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ECO REWARDS

THE FUTURE OF GREEN SHOPPING

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Introduction

As a team, we have decided on the problem space of climate change. Collectively, we believe that this is a significant issue that impacts each of our lives in many different ways. Since climate change is such an enormous problem space, we worked together to identify sub-categories of common interest: carbon capture, renewable energy, recording large scale climate change data, and individual perception of climate change.

Research has been conducted into each of the concepts listed above. This has been done with the aim of gaining a broader understanding of the problem space, and to enable the selection of a single smaller problem space within the context of climate change.

After discussion of these concepts as a team, we came to the conclusion that perceptions and awareness of climate change at the individual level is a space both interesting and relatable to all. By increasing the awareness of this issue, we believe the massive scope of the problem of climate change can be broken down and related to an individual. Climate change is often dismissed as too large a problem to comprehend, and the greatest effects won't be felt by our generation. Thus, we believe that by influencing awareness on an individual level, a significant impact can be made toward minimising the effects of climate change.

Exploration of Problem Space

Climate change is defined by the Australian Academy of Science as “a change in the pattern of weather…that persists for several decades or longer” (Australian Academy of Science, 2015). This is said to include related effects such as changes in sea level, ice formations and land surfaces. Climate change is a long-term issue, meaning that the most significant effects will not be evident within our lifetime. This, as well as the complexity of the issue, creates barriers, deterring individual motivation. People may comprehend the large-scale problem at hand, yet not the individual actions that can have an impact.

Stimulating a deeper understanding of the issue, and ensuring that it is tangible to the individual, will further increase the lengths people will go to act against climate change. On a large scale, a change in awareness in many individuals can result in a dramatic increase in action. Not only does the action itself have significance, but it also pushes individuals to take responsibility for their own actions and builds a stronger personal commitment to environmental sustainability (Sierra Club, 2019). This is our reasoning for furthering our investigation into this specific aspect of the climate change solution space. To reach this decision, we researched into a set of four areas within climate change below, and narrowed down individual awareness as the area we could make the most difference in our design of a solution.

The next subsections elaborate the research into the areas we didn’t choose to pursue. We used this research to better understand the problem space as a whole, and understand the scope of various solutions. We believe that this research has helped us, as a team, understand the breadth of the issues we face from climate change, and identify the mechanisms that will allow for the greatest impact.

Non-pursued Research Areas

1. Carbon capture

The concept of carbon capture has been quite novel, with many countries dabbling in the effort to start their first facilities. Carbon capture (and storage) is the process of transferring large amounts of carbon dioxide (CO_2) released from emission-heavy facilities, such as factories and power plants, to a location where it can be stored without entering the atmosphere.

Many countries have shown interest in the benefits of carbon capture, with the earliest efforts beginning with the Carbon Sequestration Initiative (CSI) at Massachusetts Institute of Technology (MIT).

In 2017, the world's first "negative emission" plant was built in Switzerland pioneering a new technology that combines absorbed carbon dioxide with water to produce mineral rocks (Rathi, 2017).

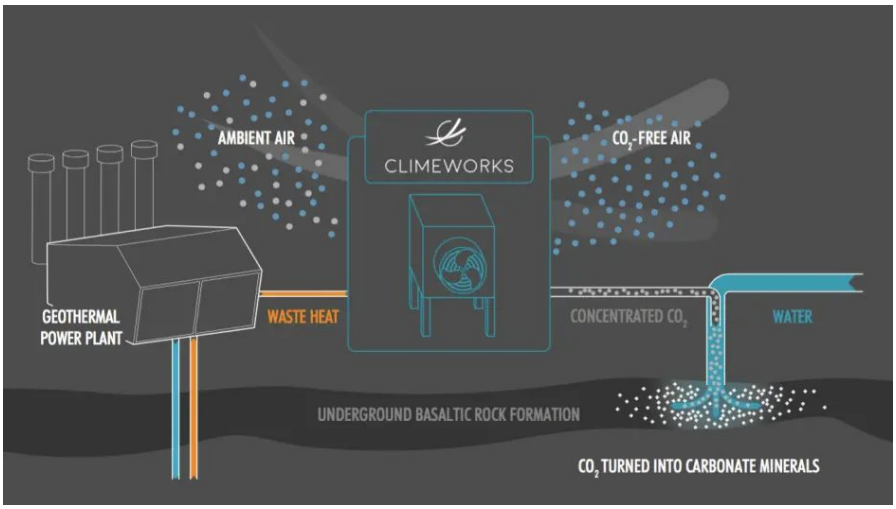


*Figure 1: Carbon Capture process (*Rathi, 2017)

As innovative as the technology of carbon capture is, devising a solution that builds upon this technology would require significant biochemistry engineering knowledge on the capture and processing of CO_2.

2. Renewable Energy

A significant percentage of greenhouse gas emissions are contributed by the electricity generation sector from the usage of fossil fuels and natural gases as seen in Figure 2.

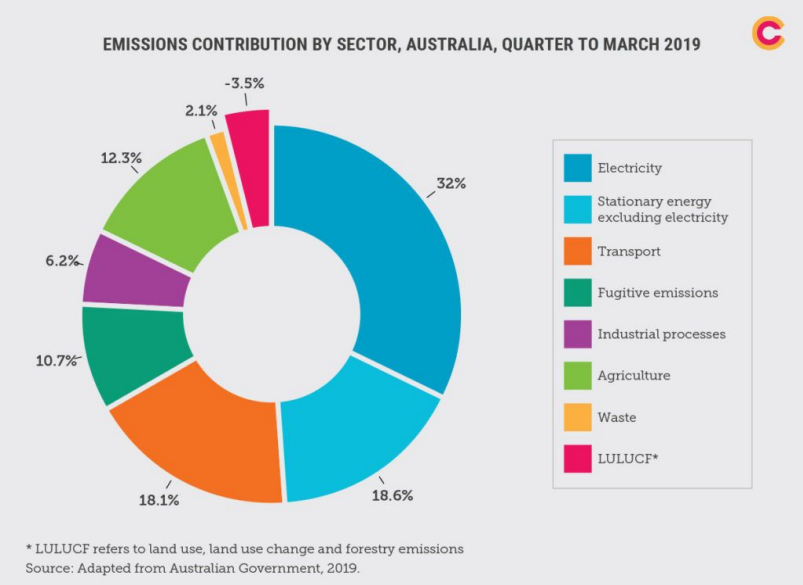


Figure 2: Emissions contribution by sector in Australia (Climate Council, 2019).

Methods

Renewable energy generation, in contrast to burning fossil fuels, produces minimal global warming emissions. Current renewable energy generation methods include the utilisation of solar farms, wind turbines and hydroelectric plants as seen in Figure 3 (World Nuclear Association, 2019). This also extends to newer methods such as hydrokinetic technology, harnessing the ocean's current, and bioenergy which involves burning biomass to generate power (Turgeon et al., 2012).

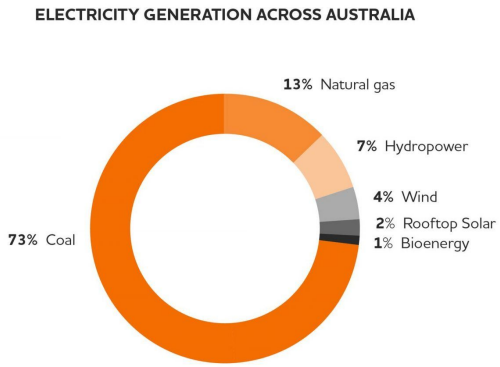


Figure 3: Renewable energy sources used in Australia in 2018 (Origin, 2018)

Problems

Current technological boundaries limit the effectiveness of renewable energy generation methods. If the energy grid is reliant solely on renewable energy, the power output will fluctuate, causing the grid to trip the breakers and fail (English et al., 2016). There is a lack of promise in a sufficient supply of energy with each of the renewable energy methods discussed in Figure 3.

Alongside not being able to source a constant energy supply, renewable energy generation methods have also been known to cause environmental issues. For example, hydropower has issues with emissions as it releases methane through decaying organic material and requires thousands of hectares and trillions of litres of water to produce sufficient energy requirements (Nunez 2019). These water reservoirs may disrupt local ecosystems and surrounding communities of wildlife (Nunez, 2019). Wind turbines that produce kinetic energy can be dangerous for local wildlife as they kill off hundreds of thousands of flying animals annually (Nunez, 2019).

Solutions

Engineers are now focusing on ways to repair faults in these renewable energy methods. During peak energy consumption periods, excess energy can come from gas generation or batteries (Energy Matters, 2019). Solutions are being developed to avoid needing to rely on fossil fuels as a backup source of energy. With wind farms, the water levels may be altered in parallel lakes using pumps and gravitational energy in order to have energy availability during peak periods (English et al., 2016).

Various renewable energy firms are also coming into agreements to trade their resources during periods where their energy production is irregular (Macdonald-Smith, 2020). A scheme named the Short-Term Operating Reserve (STOR) has been created in the UK, incentivising industrial users to sell their energy to the grid where traditional power stations lack power during peak periods (NationalGridESO, 2020).

Technologically driven solutions are being devised to mitigate the effect on wildlife destruction. Martin is a system developed to ensure turbine blades stop spinning if a bird is within the perimeter (Bennet, 2019). With the usage of GPS tracking technology and triangulating the signal, the towers can continuously scan for birds entering the critical range (Bennet, 2019).

Further Investigation into Renewable Energy

Investigating and analysing how engineering solutions are solving renewable energy problems is useful to the project as it shows how climate change issues are currently being solved. It demonstrates the breadth and complications of the current environmental issues, showcasing the extensive resources that are required to solve them.

With our project, we aim to have a broader impact rather than just focusing on a singular problem within the space, which may leave a large array of other issues unaddressed.

3. Recording of Large-scale Data

Renewable Energy

This space sparked the interest of some of our team because progress indication is always helpful when tackling such a large-scale problem as climate change. At the end of 2020, more than 41,000 GWh of renewable energy is estimated to be generated in Australia, according to the Clean Energy Australia Report of 2019 (Clean Energy Council). 48,279 GWh of renewable electricity was generated nationwide in 2018, making it 21.3% of the total energy generated in Australia.

On the other hand, the overall energy consumption of different sectors (both renewable and otherwise) constantly increases, as shown in the Australia energy update 2019 (Australian Government, 2019).

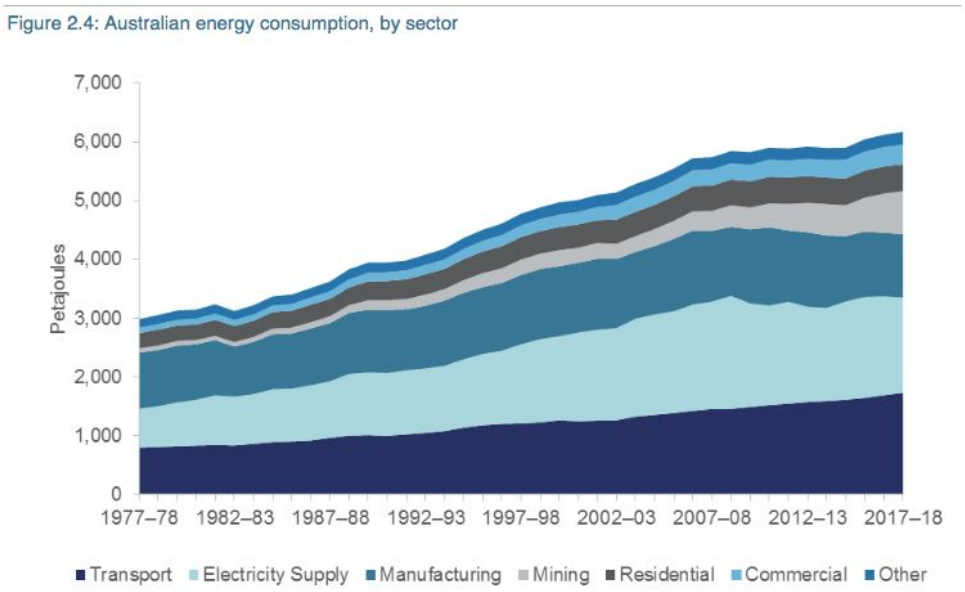


Figure 4: Australian energy consumption by sector (Australian Government, 2019).

Recording of such large-scale energy generation is an area that different non-profit, government and commercial energy sector organisations are actively working on. Access to this data relies on close cooperation with private companies in the private sector, and since we do not have that access, we cannot use it to form the basis of our solution. Thus, we decided not to attempt the creation of a solution within this space.

Traffic Congestion

In Australia, transport is the third-largest source of greenhouse gas emissions (17%), with cars being responsible for half of those emissions (Climate Council, 2017). These emissions can be largely credited to traffic congestion which creates slow and start-stop conditions for drivers. Since driving at a slower average speed burns more fuel per kilometre, keeping vehicles travelling at a constant speed and not congested will greatly reduce unnecessary emissions (Barth & Boriboonsomsin, 2020).

The issue of traffic congestion is greatly an optimisation problem and recording of large-scale data is a possible first step in solving it. The next step is how this data can be successfully implemented. Xerox has proposed many suggestions for this, such as: (Xerox, 2015):

- *Variable speed limits* – dynamically adjusting speed limits depending on real-time congestion, weather and other variables, keeping vehicles at constant speeds (no frequent stop-starting)
- *Adaptive traffic lights* – dynamically adjusting traffic lights' stop and go-lengths and timing depending on real-time congestion (no frequent stop-starting)
- *Dynamic reserved lane fees* – dynamically adjusting fees in reserved lanes depending on real-time congestion, to encourage travellers to use these lanes when appropriate
- *Getting a complete overview* – provide a heat map of traffic in an area, allowing city-planners to make more informed decisions

There are many potential avenues for solutions, however obtaining all this data itself is quite a large-scale problem requiring a detailed plan for deployment of thousands of cameras, car tracking technology, and integrated traffic lights. Additionally, the mass-deployment of technology needed to make the optimisation techniques effective would require cooperation from cities and government bodies.

The recording of large scale data requires big data, which is locked behind companies that sell it by recording with integrated sensors. Additionally, this is already being handled by registered government agencies. Due to data unavailability in the public domain, this is not a viable area to focus on.

Chosen Target Area: Individual Awareness & Perception

The following is our research into the fourth breakdown area, individual awareness and perception. It is this area that we have chosen to concentrate on for the remainder of our design process, whilst incorporating relevant information learned through research within the other three areas to guide or solution design.

Initial Research into Target Area

Climate Change, as perceived by the individual, proves to be subjective to the prior beliefs and environment of that individual. This could be due to the concept of 'Climate Change' itself being difficult to understand as a whole, despite its impacts being tangible - "Climate change is an evolutionarily novel risk that does not represent a clearly observable physical danger" (van der Linden, 2014). Research suggests that the cognitive effort required to fully understand the issues we face as a result of climate change, alongside a lack of motivation to think about the issue and low levels of comprehension of scientific information, deter many people from engaging and taking action to address the problem (Myers et al., 2012).

Studies show that humans are more likely to engage with the issue of climate change or global warming if they have personally experienced the effects of these changes as opposed to those who believe they haven't been directly affected; it has been argued that this is due to the immediacy of the event and the lack of cognitive effort required to understand their experience. However, these experiences aren't always automatically linked to climate change and thus do not necessarily increase the perceptions of the associated risks — experiences of the effects of global warming must be actively linked to the issue. It has been suggested that in order to make this connection, the impacts of climate change must be downscaled to relate more to people's interests and livelihoods (Safi et al., 2012).

Over the ten-year period from 2000-2010, concern for the threat of climate change dropped in the majority of western regions. Although that period also saw an increase in concern in Asian regions, the world average only rose 1% (Capstick et al., 2014).

Interesting patterns were uncovered by Our World in Data that show a correlation between large-scale emission producing countries and a lower level of concern (Ritchie & Roser, 2017; Stokes, Wike & Carle, 2015). This indicates that countries that rely on emission-producing procedures, such as major oil and gas production and mining, are less concerned about the effects of climate change and value the influences these operations have on their economies.

Additionally, a heavy correlation between countries' current susceptibility to negative climate change events and their level of concern was found (Johnston, 2016). This further strengthens

the idea that individuals living in environments not immediately affected by climate change are less likely to understand the true potential impact globally. Individuals may have an understanding of climate change and its impacts, but lack the motivation to actively change their lifestyle choices and habits when they are not personally experiencing the impacts.

Taking Action

In Australia, a 2014 study showed that 57.1% of participants tended to “self-enhance” leading to the conclusion that people often overestimated how much they were doing to minimise climate change in relation to other Australians. This introduces a social aspect to the actions taken to address climate change. If a person believes they are making an effort to reduce climate change, they have a feel-good response. This same study also presented that although many believe that climate change is real, there is still a lot of disagreement on whether it is an effect of nature or human behaviour (CSIRO, 2020).

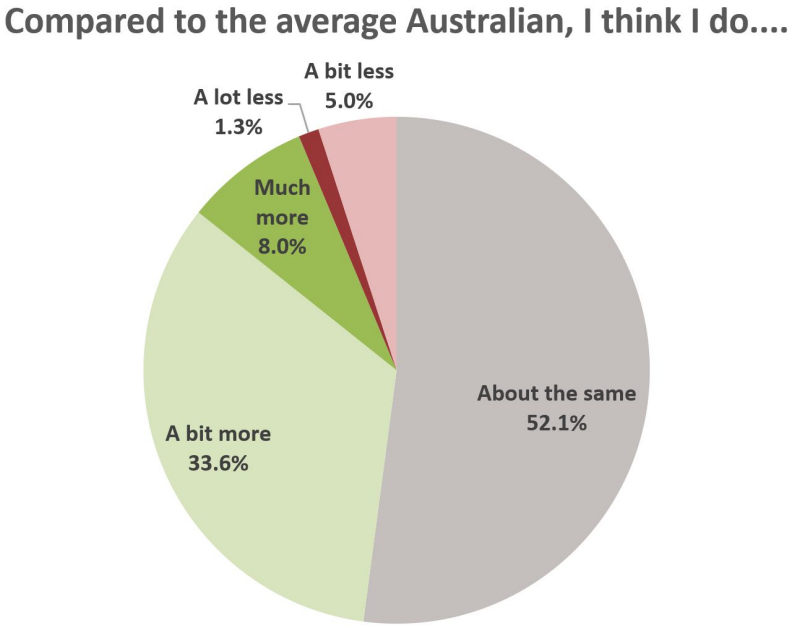


Figure 5: Australian perception of individual contribution (CSIRO, 2020)

Additionally, a study conducted into consumer motivations behind adopting sustainable innovations demonstrated that “symbolic attributes (i.e. the impact on self-identity and social status) … were important for adopting sustainable innovations: the more people think that adopting a sustainable innovation has positive outcomes for their self-identity and social status, the more likely they are to adopt sustainable innovations” (Noppers et al., 2014). These findings align with those of a 2010 study, which found that appealing to consumers’ intrinsic desire for status within their community causes them to be more likely to choose “pro-environmental green products over more luxurious non-green products” (Griskevicius, 2010).

Justification of Chosen Target Area

There are existing and new to-be-implemented technologies that could potentially contribute to slowing down climate change, such as carbon capture, renewable energy, and easing traffic congestion. However, while these methods can technologically change the way energy is produced and consumed, they do not affect the way end consumers of energy (and the source of carbon emission) interact with technology. The number of cars on our roads will increase as our population and economy grows, more products will be produced, sold, consumed and disposed, more houses will be built, bought and inherited with regular electricity consumption. What the clean energy report of 2019 does not highlight is that although the supply of renewable energy is growing, the ever-increasing overall consumption of energy exceeds its rate of growth, as shown by the Energy Update of 2019 (Australian Government, 2019).

Thus, we have chosen to tackle the area of individual awareness of climate change. Currently, many people view climate change as an issue that they as an individual cannot make a difference. Changing this attitude to one where an individual recognises their daily actions and lifestyle decisions is a practicable way of taking action against climate change and achieving long-term sustainability in the future. Based on our research, making the cause and effects of climate change known and relatable to the individual, as well as providing small actionable advice, is key to shifting the mindset about global warming and raising the overall awareness of it in the society.

Further Research

Investigation of Behavioural Change

According to an article on positive/negative reinforcement and punishment, there are four ways to define the influence on a person's change of behaviour (Prince, 2013). These four ways are different methods of increasing the frequency of a said behaviour (via reinforcement) and decreasing the frequency of a said behaviour (via punishment). The table below provides a summary for each of these approaches.

Method	**Definition**	**Example**
Positive Reinforcement	Increase frequency of behaviour by providing stimulus	If you do your homework, you get a candy
Negative Reinforcement	Removing aversive stimulus	If you do your homework, you do not get yelled at
Positive Punishment	Presenting aversive stimulus	If you say a bad word, you get a 5 minute time-out
Negative Punishment	Taking away reinforcing stimulus	If you say a bad word, you do not get dessert after dinner

As previously covered, the intangibility of climate change from a grand-scale is a major factor in what makes promoting behavioural change in this domain relatively difficult and requires a specific and careful approach.

The following are key problems caused by this intangibility (Shalev, 2015);

- People require goals to have a clear sense of direction in order to take action, however climate change is very amorphous in this regard.
- Climate change is a sensitive topic in society with many ties to political alignment. This can cause certain approaches such as negative-reinforcement to have the reverse effect of encouraging behaviour change because “presence of threat stimulates the motive to reaffirm rather than to change the self” (Shalev, 2015).
- People are much more likely to take action if they can first-hand witness the effects of climate change and the effects of their actions. However, as previously mentioned, populations being targeted by this project, generally have very low susceptibility to climate change effects.

In relation to motivating behavioural change in the area of transitioning to greener energy, Shalev suggested the following solutions/approaches which can be potentially adopted by this project in 2015:

- “Positive message framing to provide incentives for action initiation” (Shalev, 2015). The solution could use positive reinforcement/punishment to motivate change to avoid user resistance.
- “At the individual level, environmental policies should use external cues as sources of automatic action generation to increase the strength of the association between person and environment” (Shalev, 2015). The solution should use local events/cues to personalize the concept of climate change.
- Because of the controversial nature of climate change, the solution should be very inclusive. The end benefit (reducing climate change) should be masked by other benefits more directly related to the person, (health, economy and education)

Additionally, research from TMR QLD found that in relation to more effectively motivating people to cycle “The focus should be on the more immediate personal benefits such as enjoyment, adventure, time out, socialising and positive mental health. These were shown to be more motivating than the delayed benefits such as physical health, cost savings and environmental aspects.” (State of Queensland - Department of Transport and Main Roads, 2018).

These findings, although in a different domain, further solidify the idea that in order to more effectively motivate people, end benefits (i.e. reducing climate change) should be masked by more personal benefits.

Shaping Good Habits

Humans are habitual beings. According to an article from the Harvard Business Review (White, 2019), there are three subtle, yet effective, methods of shaping positive habits: prompts, providing feedback and incentives. This market research aligns with our previous findings about positive reinforcement, and shows that playing an active part in using different ways to intentionally change "defaults" or provide meaningful alternatives when interacting with consumers will in turn change their behaviour for good.

Adoption of New Technologies

One major factor in the adoption of new technologies is ‘effort expectancy’: “the degree of ease associated with the use of the system” (Venkatesh, 2003). In a study conducted in 2012, it was found that when users expect a system to require a low amount of effort to use it, their intention to use the technology increases (Sargent et al., 2012).

Non Opt-in Interaction

When a system uses an opt-in model, only those who are interested in reducing their own carbon footprint or are already aware of the impact of global warming would use the solution. Here we explore the possibilities of a non opt-in engagement with users.

One of the top contributors to global warming is carbon emission. There are a number of ways individuals increase carbon emissions, such as driving, consuming excessive electricity, unnecessary consumerism, or eating meat that is farmed in an unsustainable way (Carrington, 2018).

Combining methods of reinforcement/punishment to induce behavioural change built into those activities may have interesting, if not effective results. Below are some examples:

Activity	**Reinforcement**	**Punishment**
Driving	Incentive for alternatives - walking, cycling, public transport	Sign to show the amount of cars and contribution to global warming
Mass consumption of electricity	Cheaper electric bill if reduced monthly usage	The exponential growth of a bill if over a certain threshold per person
Purchasing meat	Discount for not having meat on your checkout or choosing better meat alternatives (grass fed, free range etc.)	No reasonable punishment was ideated
Using keep cups	Coffee discounts & free coffee coupons	Increased prices for not having a keep cup

Ethical Considerations

A forced interaction with users leads to ethical considerations, as it might elicit emotions of discomfort, guilt or shame. Thus, it is important when designing such interactions to both bring constructive change and have minimal damage to the mental health of others.

Gamification

Gamification is the concept of using theories that drive gameplay from game design and applying it to other contexts. Many attempts to use gamification to raise awareness about a subject (not just climate change) has been done in the past, as outlined in a detailed case study (Sgueo, 2017).

The downside of gamification is the *'digital divide'*. These solutions that implement gamification concepts are most, if not all digital, which by nature excludes non-technical audiences. In a study conducted by The Center for Public Integrity, it was found that “in the United States families in neighborhoods with median household incomes below $34,800 — the lowest fifth of neighborhoods nationally — are five times more likely not to have access to broadband than households in areas with median income above $80,700” (Sgueo, 2017). There are still many around the world that don't have decent access to mobile and web technology, who will not be reached by purely digital solutions.

Problem Space Target Audience

Audience to Impact

In order for the project to maximize awareness to be raised, it is crucial that populations with lower personal concerns about climate change are targeted. Hence, these groups of people (see Figure 7) are who we are aiming to impact the most.

Additionally, we aim to target populations who have the greatest carbon footprint per capita (see Figure 6) as raising their awareness will yield the greatest benefits in reducing climate change. Fortunately, it has been found that there is a high correlation between these two groups, meaning that typically, areas with low personal concern for climate change also have high levels of carbon emissions.

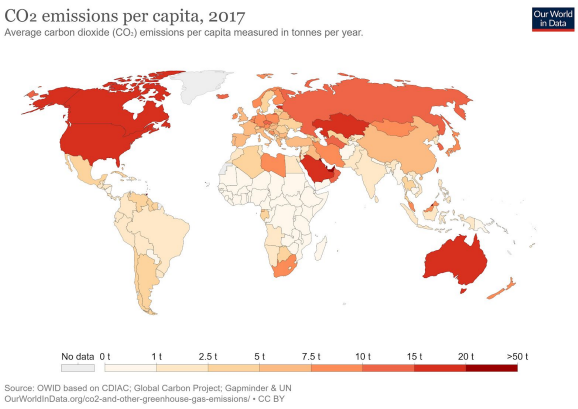


Figure 6: CO_2 emissions per capita (Ritchie & Roser, 2017)

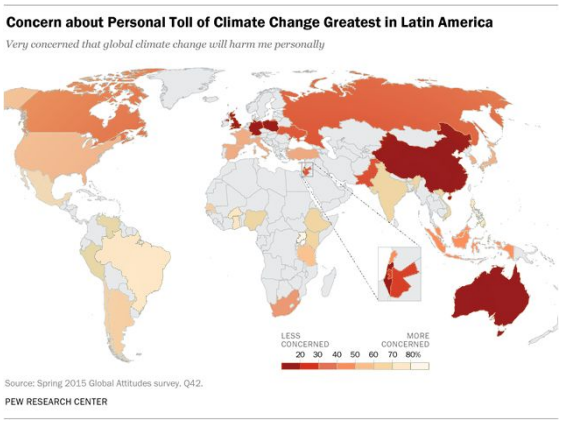


Figure 7: Global personal climate change concern heatmap (Stokes, Wike & Carle, 2015)

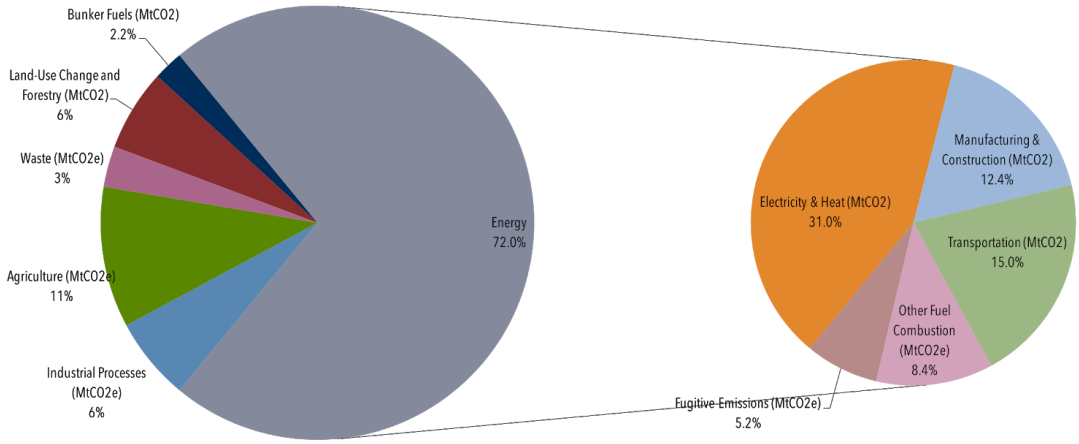


Figure 8: CO_2 Emissions globally broken down into contributing sources (Center for Climate and Energy Solutions, 2019)

Breaking down the high carbon footprint populations further, Figure 8 shows what aspects/sources contribute the most to global emissions. Using this data, more specific possible groups to impact can be realised. Those groups are the following;

- Regular commuters who travel by non energy-efficient means (i.e. using a car when, public transport, bicycling or other similar alternatives are accessible options)
- People who use excessive amounts of energy in their household
- Consumers of food products which highly contribute to emissions (i.e. high meat consumption)
- People who produce large amounts of waste (i.e. lack of recycling)

Solution Ideation

High-Level Solution Goals

Before formulating our solution, our primary goals need to be defined. These goals are based upon our background research conducted, therefore they help to offer structure and direction in our solution ideation process.

1. The application will offer seamless integration into a user's existing routine, which will be achieved by interacting with pre-existing systems.
2. The users of the system should be educated on climate change and environmentally friendly actions that can minimise their personal impact.
3. Positive reinforcement will be used to encourage behavioural change toward climate change.

Existing Solution Analysis

By analysing relevant pre-existing applications that are in the solution space, we are able to draw on their strengths and weaknesses. This allows us to avoid common mistakes that have already been attempted, and to create a solution that is innovative and unique.

Climate Change Applications

RePrint Footprint Tracker

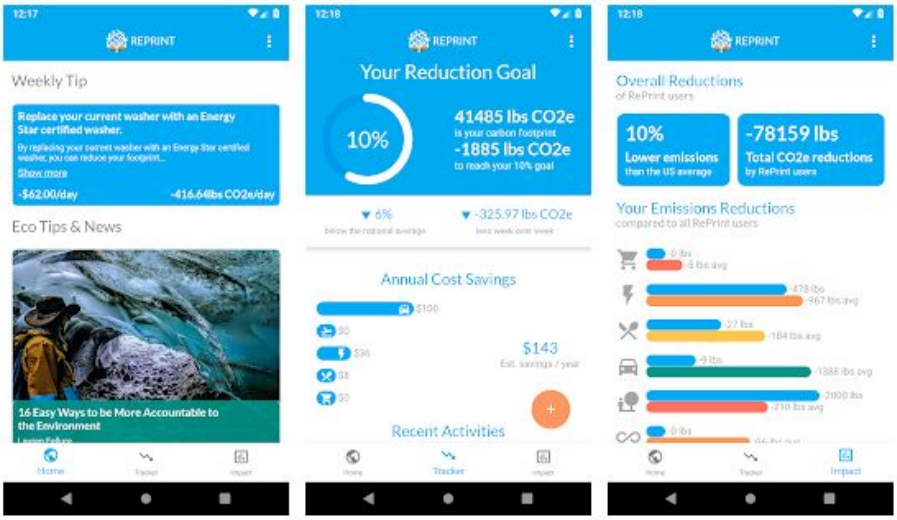


Figure 9: RePrint Footprint Tracker application screenshots (RePrint, 2019)

RePrint Footprint Tracker is an application that encourages users to reduce their carbon footprint by making changes to their lifestyle. The user starts with a “footprint of 44,000 pounds of CO_2 equivalent (the national average), and a 1% reduction goal (or a reduction goal of -440 pounds of CO_2)” ("RePrint Footprint Tracker", 2020). The application suggests lifestyle changes and daily activities that the user can do in order to complete this goal - when a user does one of the actions, they must manually mark it as complete within the application.

The application also calculates an estimate of the money saved by making the suggested lifestyle changes, which incentivises the user to continue doing these activities, and the dashboard displays the user’s progress towards their personal reduction goal.

Strengths

Through our research, we found that if a person believes that they are making an effort to reduce climate change, they have a feel-good response (CSIRO, 2020). One of the strengths of the *RePrint Footprint Tracker* is that it prompts the user to check off the environmentally-friendly actions that they have done, thus confirming the user’s belief that they are making a difference. The application also incorporates elements of gamification by showing comparisons between the carbon footprints of the average American and the user, thus encouraging them to continue reducing their emissions.

Additionally, research shows that many people are deterred from thinking about, engaging with and taking action against climate change, as they find the scientific information about it inaccessible and the concept itself too intangible. Another of the application’s strengths is that it provides users with small actions and changes that they can make or integrate into their existing routine, thus making the issue of climate change seem more manageable to users.

Weaknesses

This solution lacks a simple integration into users’ daily activities as it requires them to find the suggested lifestyle changes and mark them as completed manually. There is a significant requirement that the user actively participates on their own behalf, therefore it lacks the positive reinforcement necessary to enforce behavioural change toward climate change.

Additional Climate Change Applications

Additional carbon footprint trackers Capture and OROECO were also analysed, which offer a similar understanding to the solution ideation process which can be viewed in Appendix 1.1.

Rewards Systems

In line with our high-level project goals, we need to positively reinforce individuals. Rewards systems are a useful way to give the user positive reinforcement for achieving an action. Existing reward programs can be analysed to understand how they work and to ensure we can acknowledge their strengths and weaknesses to improve our solution.

Firstly, we analysed well-established climate change-related reward systems, and afterwards, we moved into non-climate change reward systems to see how we could possibly innovate/build off these solutions.

Alipay Ant Forest

There are “more than 500 million users of Alipay’s mini-program, ‘Ant Forest’, that lives within the application are rewarded for making small, environmentally friendly decisions in their daily lives through ‘green energy’ points, and those points can be redeemed to plant trees in areas of the country in need of vegetation. So far, 100 million real trees, covering a total area of 933 square kilometres, have been planted — roughly the size of 130,000 soccer fields” (Chou C., 2019).

Below is an image of the mini-app's interface, a satellite image of the site before any trees were planted, and the site after trees were planted. Alipay's ant forest is a mini-program that is included in the Alipay app to encourage users to make daily green choices, such as walking more, use of public transport, opting-out plastic bags when shopping and using recycled coffee cups. These actions are tracked through the extensive use of the payment system (e.g. you can use Alipay to pay for things such as bus and train tickets, grocery shopping and public bicycles).

These actions, in turn, generate an amount of ‘energy’ in the app, which can be used to purchase different types of tree saplings in NGO forestation programs in other regions of China. Users get a real ID tag of the tree they have planted, and can even see satellite images of the site.

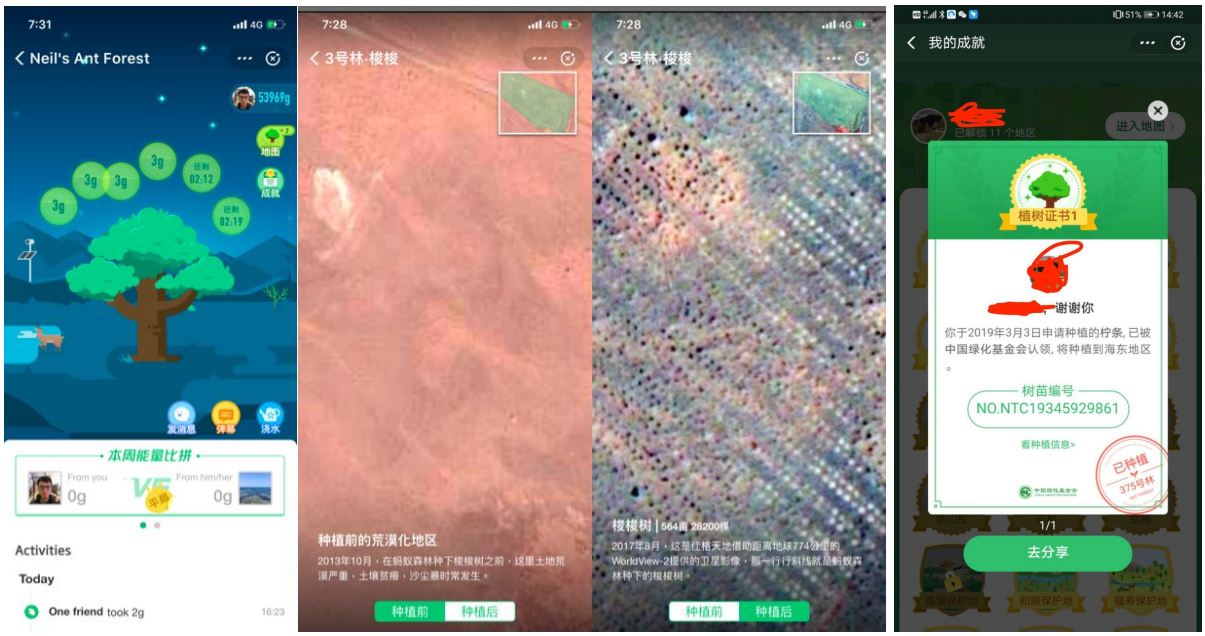


Figure 10: Alipay Ant Forest application screenshots (Chou, 2019)

There are different social elements within the Alipay app that pitches you ‘against’ your friends to compare who has a higher energy score, and you can see each other's trees - you can even "steal" energy from different friends up to 3 times a day, and "water" their virtual plants for them. Upon getting enough energy to unlock a new type of sapling, you get to see a certificate of the tree's tracking ID and where it will be planted. You can even co-plant a tree with another friend, which takes both of your energy scores.

Strengths:
Ant Forest demonstrates effective usage of gamification and social interaction to raise climate change awareness. One of the strengths of the system is how it garnered a large number of users — by being integrated into Alipay, a wallet app that already possessed a large base of users, these users were not required to put in much effort to use Ant Forest.

Weaknesses:
One weakness of Ant Forest is that the meaning in its behavioural change incited may be lost in the over the top gamification elements the app has incorporated; users may view the app more as a game, forgetting the climate change aspect of the system.

Green Money Rewards System

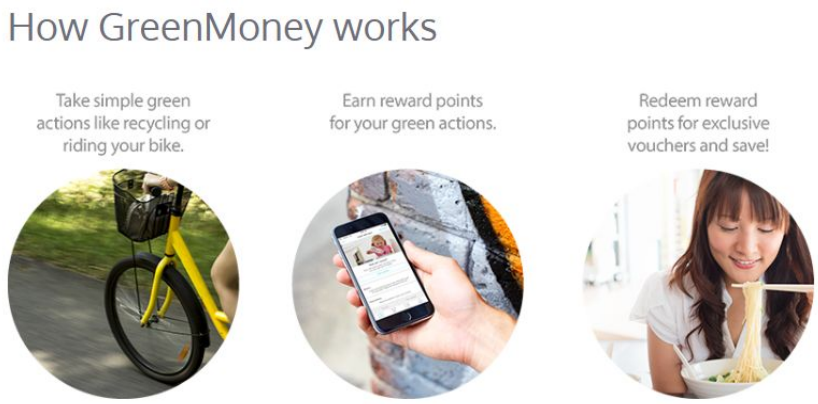


Figure 11: GreenMoney rewards system overview (Green Money, 2019)

GreenMoney Rewards is an application that aims to reward users for performing climate-friendly actions. It is specifically used in Australia, targeted towards motivating residents and workers to complete green challenges (Green Money, 2019).

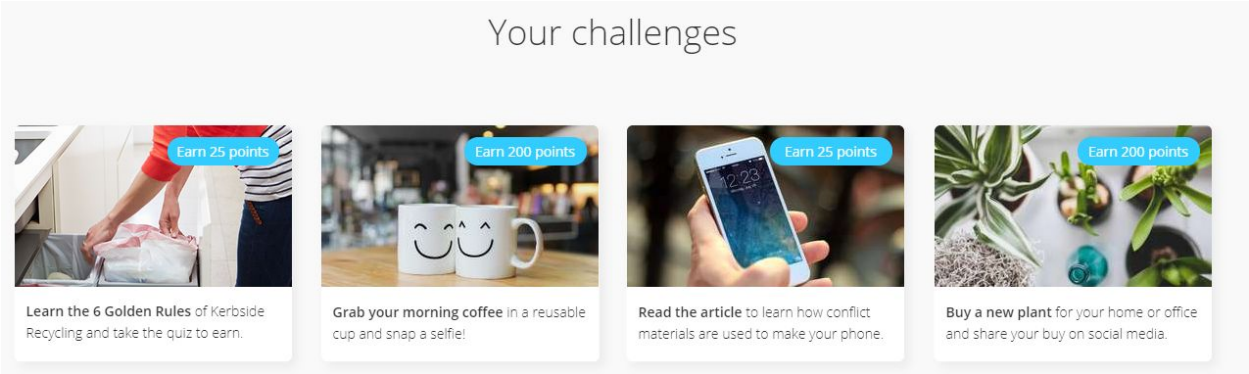


Figure 12: GreenMoney rewards system challenges examples (Green Money, 2019)

Users are given challenges to complete in order to be rewarded. There are three types of challenges contained, learn and earn, make a pledge and take an action (Green Money, 2019).

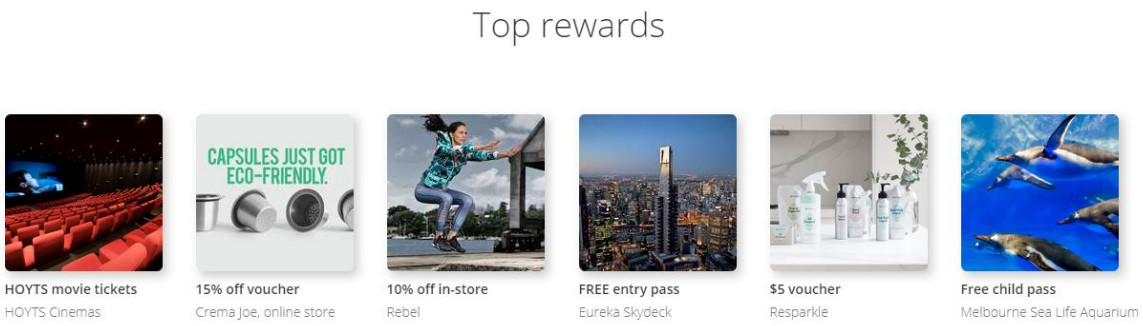


Figure 13: GreenMoney rewards system rewards (Green Money, 2019)

There are over 100 local businesses that have partnered with Green Money. When users complete these challenges, they are rewarded with gift cards and offers at these partnered businesses.

Strengths

Green money has been adopted by regulatory bodies in certain areas of Australia in order to incentivise climate-friendly behaviour. The rewards that are offered help to support local businesses with advertising, thus boosting the local economy. The Melbourne city council in Australia has integrated this system to support initiatives in order to drive individual actions (City of Melbourne, 2020).

Weaknesses

Reward incentives may feel that they are of greater benefit to the businesses who receive advertisements. The rewards are often not climate change friendly. There is a signing up process that hinders adoption with onboarding users.

Flybuys

As the leading example of loyalty reward systems in Australia, flybuys will be analysed. The flybuys system is free to opt-in and offers a point per dollar spent in their associated stores as seen in Figure 14. A customer accrues these points and can exchange or redeem certain quantities of these points for either reward objects as well as getting the opportunity to save money for their shopping or similar reward aspects.

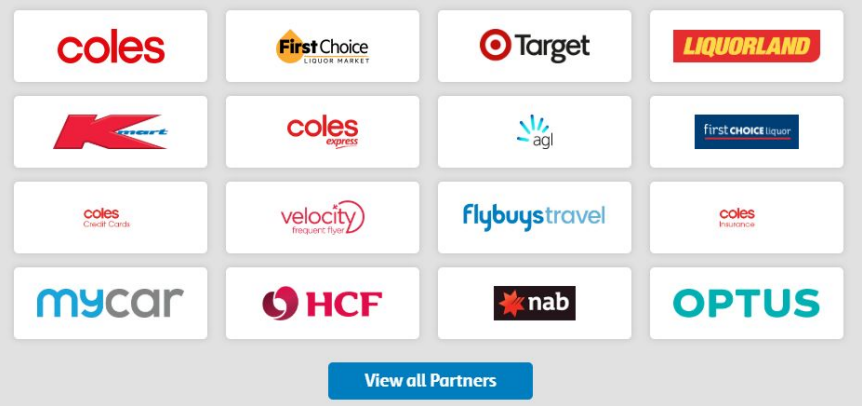


Figure 14: Extensive list of flybuys partners (flybuys, 2020)

Through a method called operant conditioning, a reward system like flybuys works to encourage repeat behaviour. If a consumer is offered a reward for purchasing a particular product, and this reward is reinforced regularly, they are likely to repeat that behaviour (Shelper, Lyons, & Savransky, 2019). This links to our earlier research into positive reinforcement.

Loyalty programs also take advantage of size heuristics, which relates to humans not having the capacity to take in every detail of the complex environment around them (Shelper, Lyons, & Savransky, 2019). By rewarding a customer with 100 points per dollar spent, as opposed to 1 point per dollar spent, a loyalty program can make the customer feel that the value of the reward is larger than it actually is. This adds to the effect of positive reinforcement and increases the likelihood that customers will repeat the behaviour (Shelper, Lyons, & Savransky, 2019).

Strengths

An extensive list of partnered stores allows multiple locations where points can be collected and redeemed. As well as this, point tracking is made easy for users through the use of an application or website. Rewards systems like flybuys, encourage behaviour change in customers by reinforcing specific behaviour.

Weaknesses

Points that are awarded by the system are calculated based upon consumerism, motivating users to buy more products. Products and services can be redeemed by the awarded points that hold a monetary value, but still motivate increased consumerism.

Solution Discussion

This section covers the design activities we used to formulate our solution. As a group, we met together and began to brainstorm potential solutions after analysing pre-existing applications, which ensured we are able to build off these ideas to develop an innovative solution. We had a requirement that we wanted people to understand climate change without using a generic educational application. We first proposed a web solution but chose to move away from this due to it being an active choice to download (opt-in), and to gather user traffic would be difficult. During our solution ideation process, we ensured to discuss solutions that may meet our high-level goals, and we dismissed any ideas that did not.

Brainstorming

As a team, we performed a brainstorming session, where we gathered together in a meeting to discuss potential ideas to further explore. This process produced a number of ideas that led to three potential solutions that matched with our high-level goals as seen in green in Figure 15. These solutions identified were inspired by the pre-existing applications analysed, which we aimed to build-off to develop an effective and innovative solution that has not yet been attempted. For the ideas that were dismissed, as seen in red in Figure 15, additional research was conducted as a means to justify our decisions for not attempting to further explore these ideas.

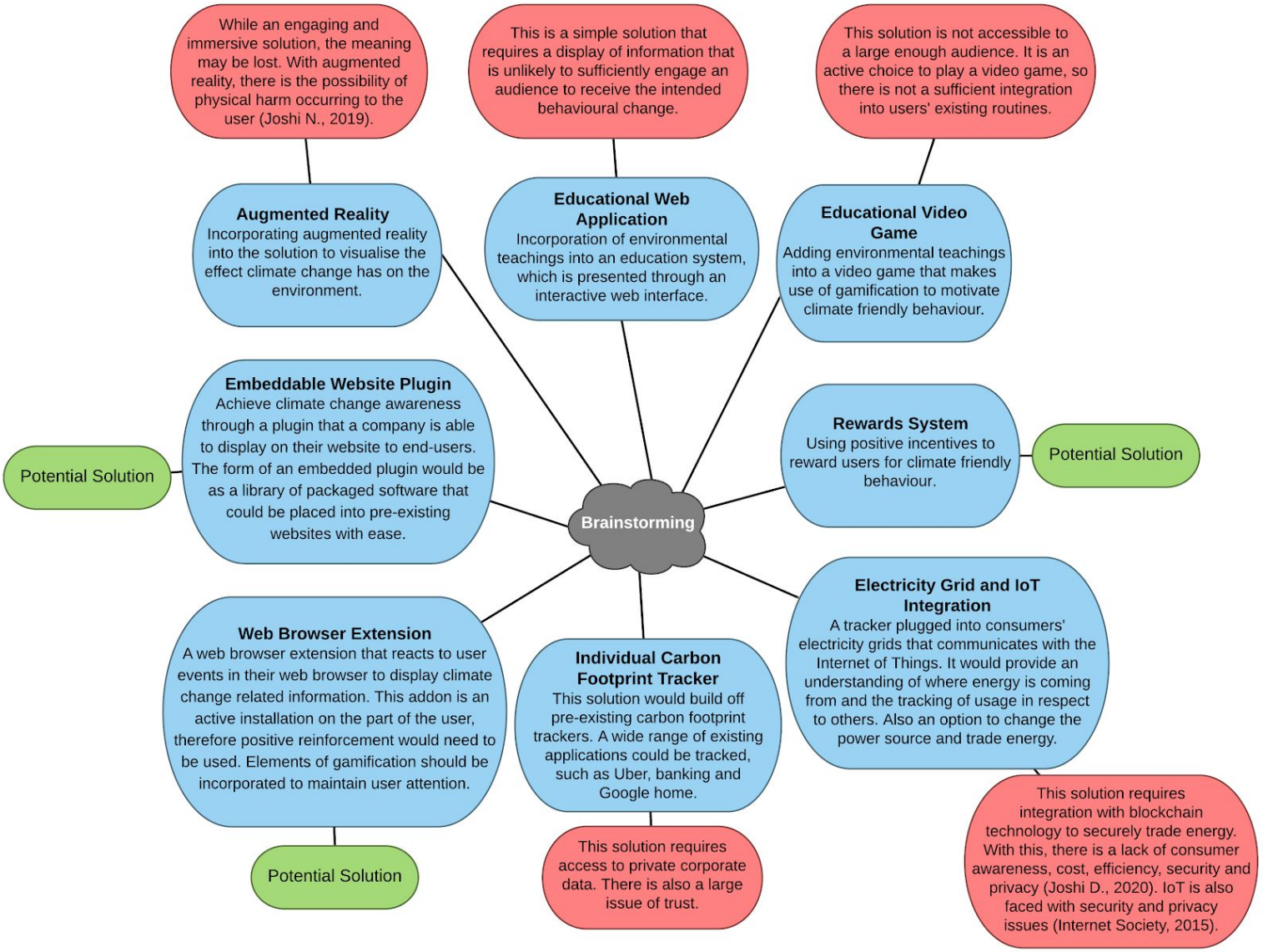


Figure 15: Team brainstorming session which presented three possible ideas.

Activity Outcome

After initially dismissing certain solutions due to their limitations in our brainstorming session, we began to idealise the three potential solutions identified in further detail, which may realistically solve our project goals.

Sketching

When evaluating the potential solutions, sketching was valuable to develop simple and rough sketches to communicate what the solution will represent to all team members. This activity provided a way to further explore these ideas with a more clear way of thinking. Initially, we sketched the website plugin and browser extension, but after feedback and testing, this has been revoked for a reward system based solution based upon easier integration for the user.

Embeddable Website Plugin

The embeddable website plugin aimed to display climate-related activities as a software package that could be embedded into pre-existing websites. For example, on social media, an application widget can be integrated. Various climate change mitigation games could be used. As seen in figure 16, the footsteps may be registered and shared between friends to encourage walking rather than transport. See Appendix 1.2 for more information.

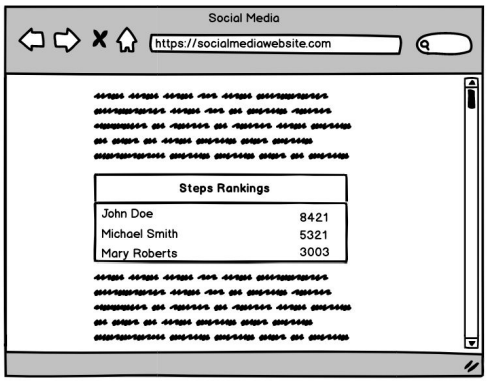


Figure 16: A sketch of the embeddable plugin being displayed on a pre-existing website.

Web Browser Extension

The website browser extension aimed to extend previous functionality on a website to incorporate climate-friendly actions. For example, on a shopping website, at checkout, alternative products may be suggested that are more environmentally friendly as sketched on the right of Figure 17. On a company website, it would notify the user how the company being viewed contributes negatively or positively to climate change as sketched on the left of Figure 17. See appendix 1.2 for more information.

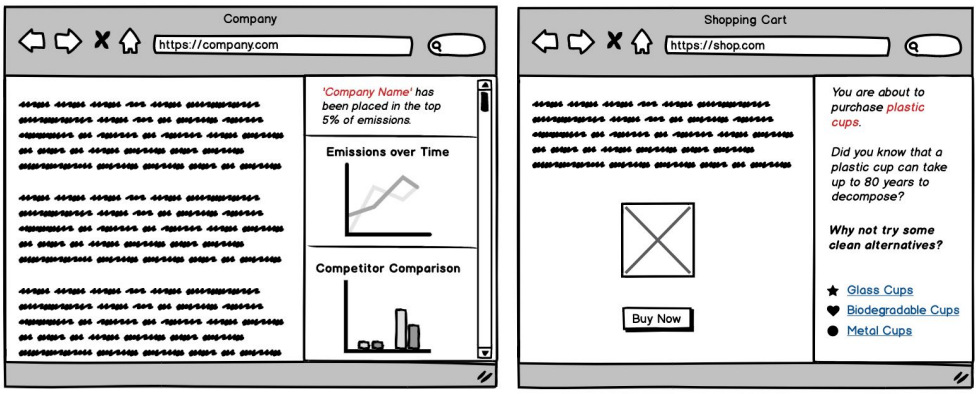


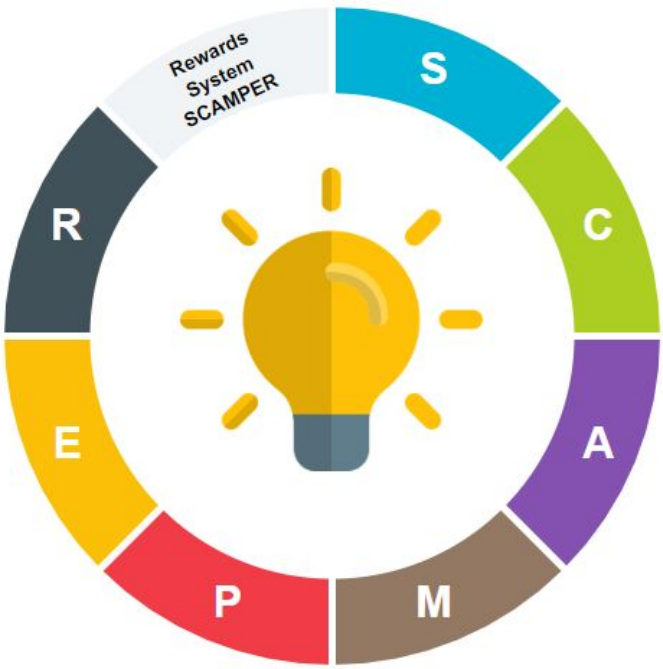
Figure 17: Sketches of the web extension reacting to a shopping and company website.

Activity Outcome

After the sketching activity, we realised that this solution lacked the level of integration required to ensure we achieve our high-level goals. Therefore, we began to further investigate reward systems as discussed in our brainstorming session. We started to think about how we can build off these pre-existing systems that we have researched.

SCAMPER Analysis of Rewards Systems

After acknowledging rewards systems are the direction best suited to match our high-level goals, we performed a SCAMPER on the shopping reward system of flybuys. This was useful to innovate upon the pre-existing product by using lateral thinking, resulting in the production of a solution that aligns with our high-level goals.



Substitute

Products should be given an associated green rating. This rating should be displayed at the checkout process for the scanned items and should also be displayed near products on the shelves.

Combine

Shopping reward systems and encouraging an increased individual perception of climate change.

Adapt

Consumerism should not be encouraged for users of the system, rather they should be motivated toward making decisions that reduce their carbon footprint.

Modify

Points need to still be rewarded, but they should be calculated based upon an average green rating of all the products purchased. This rating can be based upon an environmental impact.

Put to Another Use

The system should encourage social interaction and the awarded points should be spent to purchase climate friendly products or services.

Eliminate

To ensure a streamlined process, the user should be notified automatically with their points balance information and what rewards are available to redeem.

Reverse

The overall flow of the shopping experience should not change, but the consumer should be driven to pick a smaller selection of environmentally friendly products that have less detrimental effects on the climate.

Figure 18: SCAMPER analysis of shopping rewards systems (Visual Paradigm, 2020; Pixel Perfect, 2020).

Activity Outcome

Based on this analysis, we are able to distinguish how to integrate into previous non-climate change reward systems that we analysed, which leads to our chosen solution. We have modified an existing product, an Australian shopping loyalty program, to a climate change reward program, thus creating a solution that aligns with our high-level goals.

Chosen Solution

Our chosen solution to explore further is to integrate a climate change awareness and behaviour change component into existing supermarket rewards systems. For example, flybuys and the Woolworths rewards cards are used in different supermarkets and stores to reward users with points based on what they bought.

As a part of this already established system, customers could collect a separate category of points based when they purchase ‘green’ products. Products could self-promote their ‘green-ness’ with a 5-star rating diagram similar to the health star rating already used on packaging. This would provide customers with an easy way to identify ‘green’ products and how good they are.

Conceptual Model

To further develop our solution, it is important to define a clear conceptual model and layout the detailed objectives.

Individual awareness of climate change is an area that has been explored by many, and a large number of existing solutions have been implemented utilising different methods of incentives, statistical tracking and education. Each of these has been developed to help users gain a better understanding of the cause and effects of climate change and inform what they can do to help slow it down. However, we see that when users need to go out of their way to use these solutions, it's more difficult for them to integrate them into their daily activities.

The overall aim (of our solution) is to increase a consumer's awareness of climate change and incorporate practicable actions *into* the users' daily activities, instead of introducing something separate - this is due to how people are more likely to use a new technology if it requires a low amount of effort (Sargent, 2012).

This will be done through a shopping rewards system that integrates into an existing loyalty program that is already used by consumers. This integration affords access to an established base of users, providing an advantage as opposed to creating a whole new rewards system (Australian Food History Timeline, 2020). This also brings with it the advantage of integration with any partner stores.

Such a system will aid a person to make more environmentally-friendly purchasing decisions by rewarding them for such actions and showing the most environmentally conscious consumers on a leaderboard. Customers who don't usually look for green alternatives will be incentivised to do so knowing that they can gain rewards for their choices. Even if they do not care for the environment, a motivation for rewards will still exist. It is intended that reinforced rewards can promote behavioural change in customers toward more eco-friendly behaviour.

Research into habit formation demonstrates that "more rewarding behaviours are subsequently more frequently performed" (Judah, 2018). Therefore, by rewarding consumers for purchasing eco-friendly items, they are more likely to purchase other such products. Additionally, displaying a leaderboard incorporates an element of gamification, which encourages people to continue eco-friendly purchasing decisions. It is also our aim that by encouraging people to consider such decisions in everyday actions, they may be able to apply this way of thinking to other aspects of their life.

The rewards system aims to incentivise consumers to purchase environmentally friendly products with the objective of educating consumers about the environmental impact of their purchases and encouraging them to reduce their carbon footprint.

This integration can take place in multiple points of the supermarket shopping process, described in the table below.

Feature	Justification
Display informational tags of how eco-friendly a product is in-store	As described in the Harvard Business Review article referenced earlier in this report (in the 'Further Research' section), one of the three major aspects of habit-shaping interactions is 'prompting' — such a feature would encourage the user to make a better choice as to which product to purchase. It is stated in the article that placing prompts near recycling bins increased recycling by 54%; our solution includes the use of informational tags in order to have a similar impact by informing consumers of the product's environmental impact and reminding them to factor this into their purchasing decision.
Reward consumers with points whenever they make an environmentally friendly purchase; the number of points earned will be based on the environmental impact of items	Using positive reinforcement with an effective incentive (since points have monetary value) can increase the frequency of the person repeating the behaviour. In this case, the behaviour is the purchase of environmentally friendly goods
Allow consumers to keep track of how many points they have earned through the partnered reward system (something they already interact with)	This provides an incentive to the user to keep making green decisions, as there will be personal benefits involved. Over time the goal is to use this to shape positive buying habits.
Bring in elements of social competition through in-store elements	This provides the element of 'giving feedback', which is one of the three interactions to help shape green habits. (White, 2019) By using different in-store elements (such as audio announcement from the checkout machine, or a leaderboard), we can compare the user's progress with others to take advantage of social competition to change buying patterns.

In-Store Informational Tags — Displaying Star Ratings

The Health Star Rating system (HSR) is a product labelling system introduced by the Australian Government with the aim of helping consumers make healthier, more informed decisions about the food they purchase. It was found that 23% of consumers purchased healthier products due to the HSR and trust in this system is steadily growing (mpconsulting, 2019). The energy star system similarly found consumers are influenced by energy rating labels to purchase more efficient products (Acil Allen Consulting, 2017). Both systems found it was vital to be transparent about how the rating is created to generate trust with consumers.

Food manufacturers can also benefit from a star rating system by demonstrating to the consumer the responsibility and care put into their product, including the production and transportation of the goods. The introduction of HSR labels on products has encouraged manufacturers to increase their health rating by reducing energy and saturated fat content in order to make consumers more inclined to purchase their products. This indicates that such star ratings are a viable method for improving the health of foods (mpconsulting, 2019).

From this, it is evident that displaying a star rating on products is an effective way to encourage consumers to purchase better products, whether they be better for the consumers' health or use less energy (and thus cost the consumer less money long term). Thus, applying such a rating system would influence consumers in a similar manner and may also incentivise manufacturers to employ more environmentally-friendly processes; this in turn would result in a greater positive impact on the environment.

Stakeholders

Consumer Target Audience

Ideally, to maximise the impact of the solution, specific methods would be put in place to target and influence shoppers who don't usually make purchases with environmental concern to start shopping greener. However, countless studies into the demographics of green-consumers have returned a lot of uncertain and mixed results (Fisher, Bashyal & Bachman, 2012), making narrowing down a specific target demographic quite difficult.

A study conducted in the response to the mixed results from other studies (Fisher, Bashyal & Bachman, 2012) revealed that only two demographic variables were correlated with green product consumption; gender (typically female), and income (typically higher income). Whilst other variables such as age, education, marital status, children status and race did not show significant correlation.

However, the demographic of typical shoppers are well established and hence, can be used as a target to design for and hence maximise the impact of the solution. The following has been found about Australian shoppers demographics:

Shopping centres (Bailey, n.d.):

- 72.3% female.
- Highest proportion aged 50-59. However, fairly consistent spread in all age brackets except ages 15-20 and 70+.
- Average household size of 2.9 people.
- 30.4% married with kids. 27.0% married with no kids.

Grocery Shops (Bogomolova, et al., 2016):

- 73.67% female.
- Most common age bracket 36-55 (40%).
- No clear relationship with employment status

Rewards systems (Autry, 2019):

- Half of customers consider rewards as important for their purchases

Users of Existing Rewards Systems

As our system is intended to be built upon an existing rewards system, the existing system's users must be considered. Our research demonstrates that there are 10 million flybuys members over 5.5 million Australian households (flybuys, 2020).

External/Secondary Stakeholders

Business Model

Our external stakeholders include supermarkets chains, rewards system partnerships and green product companies. We understand that to successfully integrate our solution into an existing rewards system, the downside is that we have to rely on third-party cooperation that is completely out of our control.

Our business model is to cooperate between supermarkets, rewards systems (which, like Flybys or the Woolworths Rewards Cards, work across multiple shops) and brands that wish to join the system. This allows us to have an existing user base from the beginning and make it easier for users, by not having to sign up for a new system all over again. Our system creates a great business opportunity for brands to further push their environmentally friendly product, and supermarkets to increase sales of certain products in favour of our system. This is where our income will be from.

Our community engagement and gamification aspects will boost local engagement and shopper influx at supermarkets. If a supermarket chain / individual store is willing to participate, the corresponding rewards system will likely come onboard. The fate of a supermarket and its rewards system's partnership is definitely linked. Any cost associated with partnering with the supermarkets and their rewards systems will be covered by our partnership with the brands. We make an assumption as technology, not business professionals, that this model will be somewhat sustainable, so that we can focus on developing the design aspects of our system.

Basically, as brands come onboard, an independent review will be conducted on their advertised products. Then we will inform the supermarket and rewards system on what products to promote via informational labels and our chosen green stars, so that those items will yield extra rewards points upon purchase to encourage shoppers to buy them.

Apart from consumers, external companies such as supermarkets, existing rewards and certain food/goods brands are significant stakeholders. In order to have a successful solution, these stakeholders must be catered for when considering the design and business model. These stakeholders would potentially contribute the following;

Supermarkets:

- Allow in-store placing of green rewards tags
- Display green-spenders leaderboard (optionally both in-store and online)
- Add our green rewards points to their checkout process

Rewards System:

- Grant our business model for partnership
- Must profit from our business model

Green brands (only if supermarket is not on board):

- Place our green rating of their product on the packaging
- Pay subscription/fee to be promoted
- Products go through an independent, open review process to ensure fairness

Additionally, a large secondary stakeholder to be considered, are non-green brands. Since they will be negatively impacted by success from the solution, it is crucial to think of the associated implications and potential repercussions This solution, if successful in encouraging change in behaviour of consumers, would encourage non-green brands to consider their impact, and make choices to allow them to benefit from this reward system.

We understand that our solution has a big number of external stakeholders who need to cooperate in order to make the solution successful. In the case of a limited partnership, the table below shows how our system can still operate (but we will only focus on developing the ideal model, with the assumption that all parties are on board)

Supermarket/Reward System Onboard?	**Green Brands Onboard?**	**Potential Business Model**
Yes	Yes	As described above
Yes	No	Supermarket and its rewards system to promote green items based on approved green stars in store. Environmental products tend to have a shorter life span, so promotions may be additionally placed on those items as expiry date draws near to encourage purchase, as to benefit the supermarket.
No	Yes	Promotion of green stars and educational information will be placed on packaging of items. Users register to our system online separately, and upon purchasing green items gain points to redeem other green items online.

Prototyping

After narrowing down the scope of the solution we decided to construct various prototypes that would allow us to obtain feedback from stakeholders.

The main focus of prototyping consisted of three things - a consistent green star rating design (the "logo" or "image" if you may), the visual interaction at the store shelves (how the green star rating will be presented to users), and the visual interaction at the checkout machines.

Green Stars Visual Design

Figure 19: Proposed design of rating display ("Earth emoji | Free SVG", 2020)

The visual design of how we communicate the 'green ratings" to the user is important, as it has to encompass this solution's core message - to inform and enable users to make choices that can reduce their carbon footprint and create a more sustainable future for our planet.

The above visual design is used because of two main reasons:

1. *Simplicity*. The earth emoji communicates the fact that the rating is related to protecting the environment. The green colour is chosen because it represents a green, eco-friendly central theme.

2. *Consistency*. The energy star ratings is a very popular scheme from the Australian government to display how energy efficient an appliance is and has been widely adopted. It is a system most shoppers (which make up a large portion, if not all, of our primary stakeholders) are familiar with this system. Thus having a very similar five-star rating design helps users get the idea frictionlessly, which matches our core design concept of seamless integration.

In-store Labels

Just as price tags are displayed in-store, the green star ratings are to be displayed next to items so that it is obvious to the user.

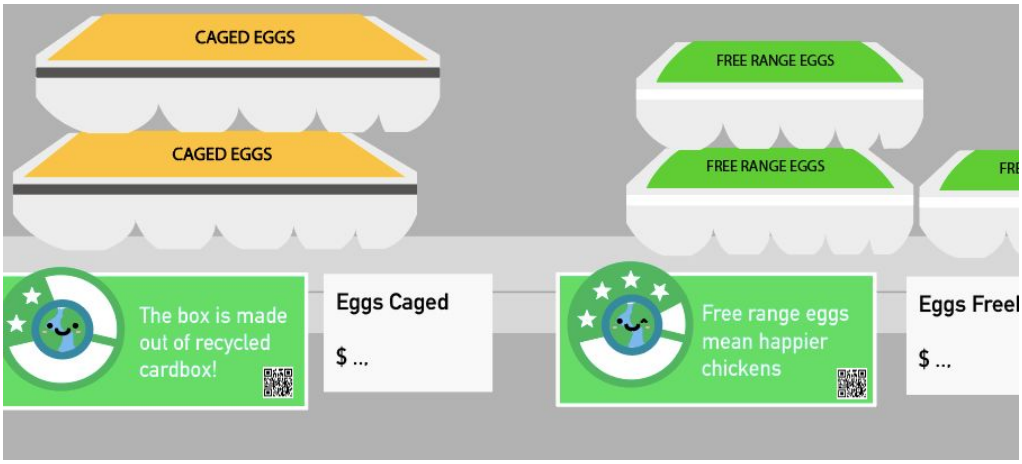


Figure 20: Visual mockup of tags with star rating on shelf

Figure 21: In-store examples of printed tags

The design is a short, descriptive tag next to the price tag with the rating displayed. For consistency of theme, the colour will be green to show eco-friendliness. Size of the tag does matter but can be different depending on the store setting.

As shown in the figures above, the earth emoji can also change in its expression depending on the rating of the stars. For example, the earth emoji can wink when the rating is four or above, potentially eliciting an emotional response to the user (positive reinforcement).

Optionally, a QR code can also be added to the label for users to gain extra information about the product and how it was assessed for rating. This also integrates seamlessly into the user's shopping experience, as most smartphones (which we assume most users possess one of in

2020) can open a QR code from its camera by the user simply pointing it at one. This is so that the extra-curious can gain more information about the trustworthiness of our system.

Checkout Station Interaction

Two out of three (Woolworths Group, Coles and Aldi) major grocery chains in Australia have self-checkout stores. Assuming that partnership is granted, these checkout machines provide a great opportunity for meaningful interactions with the shopper.

The capabilities of these machines include a big digital display (similar to the size of a desktop workstation screen), as well as an audio output to assist the user with the workflow (for example, it will say "please select a payment method" when the user finishes scanning the products.)

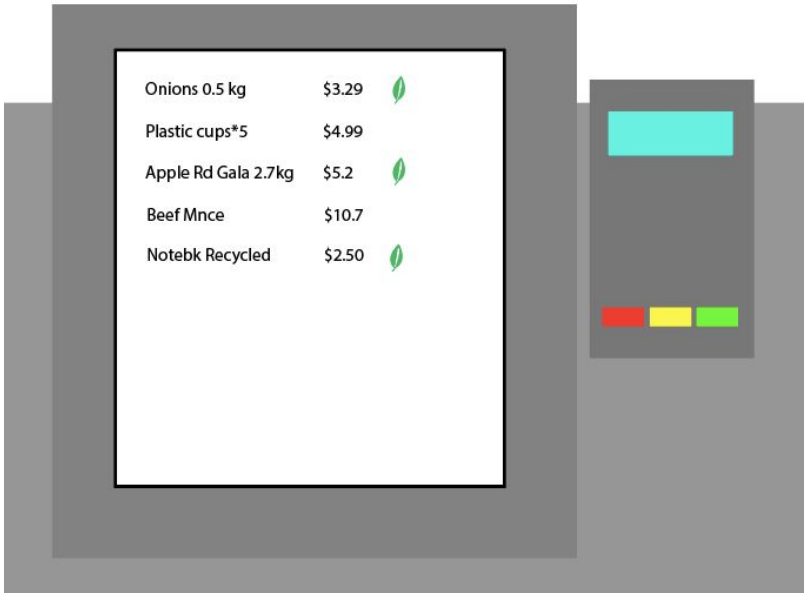


Figure 22: Visual mockup of item checkout screen customers would see

Visual indicators for an eco-friendly product being scanned can be added into the checkout process when the user is scanning items. The above figure is only to demonstrate that this could be done in a simple way (such as adding a green leaf icon next to the item being scanned), as the actual screens look different for each supermarket, thus the display will have to be augmented in slightly different ways.

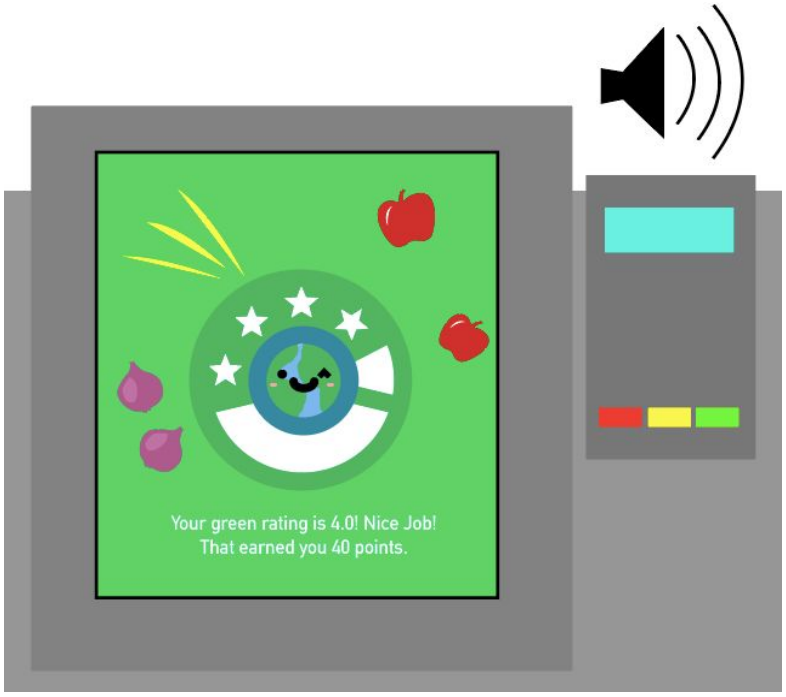


Figure 23: Visual mockup of green rating screen at the checkout machine

We have decided to design a visual display (as in, the content being displayed, not the hardware) along with audio elements to provide further positive reinforcement and elicit a positive emotional response from the user.

This screen will pop up after the user has finished scanning all the items, and before the payment takes place (because after the payment the shopper might hurry off). It displays the green rating overall for this shopping session (calculated by the average green ratings of the products purchased), as well as the points the user has earned.

The green rating for the session will also be announced over the audio mechanism of the machine. This is an element that can bring about community engagement and social pressure, as there is pride and prejudice involved with letting the other shoppers around you, often in close proximity as the checkout area can be quite small, know how you are impacting the environment. Awkward over-shoulder glances from other shoppers as the machine announces that you have only zero or one green star for your purchase can bring out feelings of shame and guilt, meanwhile more ego-centric shoppers might take a lot of pride in their five-star announcement.

This interaction encompasses the ‘giving feedback’ part of the habit forming interactions from the Harvard Business Review article (White, 2019) - "feedback sometimes tells people how they performed alone and sometimes compares their performance to that of others." By both showing the user their achievement and creating social comparison via audio output, our solution does both.

Tracking and Redeeming Rewards

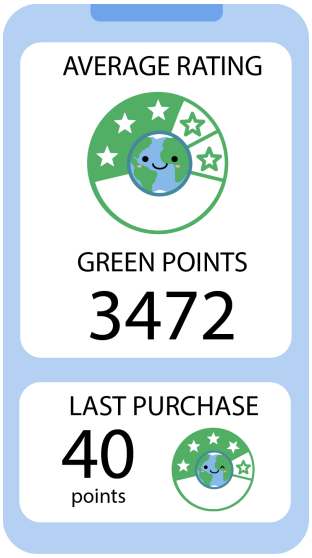


Figure 24: Experimental mock-up of tracking notification

Finally, the user would be notified of how many green points they have, and how they can redeem rewards using those points.

If the user provided contact details when signing up to the existing rewards system, the notification would be delivered in the form of a text message or email containing a one-time link that the user can use to track their points and redeem rewards. This takes the burden off the user to look for the web page themselves and make the user experience more frictionless.

This is the 'providing incentives' element of the three interactions from the HBR article about encouraging green behavioural change (White, 2019). This provides personal benefits as incentives to the user to keep them making green decisions, and forming it as a habit in the long term.

Interaction Flow

Based on the designs mentioned above, we have come up with an interaction flow that the user goes through during their shopping session:

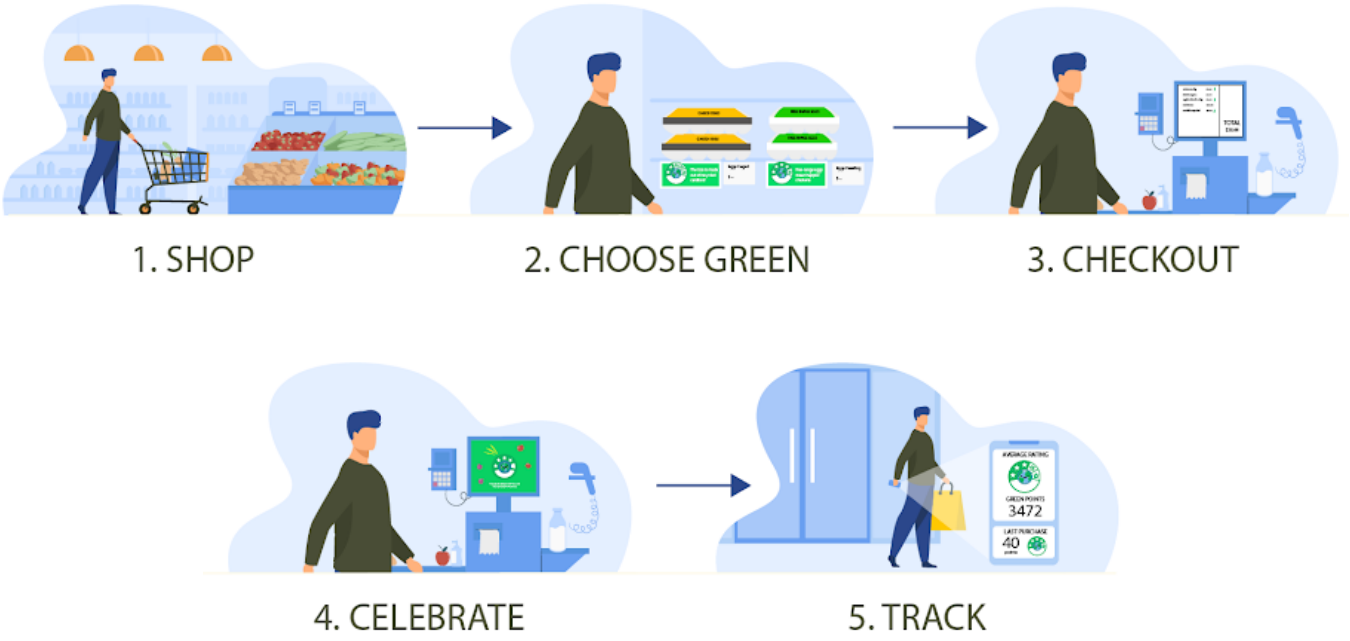


Figure 25: User shopping interaction flow

With every stage of the timeline, we have integrated our solution seamlessly into the user's existing shopping experience to increase awareness of climate change and get a chance to influence their choices to be more eco-friendly.

Gathering Feedback

Online User Survey

Upon finalising our solution choice, we sought information to better our understanding of user expectations. To do this, we knew we needed contact with consumers that would be impacted and/or would utilise the proposed solution. Unfortunately, given the current situation, we were restricted in methods of collecting this data. We constructed an online survey as a method of collecting information whilst adhering to government guidelines. This survey was distributed to members of the community that are believed to be general consumers: those that participate in regular grocery shopping, potentially use shopping rewards programs and would be able to benefit from the proposed solution. In this case, the distribution was relatively easy, as most people fit this requirement.

Over a total of 28 participants, 53.6 percent stated that they used a shopping reward system often, with 17.9 percent stating they used one always. This gives a total of 71.5 percent of regularly use a shopping reward system. This indicates that a high proportion of the population does benefit from using such a system, and thus linking a solution to this space could provide reasonable engagement with consumers. As well as this, 77 percent of participants answered that they keep track of their points using an application or website, which provides insight into the most popular methods of user interaction with a points-based reward system.

Additionally, we found through this survey that roughly 60 percent of participants are aware of the environmental impact of products they purchase in their weekly shop, with 93 percent showing they would be enthusiastic toward a points-based system that rewards consumers for purchasing environmentally friendly products.

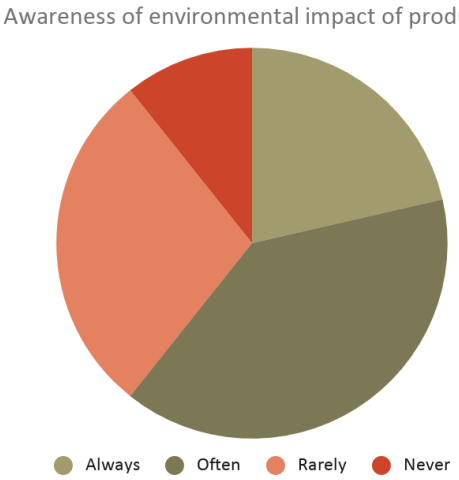


Figure 26: Awareness of environmental impact of products

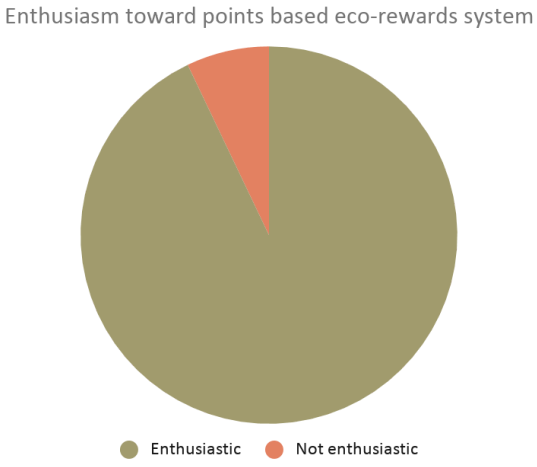


Figure 27: Enthusiasm toward points based eco-rewards system

Semi-structured Interviews

After the prototyping activities, we conducted semi-structured interviews to gather further user feedback, both about the solution as a whole and the prototypes we produced. Open-ended questions were designed to give the interview participants the maximum freedom to express their thoughts and feelings, thus allowing us to gather more in-depth, qualitative feedback.

Below are the questions/prompts we used for the interviews, as well as key responses. The full raw data is included in Appendix 2.

In the tables below, P# indicate individual participants, where # represents the participant number.

1. **If you were able to be rewarded for purchasing eco friendly products when shopping, what impact would this have on your shopping habits?**

Key Quotes	**Analysis**
"If I knew that there was a properly regulated organisation behind it, I would be encouraged. If I got any whiff that this was just a dodgy marketing ploy, I would be not at all interested." - P1	From the response, it seems like participant *A* is very aware of climate change and the consequences of real trustworthy review of a product versus a marketing ploy. Trust is a big element at play here. A degree of transparency in the process must be displayed to gain trust on users who really want to make a difference.
"When I shop, I don't tend to look for eco-friendly products … so it would make me think about it more … and for it to be on my radar when I am shopping." - P2	This response indicates that such a system would stimulate shoppers who normally do not intentionally look for eco friendly products to think about it more.

2. **How would it make you feel if such a system were introduced?**

Key Quotes	**Analysis**
"My immediate reaction would be suspicion … i think a lot of people hang off the 'eco' word, and if	The interviewee raises concerns about the motives of the program and the

it's about consumerism and eco, to me it's an oxymoron. " - P1	legitimacy of the term eco when used in product sales.
"It depends on the way that it was introduced because there are so many rewards programs and so many apps, and there are even so many apps bringing those rewards programs together ... it would depend on how easy it is to manage the rewards program (as a user)." - P2	Interviewee raises the issue of individual rewards programs and the effort required to manage multiple programs through multiple different interfaces, which further supports our proposal for integration with an existing system.

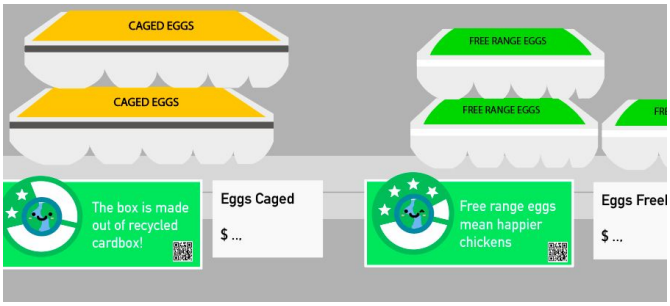
3. **When shopping, what is your experience identifying eco friendly products?**

Key Quotes	**Analysis**
"If I go to an eco store, I feel reasonably confident in the products, but still read the label. If I go to a general Woolies or Coles, I find it really difficult to see…those tricks of naming are annoying. I would like to see some sort of regulated indicator just like the 5 star health (rating) so that you could understand on a basis of packaging and product, what you're actually getting." - P1	An eco-friendly shopper would go to a eco store to buy eco-friendly products, but since our target audience is people who are not as environmentally aware, a regulated indicator would be very beneficial.
"I rarely stray from the brands that I know are eco friendly. I don't think I very often try a new brand, because I don't really trust that it's eco friendly. I think a universal certification would be incredible." - P2	This response seconds the first, in that shoppers being able to trust that a product is eco friendly will make a big difference in their decision making process.

4. **If tags like this were introduced to identify the 'green rating' of products, how would this impact your shopping experience?**

Key Quotes	Analysis
“Because I don’t know much (about eco-friendly shopping), that would probably influence me.” - P2 *“If you could prove that it was a justifiable evaluation, I think it’s a very easy way to show (their rating).” - P2*	Again, the evaluation of the product being justifiable would play a big part in the user's response. However, people who don't think on that same level of discretion would probably be more easily influenced - if they trust the labelling at face value.
“I would want to be able to see an indication of not only what the product does (the way it impacts the environment) but the sustainability of the packaging as well.” - P1	This suggests that the process of evaluating the health stars should be extensive enough to cover all bases.

5. **Observe the following image, which demonstrates how these ratings would be utilised. Are you likely to use such prompts to aid your decisions when shopping? Why/why not?**



Key Quotes	Analysis
“I think that the wording should come down to the branding of the product and that a symbol… should show the information enough that you don’t need a sentence.” - P1	Interviewee thinks that the text on the labels is unnecessary.
“Having the information accessible is a good idea, but how you present the information for the whole market is the other problem.” - P3	This brings up the issue of wider stakeholders ("the whole market") - information should be present in an

	accessible place to ensure visibility and transparency

6. **What would inspire your trust in this rating system? (the way it is created, who constructs the ratings, what is included etc)**

Key Quotes	**Analysis**
“Education of the user. You’d have to educate people (in an accessible way)... who authorised the certification, is it a government body? Who is responsible for overseeing the authorisation and monitoring the ongoing compliance with that certification?” - P3	Interviewee raises that there should be regular audits to renew certifications, to ensure the system remains reliable. Interviewee raises the ‘Made in Australia’ stamp as an example. It does not clearly identify whether something is just made in this country but from imported ingredients, whether its 100% Australian etc. There is ambiguity in the use of this stamp on packaging.
“It would be great if there was some sort of national body that was respected that actually managed the sustainability of products. “ - P1	A national body would increase the trust in the product ratings to ensure that the ratings are not biased by the supermarkets to increase sales

7. **What would prevent you from using such a system?**

Key Quotes	**Analysis**
“Unreliable branding." “The ease of accessing information - if that information is really hard to find or it seems to be buried... you want everything to appear that it is above board.” - P2	Information accessibility is a key to transparency - users have to be able to access the rating's information.
“Trust is a big thing for me.” - P1	This echoes many responses above: the user's trust in the system is the key to its success.

8. **What would incentivise you to use the system?**

Key Quotes	**Analysis**
"Being embedded in an existing rewards system…" - P2	This supports our goal of integrating into an existing rewards system
"If I had two products next to each other and I see a rating system that is really clear and I can see the environmental impact, I definitely will choose the one that is the best in terms of those criteria. So clean labelling, I think, does influence purchasing choice but I think there is a value based incentive there as well." - P1	When trying to decide between two products, users would also be incentivised by the value (cost) of the product, not just the ratings.

9. **How would you go about tracking your points?**

Key Quotes	**Analysis**
"I would love notifications to tell you when your points can actually get you something." - P2	Notifications can take the burdens off the user to actively track their points.
"I think it's good when they tell you (in store at POS verbally), that you've reached a point that you're going to get $10 off your purchase." - P1	Interviewee suggests that displaying progress via the checkout machine would be convenient.

Risks Identified

Socioeconomic Effects of COVID19

As of the time of developing this solution, Australia (and the world at large) is undergoing a crisis that has a significant impact on our economy. This leads to mass unemployment, an economic recession and many people forced to stay indoors due to health reasons. The economic damage caused by this pandemic is expected to take years for recovery. There might not be enough resources for such a large scale project to take off.

Due to this reason, another risk is that we haven't gathered sufficient user feedback, or that the feedback could be biased - we were mostly unable to do face-to-face interviews and resort to online methods. However, we are confident that based on the current feedback data that we have gathered, our solution is highly desirable and needed for informed, sustainable consumer decision making.

Lack of Control Over Cooperation of Supermarkets

Integration into any existing commercial solution requires a partnership of the third party. Therefore, the risk of supermarkets not being on board with our proposal always exists. One problem lies in motivation - the motive of a supermarket company and its rewards system is largely to encourage consumerism, to increase sales. Our motivation is different - we aim to educate users and change their buying pattern to be more sustainable to the Earth. If we fail to create a win-win situation (some form of financial incentive for the partnership), supermarkets are not likely to come on board with us. Other forms of motivation can help, such as media exposure (to boost the reputation of the supermarket brand as an environmentally friendly one).

The Road Ahead

Future Work Based on Feedback

The Rating System

As stated in the semi-structured interviews, an extensive, independent and transparent rating system for how "green" a product is will need to be implemented and a standards body be formed. This is slightly outside the current goal of our solution, as more specialised knowledge will be required to form such a working group. Therefore, it is not up to our team to formally design standards on which products will be judged, but merely that it has to be a transparent, independent and fair process. Without such a rating system, it is hard to earn the trust of the public regardless of how well our system is implemented, as reflected by many responses from the semi-structured interviews.

Deterring Consumerism

Another crucial consideration for the project build is the balance of rewarding customers for their purchases whilst also deterring consumerism. A typical ‘reward per purchase’ model may lead to our customers consuming more green-products to obtain more points, however, this type of consumerism will be counterproductive towards our goal. Thus the build team will need to determine the point reward algorithm which will incentivise customers to buy green alternatives but not to buy more than they normally would.

Business Model Specifics

Going forward with the project, specifics into the business model and flow of money will need to be thoroughly explored and determined by the build-team. Some of these specifics include:

- How much our customers are rewarded (including the dollar value per point - linking closely with size heuristics research mentioned in solution ideation)
- The costs of partnering with an existing rewards system company
- The costs of partnering with supermarkets
- In Australia, all operators that run loyalty schemes must comply with the ACL. This includes avoiding false leading statements or impressions, and unfair contract terms (ACCC, 2019).

It is crucial to the success of our project that these specifics are carefully considered in order to satisfy all stakeholders (including supermarkets, customers, green-brands and our partnered rewards system) whilst maintaining a sustainable revenue for the project operations as well.

Data Privacy & Integrity

As our solutions involve user data, it is crucial that data privacy and integrity is maintained.

User data must be stored securely. Data can be ensured to be protected following guidelines established by the World Wide Web Consortium (Hirsch, 2012). Among these guidelines, it is essential that the web-based solution maintains end-to-end security and it must be designed to be kept user-centric (Hirsch, 2012).

If cookies are used, certain countries maintain laws about visitor content. Although Australian law does not require the use of cookie consents, if the application is released worldwide, for example, the EU follows the GDPR guidelines for maintaining user data (Koch, 2020). Therefore, the web-based solution must be compliant with cookie rules.

Team Reflection

Over the course of the semester, our team has bonded well and worked to reach an efficient work speed and communication level. Initially, we met challenges with constructing our team completely online and arranging the best form of communication without the potential for physical meetings or in-person collaboration. We were able to overcome these challenges by holding zoom meetings two to three times a week and using Google Drive as an online file collaboration platform. This enabled us the freedom to work collaboratively and simultaneously on the same document.

All team members have maintained regular communication, and almost all meetings have had full attendance. On the rare occasion that someone is unable to make a meeting, they have always informed the team well in advance. Due to the online delivery of this course, we began the semester waiting for opportunities to gain feedback, such as in class; however, we have noted that this caused significant delays in our progress. Thus, we have made an effort to actively seek out feedback on regular occasions when needed, with the aim of delaying this unnecessary wait time we were previously experiencing. We continued this approach for the remainder of the semester which has allowed us the opportunity to work efficiently and productively.

To enable the structure to our workflow, we constructed a work plan early on in the project. We acknowledge that when created, this plan could not be fully detailed due to our lack of knowledge on the outcomes we would reach. We have worked to define specific goals and tasks throughout the design process, inclusive of team member allocation and expected completion dates. This has enabled us to work effectively as a team, and remain on track. We feel this is the main structure tool that has held us accountable and productive throughout the design process.

Project Progression

Throughout the semester the team has worked to ensure we are on track to meeting the goals of the project whilst also developing our understanding. Having identified climate change as our problem space, we were aware of its large scope and sought out an approach to narrow it down. Rather than simply picking an area, we worked to research four chosen sub-areas within climate change, to gain an understanding of the problem space as a whole, and uncover the potential for solutions within each area. With this knowledge, we were able to narrow down a sub-area that we believed would have the most significant impact for the largest number of people, and could be realistically conceived with our current level of knowledge. Through this process, we learned about the problem space, and the importance of the solution we would need to develop. However, less time could have been spent on researching these sub-areas of climate change — this time would have been better spent on conducting further research into our chosen target area.

Having narrowed down the problem space to an individual's perception and awareness of climate change, we worked to develop our understanding within this area specifically with further research. We also began looking into existing solutions within this space and potential solutions that would align with the goals of the team. After receiving feedback that we should consider solutions with a more physical integration, we arrived at a solution that would address that as well as our high-level project goals. Our green rewards solution will allow for seamless integration of the solution to everyday lives of users, increased knowledge on individual actions of the user to minimise their impact on climate change, as well as working to encourage behavioural change within users.

The strengths of our project include how the solution would impact a large number of people, as most people are consumers to some degree. Additionally, our solution provides a practicable way for such people to take action against climate change, which (as found through our research) is seen by many people as an abstract issue that individuals cannot affect. Furthermore, it would easily integrate into the existing routines of our targeted audience, which we found to be a positive factor in encouraging people to use a system.

One potential weakness of our solution is that it relies on integration with an existing third-party system and working with the manufacturers of green products — this may cause some issues in further stages of the development. We have acknowledged this and recommend this be confirmed by the build time at a later time. For the purposes of designing a technological solution, we have assumed this integration is possible at this stage.

Team Maintenance and Conflict Resolution

The teamwork experience was very smooth as a whole, but there were challenges that we faced along the way due to the unique circumstances this semester. To maintain even contribution, we had weekly / twice a week team meetings to work together and plan ahead for what needed to be done. At the end of each meeting, we would write down tasks for each team member and anticipated completion dates. During each Monday studio session, we would plan the next meeting during the week to check on everyone's progress. This enabled us to make regular progress as a team and avoid having team members with nothing to do.

Most of the semester was delivered online, which means team meetings were conducted remotely. This posed a unique challenge for scheduling weekday meetings, as team members had conflicting schedules. The team had to work around that by being flexible - sometimes having just a few members meeting and catching others up, or impromptu weekend meetings that were planned on the day or the day before.

To the pleasant surprise of most team members, the teamwork process was free of major conflicts - each team member contributed their part to the project so there weren't any disputes about workload, nor were there any personal conflicts between team members. We believe our

continuous organisation and planning assisted in creating an effective and collaborative team environment.

Working Plan

Design Proposal Plan				
Wk	Task Type	Task Description	Team member responsible	Due Date
4	Team	Team formation	All team members	23/3
		Topic discussion and selection	All team members	23/3
5	Team	Selection of problem space	All team members	30/3
		Identify sub-areas of interest to team	All team members	30/3
	Research	Research into 4 sub areas - Carbon capture - Renewable Energy - Independent awareness - Big data	Haoxi, Luke Chris Jess, Lorraine George, Haoxi	6/4
		Feasibility of solutions in those areas	All team members	6/4
		Impact each area has on community	All team members	6/4
6	Research	Complete research into each sub-section	All team members	8/4
		Target audience research	George, Chris	8/4
		Further research existing solutions	Lorraine, George, Jess	13/4
	Report writing	Construct basis for work plan	Jess	8/4
		Finish write out of background research	Chris, Lorraine	13/4
Mid-sem	Presentation	Prepare prezi	All team members	19/4
		Write out presentation script	All team members	19/4
	Report Writing	Stakeholder section - flesh out	George	20/4
		Conceptual Model	Haoxi	20/4
		Document flow	All team members	20/4
7	Research	Behaviour and motivation methods	Luke, George, Lorraine	4/5
		Seamless integration to a user's existing lifestyle	Haoxi	4/5
		Potential solutions - web focused	Chris	4/5
		Integration of solution within existing rewards programs	Jess	4/5
	Report writing	Incorporate early feedback into the report	All team members	4/5
	Submission	-Presentation - Monday 20th April in Studio	All team members	-

		-Report Submission - Thursday 23rd April		
8	Research	Further investigate solution ideas	All team members	4/5
	Report Writing	Narrow down shortlist of solution ideas	All team members	4/5
9	User Feedback	Construct user survey for chosen solution	Jess, All team members	11/5
	Report writing	Incorporate detailed report feedback - Provide detailed justification for decisions made - Remove research sections no longer required - Narrow down selection of a particular solution and refocus report toward this choice - Strengthen comparison of existing solutions - Narrow stakeholder definition - Conceptual model	Jess, Chris Haoxi Lorraine, Chris George Lorraine	18/5
10	User Feedback	Distribute survey for chosen solution	All team members	15/5
	Team	Team meeting - Wednesday 13th April 5:30pm	All team members	-
		Team meeting - Sunday 17th April 10am	All team members	-
11	Presentation	Incorporate immediate feedback into planning of next presentation	All team members	25/5
	Report Writing	Address new feedback received to date	All team members	25/5
		Restructure report doc to enable easier flow	All team members	1/6
	Submission	-Presentation - Monday 18th May in Studio -Report Submission - Feedback only - same day	All team members	-
12	Report writing	Reconstruct work plan	Jess	30/5
		Table existing applications we analyse, portray this neatly, understand how this applies to our solution understanding.	Chris	30/5
	User Feedback	Create semi-structured interview **depends on prototyping being completed	Jess	30/5
	Prototyping	System Prototyping - Timeline of how system is used (scenario) - actions it is involved in while shopping	Lorraine	30/5
		Design display of green star ratings	Haoxi	30/5
	Research	Fix the potential solutions' sections, adding analysis of types of reward existing systems.	Chris	30/5
		Research further into rewards systems and effective ways to capture consumer engagement	George	30/5
		Trust in the product ratings	Luke	30/5
	Team	Team meeting - Saturday 30th May 11am	All team members	-
13	Prototyping	Digital email receipt (incl. points and leaderboard rank)	Chris	8/6
		Justify prototype design and points system	Haoxi	8/6

		Audio interaction at checkout (+justification/discussion)	Haoxi	8/6
		Continue System Prototyping - Timeline of how system is used (scenario) - actions it is involved in while shopping, incorporating elements of other prototypes	Lorraine	8/6
	User Feedback	Conduct semi-structured interviews and collate data	Jess	1/6
	Solution Research	Reward and punishment - climate change (that article above this section?)	Chris	1/6
	Research	Research further into rewards systems and effective ways to capture consumer engagement (continued..)	George	1/6
14	Presentation	Script Writing	All team members	14/6
		Powerpoint Slide Content	All team members	14/6
15	Submission	Final Presentation - Monday 15th June in studio	All team members	-
	Report Writing	Style of Report (styled afterward)	All team members	
		Polish & finalise the solution ideation process	Chris	
S/E1	Report Writing	Incorporation of feedback from final presentation	All team members	1/7
		Reconstruct bibliography for new report version	Jess	26/6
		Proof-reading and ensuring feedback is addressed	Jess	28/6
E2	Report Writing	Proof-reading and feedback incorporation	All team members	30/6
		Reformating target audience section flow	George	30/6
		Formatting and filling in gaps	Haoxi	30/6
		Grammar checking and formatting	Chris	30/6
		Ensuring claims have relevant research cited	Lorraine	30/6
		Team report polishing	All team members	30/6
	Submission	Final Report - Wednesday 1st July 4pm	All team members	-

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Appendix

Appendix 1 - Additional Report Information

Appendix 1.1 - Additional Carbon Footprint Trackers

OROECO

Screenshots of Oroeco app (Chou J., 2018)

Oroeco is an app that calculates and tracks a person's personal impact on the climate, taking into account the user's home energy consumption, mode of transportation, diet, shopping and entertainment. It makes the user's carbon footprint more easily understandable, showing it at a personal level by allowing the user to compare their impact to their community through their *Facebook* account; therefore, the user's impact is more visible and they are kept more accountable for their choices:

> 'Pounds of CO2' — that's pretty meaningless, even for those of us who have been working in climate for a long time. What I want to know is how am I doing versus what's normal, how am I doing versus what my friends are doing, how am I doing versus what's actually needed to solve climate change — and versus what's actually achievable. (Larson, 2014)

The app links to the personal finance software *Mint* to automatically track the climate impacts of the user's spending habits and gives suggestions as to how the user could reduce their impact on the environment.

The app also incorporates elements of gamification, incentivising the user to make more environmentally-friendly decisions through a point system, levels and badges.

Strengths:

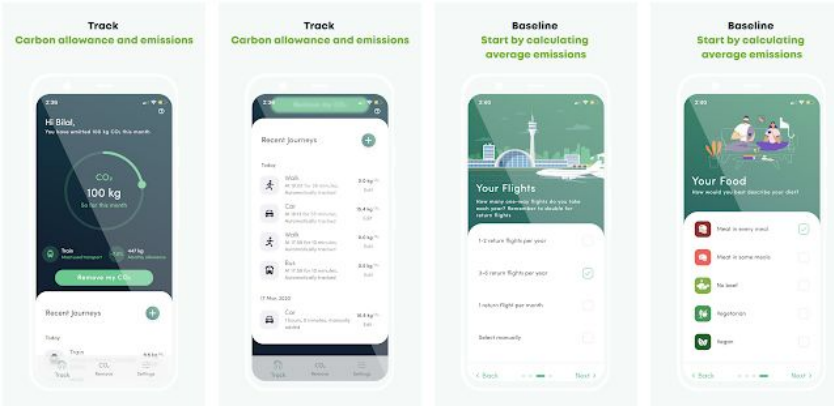
- Using gamification to induce environmentally friendly decisions for the user.
- Makes the user's carbon footprint clearly presentable to them.

Weaknesses:

- Difficulty in onboarding users.
- Requires full user attention while using the application.

Capture

Capture is a carbon emissions tracker that allows the user to sign up and track their daily carbon footprint in real-time. The user is able to select a project that offsets emissions from inside the app, and subscribe to offset their usage that is measured via GPS tracking.



Screenshots of Capture app (Stoker, 2020)

Strengths:

It is a good example of allowing the user to learn more about their carbon emissions, therefore enabling a sustainable daily lifestyle. The user is able to choose their favourite offsetting project, which will spark engagement and they will be more willing to be involved in CO2 offset.

Weaknesses:

Carbon is not immediately offset just by spending money, for example, it takes many years before trees have absorbed the carbon in certain projects (Shoult, 2020). Furthermore, the GPS technology used is an estimation, which reduces the confidence and accuracy of the application's reporting which.

Appendix 1.2 - Solution Ideation Additional Information

As these solutions are no longer being pursued further, additional information has been added to the appendix.

Embeddable Web Plugin (Continued)

This plugin requires active integration on the part of a company rather than the user. It requires incentive to showcase the plugin on their website, therefore selective installation would occur primarily with green-based companies. This would be based upon consciousness of reducing carbon footprint.

Web Browser Extension (Continued)

An extension is different to an application. Where an application permits a full dedicated user interface, the extension provides a minimalistic view. There is little to no UI component, so they are intended to be used to extend the browser's functionality (Mahemoff, 2010).

Therefore this extension is not intended to be used as a standalone UI, rather it is aimed to enhance the browsing experience of the user. For example, on shopping websites, the user may be shown alternatives that have less climate change implications. On company websites, the user can be shown data emissions visually. Therefore this solution aims to not create a comprehensive user interface, rather the focus is on other business entities, handling their data, and displaying this to the user in intuitive and engaging ways.

Appendix 2 - Interviews and Surveys

Appendix 2.1 - Semi-structured Interviews Raw Data

1. **If you were able to be rewarded for purchasing eco friendly products when shopping, what impact would this have on your shopping habits?**

“It depends on the product, I’m not going to buy it just for the sake of points.” - M
The interviewee implied that if the eco-friendly option could do the job, then they would be inclined to pick that over a standard alternative. - M

“If you went to a shop and you had two products next to each other, and one gives you eco rewards, and one doesn’t, I would be influenced towards the one that gives you rewards.” - A

Interviewee states that eco-friendly products are often more expensive, and rewards could compensate for this added expense. “If that (redeemable rewards) counteracted the expense of choosing the more eco-friendly option, I’d definitely be more inclined (to purchase the eco-friendly product).” - H
Interviewee states that cost is the biggest barrier against choosing eco-friendly options. They also raised concerns for incentivising consumerism - which we as a team will need to address and be aware of.
“There is getting the points for buying the eco friendly product... and even if that doesn’t encourage consumerism because its replacing an existing product, the accumulation of the rewards and the use of the rewards to buy another product is still potentially encouraging consumerism.” - H

Concerns were raised by multiple interviewees on the importance of trust in the rating system.

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2. **How would it make you feel if such a system were introduced?**

“It depends on the way that it was introduced because there are so many rewards programs and so many apps, and there are even so many apps bringing those rewards programs together ... it would depend on how easy it is to manage the rewards program (as a user).” - H
Interviewee raises the issue of individual rewards programs and the effort required to manage multiple programs through multiple different interfaces, which further supports our proposal for integration with an existing system.

“My immediate reaction would be suspicion … i think a lot of people hang off the ‘eco’ word, and if it’s about consumerism and eco, to me it’s an oxymoron. “ - A

The interviewee raises concerns about the motives of the program and the legitimacy of the term eco when used in product sales.

"You would need a whole different level of certification or a system to evaluate whether it's eco-friendly according to your rewards program or not." - H
"... I think communications and that trust (would be important), I'd be very suspicious." - A

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3. **When shopping, what is your experience identifying eco friendly products?**

"If I go to an eco store, I feel reasonably confident in the products, but still read the label. If i go to a general Woolies or Coles, I find it really difficult to see…those tricks of naming are annoying. I would like to see some sort of regulated indicator just like the 5 star health (rating) so that you could understand on a basis of packaging and product, what you're actually getting." - A
The interviewee states that in the past, they have been misled by product packaging that labels a product as Organix for example, but is not certified as an organic product.

"I rarely stray from the brands that I know are eco friendly. I don't think I very often … try a new brand, because I don't really trust that it's eco friendly." - H

When asked whether they believe this would be different if there was an easy way of identifying eco-friendly products on the shelf, the interviewee replied "I think a universal certification would be incredible." - H

4.

If tags like this were introduced to identify the 'green rating' of products, how would this impact your shopping experience?

"If I knew that there was a properly regulated organisation behind it, I would be encouraged. If I got any whiff that this was just a dodgy marketing ploy, I would be not at all interested." - A

“Because I don’t know much (about eco-friendly shopping), that would probably influence me.” - AH
“When I shop, I don’t tend to look for eco-friendly products … so it would make me think about it more … and for it to be on my radar when I am shopping.” - AH

“If you could prove that it was a justifiable evaluation, I think it’s a very easy way to show (their rating).” - H

“I would want to be able to see an indication of not only what the product does (the way it impacts the environment) but the sustainability of the packaging as well.” - A

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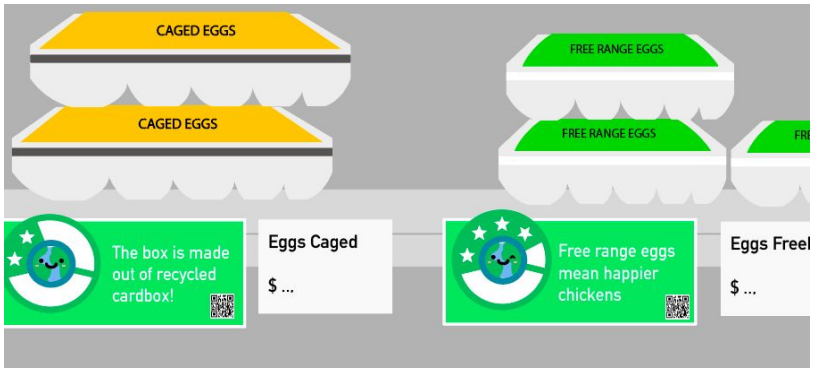
5. **Observe the following image, which demonstrates how these ratings would be utilised. Are you likely to use such prompts to aid your decisions when shopping? Why/why not?**



The interviewee states that if the information was accurate and certified then yes, it would help to make decisions. - M

“I think that the wording should come down to the branding of the product and that a symbol… should show the information enough that you don’t need a sentence.” - H
Interviewee thinks that the text on the labels is unnecessary.

“I like the idea of the QR code or some mechanism of being able to dig deeper into what the rating is. “ - A

Interviewee suggests embedding the QR code within the symbol.

“Having the information accessible is a good idea, but how you present the information for the whole market is the other problem.” - M
Interviewee brings this up in relation to the provision of information through a QR code and the customers that may be restricted in accessing this information.

Another interviewee suggests that the information be provided on the packaging and be the product's responsibility - they can only publish what they've been accredited for. - H
Interviewee raises the issue that labelling can just be 'wording on a box'. How can we ensure that the certification is legit? - as a team, we need to provide trusted info on where the certification came from, who supported it, when it was certified etc

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6. **What would inspire your trust in this rating system?**
   (the way it is created, who constructs the ratings, what is included etc)

"Education of the user. You'd have to educate people (in an accessible way)... who authorised the certification, is it a government body? Who is responsible for overseeing the authorisation and monitoring the ongoing compliance with that certification?"- M
Interviewee raises that there should be regular audits to renew certifications, to ensure the system remains reliable.
Interviewee raises the 'Made in Australia' stamp as an example. It does not clearly identify whether something is just made in this country but from imported ingredients, whether its 100% Australian etc. There is ambiguity in the use of this stamp on packaging.

"It would be great if there was some sort of national body that was respected that actually managed the sustainability of products. " - A

"The visual design style would really influence (me)." - H
Interviewee states that there is a lot of legitimacy on the presentation of a brand or etc and that the design of this labelling would influence trust within the certification.

Is it a matter of using the existing evaluation methods and deciding that under your rewards program… the products that you're going to call environmentally friendly are certified … under (a particular)... organisation." - H
Note from Jess - as a team, we don't want to bring in the mistrust in existing systems though

"Consumers are sick of being led by stuff, particularly when it's a value statement about the environment." - A

"I would need to know who was behind it, that it was an independent regulator and that it wasn't something one of the major (supermarkets) had set up." - A

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7. **What would prevent you from using such a system?**

"Unreliable branding." - H

“The ease of accessing information - if that information is really hard to find or it seems to be buried... you want everything to appear that it is above board.” - H

“Trust is a big thing for me.” - A

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8. **What would incentivise you to use the system?**

“Being embedded in an existing rewards system…” - H
Interviewee proposes charity element to rewards.

“If I had two products next to each other and I see a rating system that is really clear and I can see the environmental impact, I definitely will choose the one that is the best in terms of those criteria. So clean labelling, I think, does influence purchasing choice but I think there is a value based incentive there as well.” - A
This interviewee points out that consumers are also incentivised by their values as well.

9. **How would you go about tracking your points?**

“I would love notifications to tell you when your points can actually get you something.” - H

“I think it’s good when they tell you (in store at POS verbally), that you’ve reached a point that you’re going to get $10 off your purchase.” - A

Interviewee states that receipts may fill the gap for those customers that don’t have technological access. Legally, it’s required anyway, so maybe including it with that anyway could be an option.