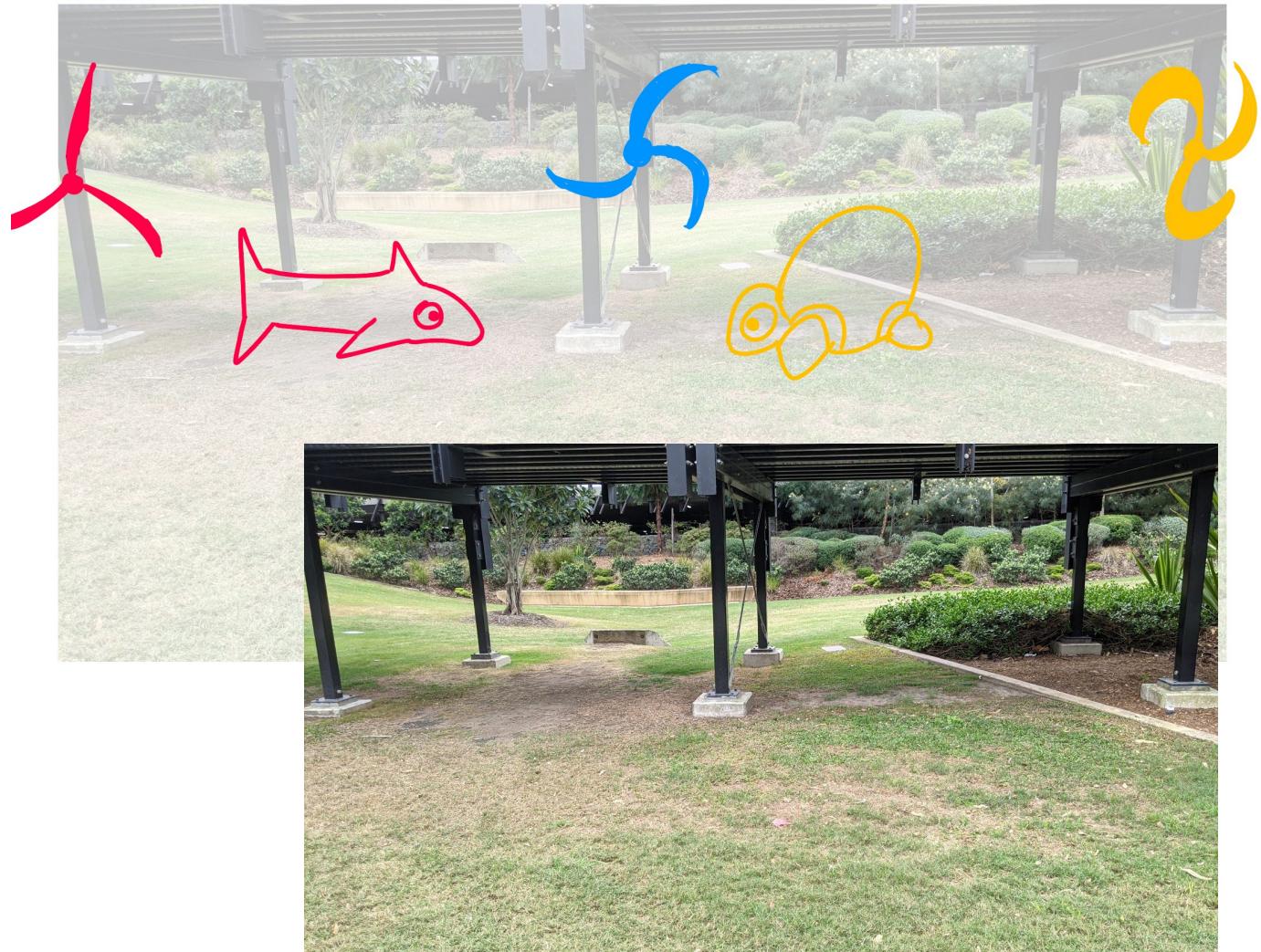
# StraySpace

A creepy experience brought to you by Compass Nuggets

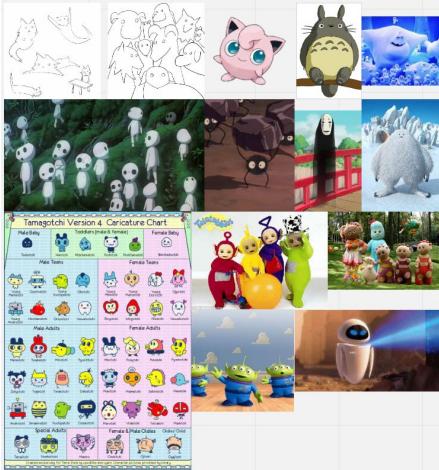
StraySpace is a creepy experience that brings out the altruistic traits of people by introducing abstract creatures (Animal Spirit Friends, or ASFs for short). The ASFs have become lost on earth and require help from users to “bring them home”. The only way to help the ASFs is to use the perform large motions in front of “screaming windmills”, otherworldly structures that “scream” when activated.

It is up to random passers by to successfully activate and maintain the windmills, as all must be simultaneously active for a certain amount of time for the ASFs to be saved. Will users’ altruistic intentions survive an encounter with the bizarre? Can users set aside their discomfort and coordinate to help the ASFs in need?

Our project’s creepy aspect was inspired by Fokkinga and A. Desmet[1] while our altruistic and collaborative components were informed by Ale, Brown & Sullivan[2]. Beat Saber [3], Avatar[4] and Wouters et. al[5] influenced the large motions for user interactions and the need for windmills. Characters from Studio Ghibli[6], Pokemon[7], and various children’s toys and media [8], [9], [10] inspired the need for cute and otherworldly creatures. Technological windmills by HomeMadeGarbage[11], Guerri[12] and ProgramminginArduino[13] inspired our design for the windmills.



# Design Process



## Fantasy Creature Research (Week 6) - Aizel, Suzy

Creatures only differ very slightly from existing animals. Thus, we need a balance between abstraction + familiarity.

We used this as a prompt for users in our co-design activity. They mentioned Neopets. Common theme of childhood creatures sparking altruism.

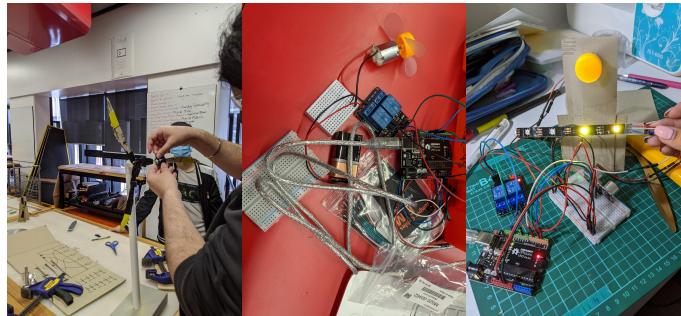
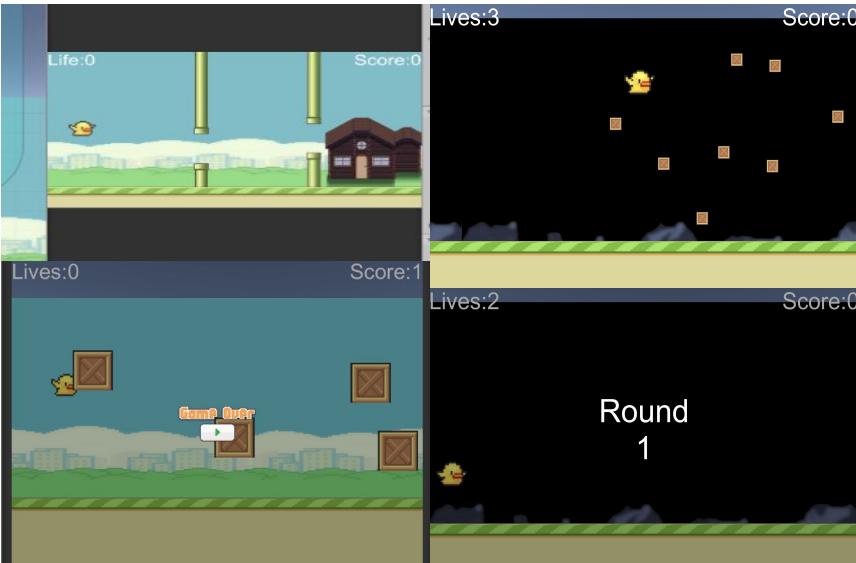
## Unity Mechanics Exploration (Week 6 / 7) - Suzy

Flappy bird tutorial with WASD movement (left)

Asset adjustments for our prototype (right)

Bird needs to navigate its way to the house (it spawns randomly)

**Limitation:** Can't find a way to have 2 controls for 1 character.



## Initial Models & Arduino exploration (Week 6) - Team

- Arduino kit motor helped understand form
- Need DC motor or drill for safe windmill
- Blink program with fan connected to relay

## General Tech Spikes (Week 6 / 7) - Team

We explored a range of technologies that could suit our project requirements. These were broken down into three main parts: the visual display (projection), the windmill form, and the sensors which detect the user's movements and return feedback to the users. Our tech spikes included: Unity, Arduino, Windows Kinect, Fusion360, and Ableton Live/FL Studio. A basic 2D game formed the basis for the Unity component of our prototype. We started looking at drills to help with our windmill parts.

- Arduino and Windows Kinect are compatible as inputs for Unity
- Sensors need to be placed into the form of each windmill so we went with Arduino
- Drills have a safety stop and speed control to avoid any injuries. The sounds of the drill spinning at different speeds also add to our creepy concept, but we need to consider the volume of our sound design so it can be heard over the drill.

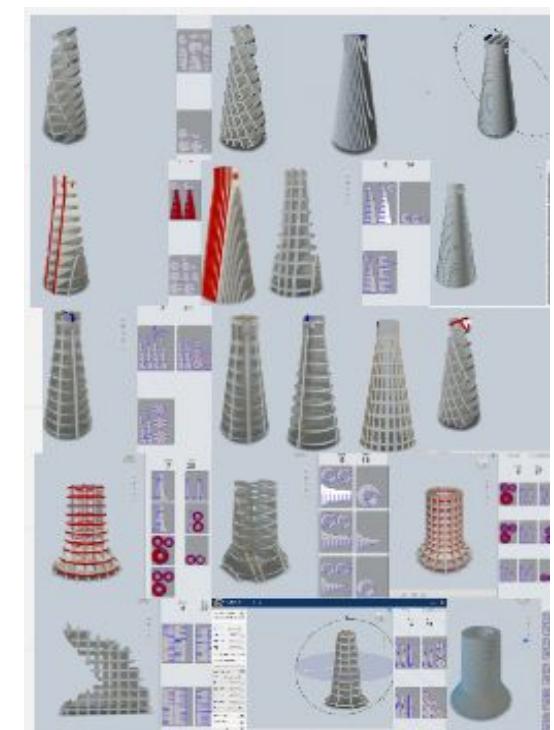


## Proj/ Material Tests (Week 6) - Gai

Chose white initially because display was better but black is more creepy. Decided to design the display to look better on black fabric.

## Windmill Forms (Week 6 / 7) - Amraj

Talked to UQInnovate. CNC > 3D printing. Laser cut models planned but scrapped

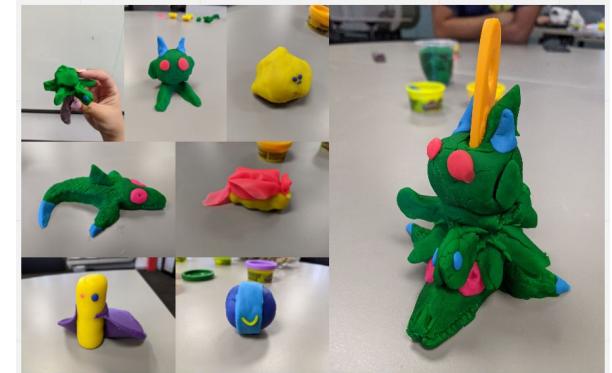


# Design Process

## Creature Creation with Users (Week 7) - Aizel, Suzy, Gai

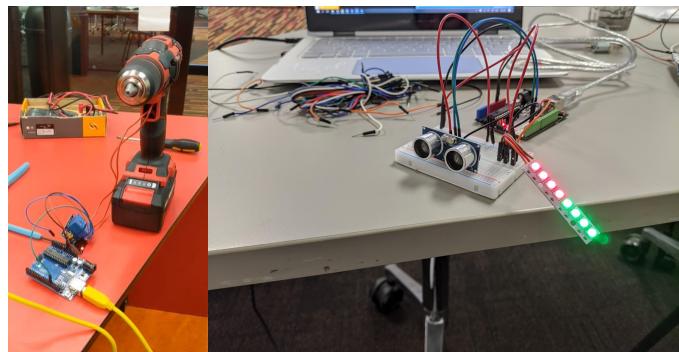
Because motivation plays a huge factor, we needed feedback on how to create animals that make you want to help them. We asked users to mold an abstract creature that looks cute and helpless, getting them to tell us what sounds their creature would make, and how it would move around.

- 6 out of 7 creatures still had 2 eyes, different colours from their body.
- Sounds varied from naturalistic (e.g. "mew"), to human-like (grandpa wheeze) to digitized
- 3 users combined all of their creatures together on a whim, we changed the concept to have multiple creatures that meet in the middle instead of having all of the users control the same creature. This change was also influenced by the lack of existing solutions in Unity to have 2 different controllers connected to the same player.



## Windmill Form (Week 7/8) - Amraj

- Foam is safe and has enough structure for blades
- Needs to be light so the motor can spin it
- Fabric is another suitable option
- Cardboard is great for blade templates



## Exploration of Sensors (Week 7/8) - Aizel, Gai

- Ultrasonic sensor works, prototype changes lights at different distances
- Gesture sensors: interesting solution but focuses at short distances (like the gesture sensors on a phone)
- Leap motion: more suited to fine-motor movements
- Kinect: useful for input but would still need arduino for output anyway



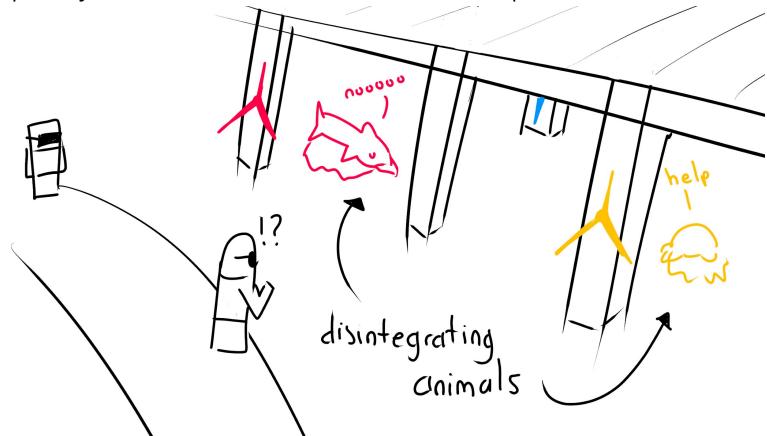
## Bodystorming (Week 8) - Team

We acted out how a user would interact in our space and clarified several of components in our concept.

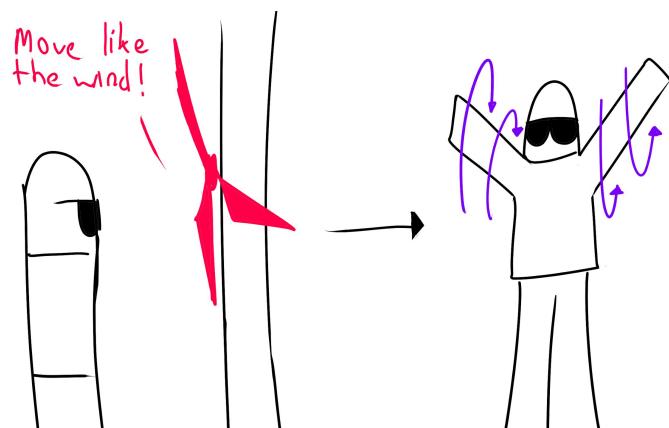
- Project onto the ground as if the creatures are crawling (no more need to have a wall to project onto)
- Only section off 2 out of 4 sides of the space (less fabric used, more visibility)
- Windmill 1 changes to be the portal-opener
- Have creatures disintegrate when not in use

# Interaction Plan

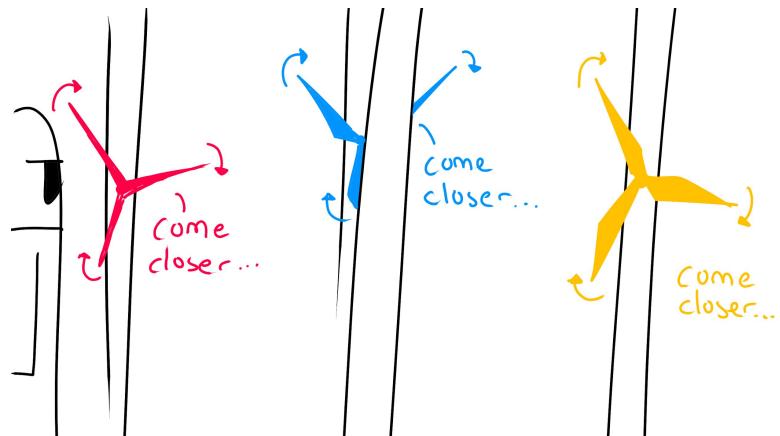
Step 1: **Hook:** Get the users attention, lead them astray from the main walkway. Initially, the user sees the unmoving windmills, and hears the cries of the projected ASFs from under the bridge as they disintegrate. Having the ASFs being actively destroyed unless someone steps in to help will hopefully motivate an altruistic intent to help them.



Step 3: **Motion:** The system says "Move like the wind" and the users are meant to do the windmill dance. Large motions "create wind" that spin blades and "power" the windmills .



Step 2: **Invitation:** Curious users may cautiously approach the windmills to see what's going on. Each windmill moves slightly and prompts users in a deep / mechanical voice "Come Closer". This is meant to attract users that normally be cautious or uncertain to get in range of our sensors.

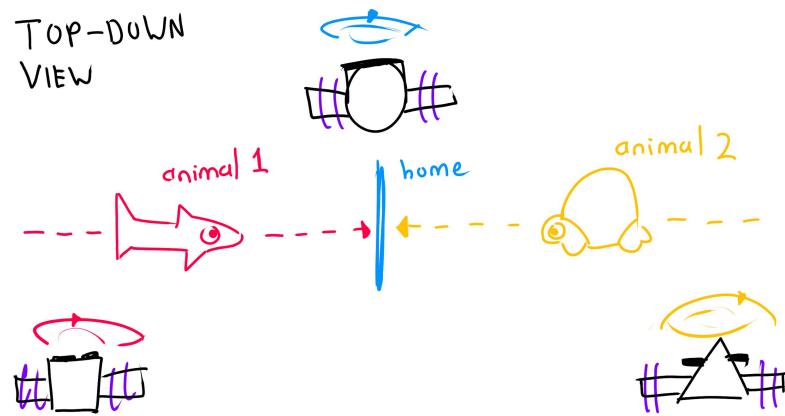


Step 4: **Reflection:** The windmill "screams" and the blades move when the windmill dance is performed. The disarming effect of the scream serves as a challenge that may cause discomfort, and may demotivate participants, but is balanced out by the effect in the next step.



# Interaction Plan

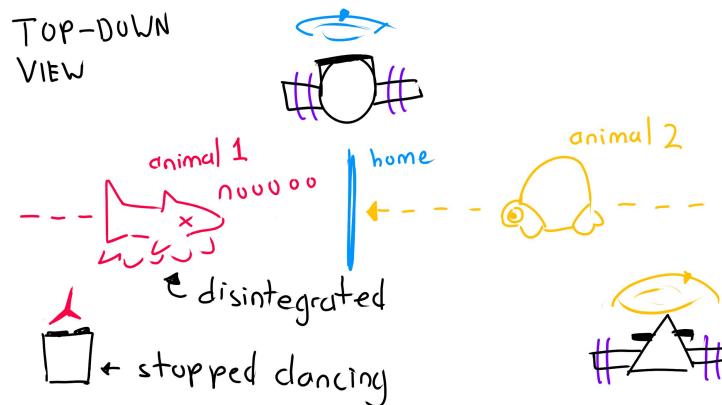
Step 5: **Incursion:** Instead of disintegrating, the projected ASFs on opposite sides now have consistent form and stay unharmed. They move forward to ‘home’ and remain safe so long as all the windmills detect motion. This part exists as setup for one of two scenarios that differentiate genuine collaboration, and merely sharing the space.



Step 6B: **Conclusion:** If all users collaborate well and complete the interaction, the ASFs combine together, they are together / home now, and the goal is achieved



Step 6A: **Collapse:** The ASFs disappear (ASFs: “nooooooo”) if any windmill stops (i.e. if someone stopped dancing), so there’s a risk to the ASFs. Ideally the experience is altruistic, everyone is invested in getting the ASFs “home”, but it would be interesting to see how many groups have someone sabotage the interaction. What kind of relationships does the interaction promote?



# Project Objectives & Success Criteria

Objective	Success Criteria	Measure & Metric Goals
Promote teamwork and human connection	At least 20 pairs of creatures getting past the fade point per day, portal sends creatures home at least 10 times per day.	Level of communication between Users 1,2,3 (each group should be conversing with each other) Levels of user satisfaction and contentment ("Yes!", "Whoa!")
Encourage altruism and self-satisfaction	The creatures always go through the portal when all windmills are active.	Number of times the portal flashes per day (At least 10)
Attractive installation that encourages engagement	The installation is active at least 75% of the time for each day	At least 25 people that walk off the concrete path (spectators), At least 30 interacting with the installation (unsuccessful & successful), note oddities if user does something different than expected, note whether users spark conversation afterwards with others (to relay info about the installation)
Windmills responsive to user input	Windmills change speed according to user's motions 90% of the time LEDs change colour according to user's motions 90% of the time	Count how many times the speed changes vs length of time the user has interacted with it, Response time of windmill to user (less than 5s), User's perception of windmill's responsiveness (no confusion on face)
Creatures responsive to user input	Creatures pass the fade point when windmill is active 100% of the time Creatures fade when windmill is inactive 100% of the time	How many creatures fade Number of surviving creatures given number of active users
Get users to make large motions	Windmill gets activated within 10 seconds of user interacting with it User can see immediate impact of their actions through LEDs and windmill speed	Length of interaction (~2 mins average) Level of comfort/discomfort of user
Creepy atmosphere (halloween vibes)	Sound design (wobbling laminate sounds) shocks at least half of the people who engage with the installation. Creatures fading encourage users to help them	Facial expressions and body language (shocked, flinch, jump) Length of time taken for bystander to start interacting with the windmills (~3 minutes)

# References

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