

New *Scottish Tablet*[™] concept design for Silicon Glen

This is the detailed design process

For the [outline of design process](#) please refer to the [headline](#)

Goals & Objectives

As part of the design team for the new *Scottish Tablet™*.design, **prototype, evaluate and document** a new **tablet device** and **an app** to run on it. For the start-up company Silicon Glen.

The Scottish Tablet will be a world class product to rival and surpass the iPad, the Xoom and the Sony Tablet P and Tablet S. App must be designed to **support sustainable behaviour** on the part of its users.

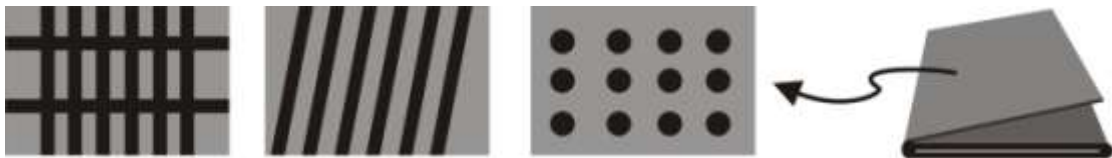
- **User Interviews and observation**
- **Identify design concepts**
2D sketch ,a target persona, a usage scenario
- **Scottish tablet 3D prototype**
- **Screen designs for App**
- **Photo storyboard.with Comic Life**
- **Write the report**
Evaluation for pleasurability and Critical reflection

2D sketch

Digi-wallet is a tablet which is made by a whole slice of flexible touch screen, the function of this tablet is as follows.

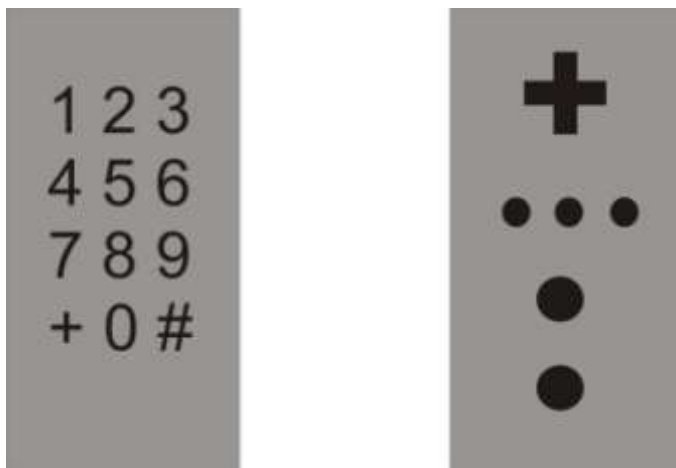
Personality

People can change the screensaver they love, so the surface of the digi-wallet is changed.



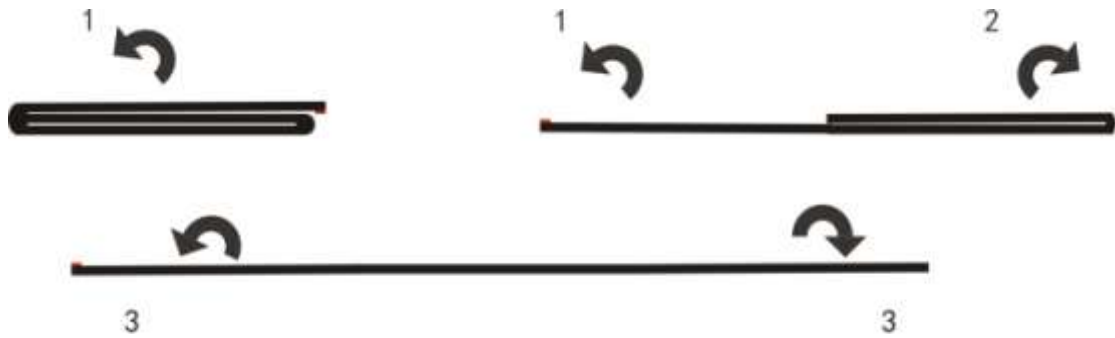
Function

Function as cell phone and Wii



Function as camera

Changing the display area, the size of picture also been changed. The small square near the side is the camera lens area.

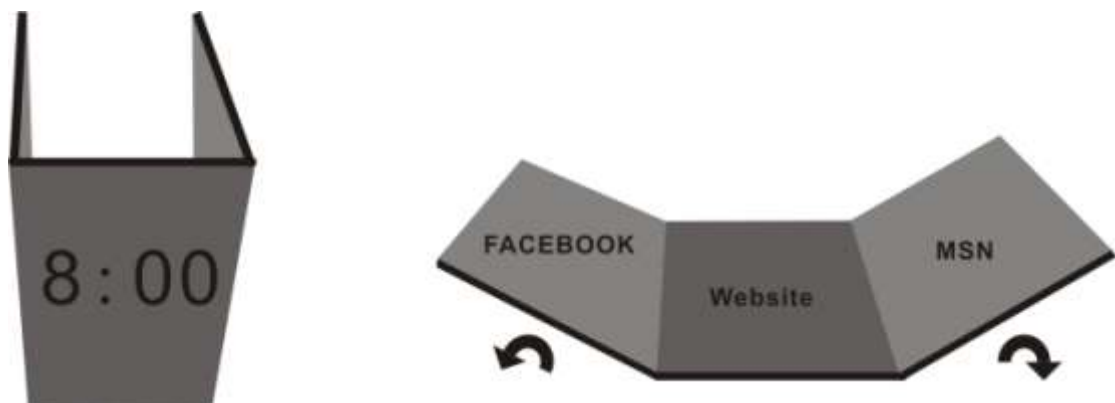


Enter password to startup the tablet The way to pay the digital money.

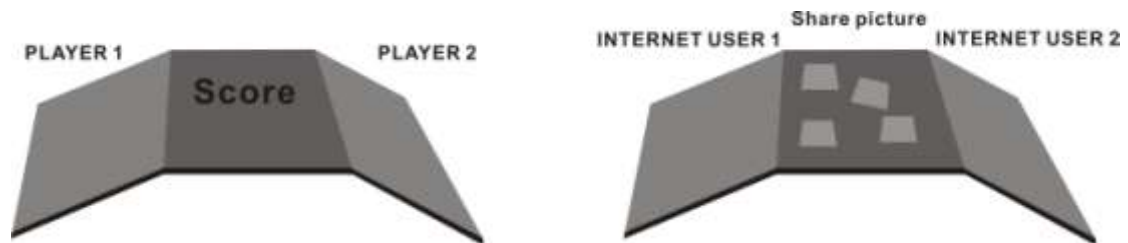


Alarm Function

One flexible screen folded into three screen



Play or Share with others



A description of the app

People receive a month's shopping list every month and get award money from the government (the money is derive from part of expense the government spending on coupe with Non-recyclable waste)

The Calculation of the award is as follows:

Using Non-recyclable product -1 0 Using recyclable product+1

So the shopping list provides information three kinds of information as follows:

- Prices of every product and total price of product every month. every week
- Green value (rate) of every product
- Description of the image of the contribution to social environment (using the way people easy to image) such as:

This month you save two trees by using recyclable product

This month you cut two trees by using non- recyclable product

This month you reduced one square meter land by using recyclable product
This month you increase one square meter pollution land by using non-recyclable product

So when people does not get the reward money, the app will give he or her advice about the reason he cannot get the money is because he used the Non-recyclable product like A B C which lead to -3 (The Calculation of the award are mentioned above) and also give him or her advice about the recyclable product which can replace the Non-recyclable one to get more money. When he goes shopping, he usually use his tablet to scan the product bar to find the green rate to find the recyclable one. And for the purpose of high sales the company tends to produce more environmentally friendly product.

The system is used in the world, When he or she go for a vacation to other country like France, he just use his tablet to take bus and shopping, people also can get the reward money like Drawback when he leave one country because he reduce the environment pollution for the country he visit by buying the recyclable product.

Persona



Summary

Jim Green is 28 year old single male who loves fashion, shopping, travelling and computer games. He likes do something simply and quickly.

Jim Green works as a Director of Human Resources at The Royal Bank of Scotland in Edinburgh. He has a moderate income. Jim is fun loving, cheerful in nature, but a little tempered and wants to do things quickly and efficiently. He attaches great importance to his health and always excises during his spare time. He does not suffer from any disability of auditory and physical, however, he has a slight myopia. He is familiar with office software such as PPT, Word, Excel and so on. He can learn software with simple function fast. He has a smart phone with a 3.5 inches touch screen, the operation system of the smart phone is Android OS v2.2. Jim tends to learn new software which

can improve his efficiency and finish task quickly, but he hates the software which is not stable and safe. He has lots of thing such as cell phone, digital camera, mp3, notebook, bus card and earphone in his bag, which leads to chaos in his pack. Most of his task takes place during 9am to 5pm from Monday to Friday. He goes to work by bus, spending about half an hour on the way to work. Jim usually read news from his smart phone and text with his friend on the bus during the way to work. He usually travels to other country such as France, German, Italy which language and culture is different from his country. When he looking the map on the cell phone and crossing the road during travelling he feels it is dangerous and the screen is too small for him to get the information. He likes large screen device such as ipad, however, it is not portable for him to travel. Now the technology like GPS positioning and flexible touch screen could solve the problem. Jim is very concerned with his cell phone privacy, so device privacy is very important. He likes to have things with his own unique personality. He has concept of environmental protection but he do not have the ability to identify lots of different materials when he go shopping.

Scenario

Jim is awakened by the open digi-wallet on the bedside cupboard at 8:00 am, then he closes the digi-wallet and the alarm stops ringing. He change the new screensaver which he downloaded yesterday and later he goes on the bus to the bar shop to have a new hairstyle for the new journey, on the bus he uses the two surface of the digi-wallet to surf on the internet to find a new hairstyle and one part of three to chat with his friend. After he arrives the bar shop, he show the hairstyle picture to the barber with his digi-wallet using whole three surface. Then he goes to France for travelling, because time is very tight, he does not have time to bank to exchange Euro on working day, he just use his digi-wallet to exchange Euro on line and the exchanged money is stored in his digi-wallet. After he arrives in France, he use GPS Navigation to find the place he want to go, the digi-wallet warning him notice the car when he go across the road. For the far tourist attractions Jim takes bus and using his digi-wallet to swipe the swipe card machine on the front entrance of the bus. When he go shopping in France, he tend to select the higher green value package because he received a shopping list last week showing that he did not have a chance to get the green reward money since he used lots of non-recycled packaged product at last month and said on the list that the total number of the non-recycled packaged product is equal to cutting two trees last months, which made Jim depressed. He goes the cashier and the different cash and coins of Euro are display on the digi-wallet screen, so Jim touch the digital visualized money direct to the receiver to pay the money. On the airport before he go back to UK, he receives a shopping list about his shopping details in France and a reward email says here is the reward fee the

government giving to him because he reduced the pollution for the country during his France trip.

How I have applied the results of user research in my designs for both tablet and app

The user research results from the interview are as follows.

TABLET

- People use the tablet for
 - a) Reading (e.g. using it as a newspaper or magazine on the bus, at lavatory and when waiting for someone)
 - b) Showing(e.g. showing the hairstyle picture to barber when hair cutting, Ask for directions when travelling and show materials to colleague when discussing in group work)
 - c) Input (use as notebook for handwriting and play game like SONY pas or Wii)
- People's complains about the tablet are
 - a) No personality (e.g. all the shape of ipad is same)
 - b) Not portable(the current tablet is too big and hard to take it to anywhere like cell phone)

I focus on reading, showing and input, take the personality and portable design into consideration, using one flexible touch screen folded into three screen to solve the problem of potable and using changing screensavers way to expand diversity.(detail please refer to the description of the Scottish Tablet and a 2D sketch)

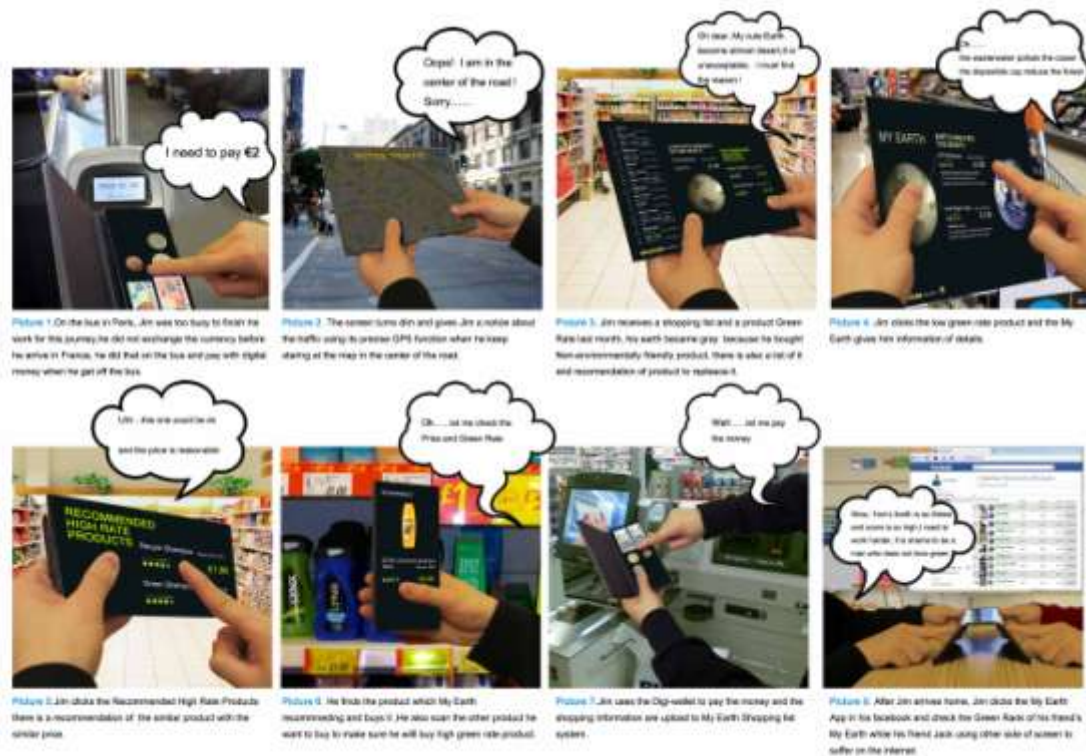
APP

People tend to more focus on convenient when considering the product rather than think lots of environment issue, so urge people to use more environmentally friendly products instead of only considering the convenience is the key goal, I summarize the method in three ways as follows.

- Interest people to use environmentally friendly product
- Force to people to use environmentally friendly product(not user friendly)
- To help people build good values of using friendly product(need long time)

And the first way is easier to imply, I take advantage of people's desire of understanding of consuming details and people's love to money to design the shopping list counting system and using green package rewarding system for the app.

3D prototype & Photo storyboard




Screen designs for App

1.0	Apricots	2.100	4 Oct 2019
1.0	Beans - Runner	1.100	1 Oct 2019
1.0	Peas	1.100	1 Oct 2019
2019	Cheese - Cheddar - Grated	2.100	22 Oct 2019
2019	Onion	2.100	22 Oct 2019
1.0	Baked beans	2.100	22 Oct 2019
2019	Carrot & On	2.100	22 Oct 2019
1.0	Basil - Fresh	1.100	27 Sep 2019
1.0	Beans - Runner	1.100	27 Sep 2019
1.0	Apricots	2.100	4 Oct 2019
1.0	Beans - Runner	1.100	1 Oct 2019
1.0	Peas	1.100	1 Oct 2019
2019	Cheese - Cheddar - Grated	2.100	22 Oct 2019
2019	Onion	2.100	22 Oct 2019
1.0	Baked beans	2.100	22 Oct 2019
2019	Carrot & On	2.100	22 Oct 2019
1.0	Basil - Fresh	1.100	27 Sep 2019
1.0	Beans - Runner	1.100	27 Sep 2019
1.0	Apricots	2.100	4 Oct 2019
1.0	Beans - Runner	1.100	1 Oct 2019
1.0	Peas	1.100	1 Oct 2019
2019	Cheese - Cheddar - Grated	2.100	22 Oct 2019
2019	Onion	2.100	22 Oct 2019
1.0	Baked beans	2.100	22 Oct 2019
2019	Carrot & On	2.100	22 Oct 2019
1.0	Basil - Fresh	1.100	27 Sep 2019
1.0	Beans - Runner	1.100	27 Sep 2019

LOW RATE PRODUCT IN THIS MONTH

HTN Shampoo Source: HTN CARE
★★★★★ **£1.09**



RECOMMENDED HIGH RATE PRODUCTS

Recyer Shampoo Source: RCV ETC
★★★★★ **£1.06**

Green Shampoo Source: Green UK
★★★★★ **£1.19**

HTN CARE Green Rate

MY EARTH

EARTH ANALYSIS THIS MONTH

HTN Shampoo Source: HTN CARE
★★★★★ **£1.09**
PACKAGE: NON-RECYCLABLE PLASTIC
THE WASTEWATER FROM PRODUCING
NON-RECYCLABLE PLASTIC POLLUTE YOUR OCEAN

Hv4 Paper Cups Source: Hv4 Group
★★★★★ **£1.25**
MATERIAL: WOOD
THE DISPOSABLE CUP IS MADE FROM WOOD WHICH
REDUCE THE FOREST COVER OF YOUR EARTH




HTN CARE Green Rate


SCAN RESULT



SEDAL Essences Shampoo
180ml

Source: GKR

★★★★★ **£2.09**



facebook

Update status Add photo/video Ask questions

What's on your mind?

FRIENDS RANKING

	Friend	Points	Score	Level	Total Score
1	Angie Fox	100%	100%	1,000%	100,000
2	Tim Stone	80%	80%	800%	80,000
3	Wendy Smith	60%	60%	600%	60,000
4	John Smith	40%	40%	400%	40,000
5	Tyler Lupton	20%	20%	200%	20,000
6	William Rutherford	10%	10%	100%	10,000
7	Robbie Lee	5%	5%	50%	5,000
8	Lee Stone (2018)	2%	2%	20%	2,000
9	James Stone	1%	1%	10%	1,000
10	Theresa M. Stone	0.5%	0.5%	5%	500

SLIDE DIG-MONEY TO PAY

TOTAL: £116.35








12 38

FR MAY 22 2018

1

2

3

4

5

6

7

8

9

*

0

#



CALL



















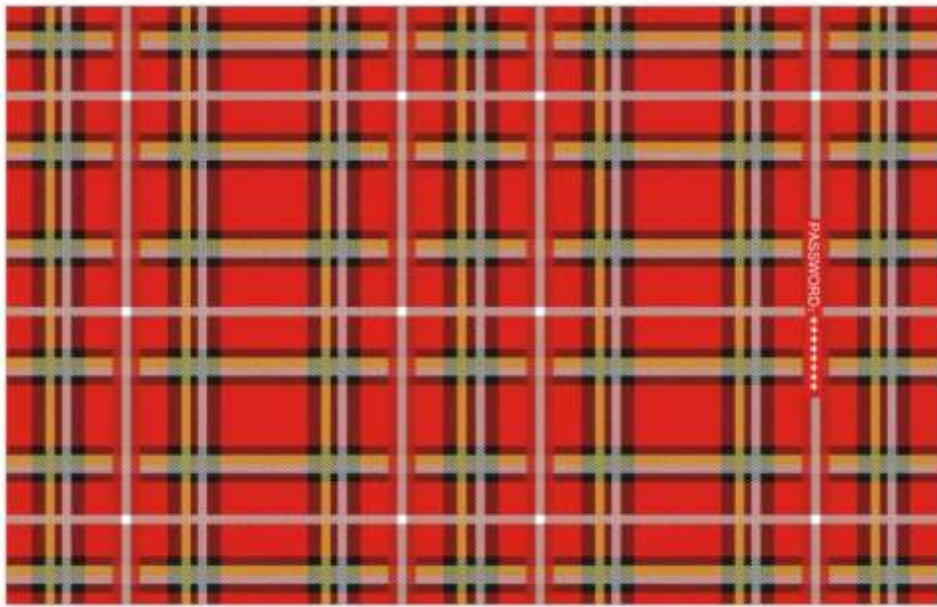
PASSWORD: *****

Gaelinn 33 421F Gaelinn 33 421F
 Rando 32 8721F-1518 Rando 32 8721F-1518
 b12 b12

CELTIC2 0-0 HEVL 0-0
 HEVL 1/01 JOE
 CELTIC2 1/15

CELTIC3 112 HEAT 0-0
 CELTIC3 F/01 106

CELTIC4 0-0 HEAT 0-0
 P15 P15
 Rando 25 8AST.9-12F8 Rando 25 8AST.9-12F8
 Gaelinn 22 451L Gaelinn 22 451L



*****080W55V4

Report

Pleasure Test

This report describes the results of evaluating the tablet called Digi-wallet and the app running on it for perceived pleasure in use. A questionnaire— Pleasure with products(adapted from Jordan(2000),pp156-157) was used to evaluate the tablet and app. Tiger’s 4 pleasures(Tiger (1992) ‘The pursuit of pleasure’) is another reference for the evaluation of the pleasures of the tablet and APP.

The tablet Digi-wallet and the APP (Reward System) which was improved before were test by six users by ways of scoring, the test result is as follows:

(Strongly Disagree-0, Disagree-1, Neutral-2, Agree-3, Strongly Agree-4)

	Tablet	Total score: 205
1	Feeling attached	29
2	Satisfaction	21
3	Feeling Entertainment	21
4	Enjoy having it	21
5	Looking after it	21
6	Enthusiastic	20
7	Feeling excited	20
8	Be proud of it	18
9	Sense of freedom	17
10	Relying on it	17

	App	Total score:144	Average before	Average after
1	Feeling attached	19	3.1	3.5
2	Relying on it	18	3	3.5
3	Enthusiastic	17	2.8	4
4	Be proud of it	17	2.8	3.5
5	Sense of freedom	17	2.8	3
6	Satisfaction	16	2.6	3
7	Feeling excited	14	2.3	3.5
8	Feeling Entertainment	14	2.3	4
9	Enjoy having it	14	2.3	3.5
10	Looking after it	14	2.3	4

As can be seen from the results that the tablet Digi-wallet(205 points) is more pleasurable than the APP(Reward System) (144 points), however, the shortcoming of the Digi-wallet is its sense of pride, freedom and reliability which need to be improved. The low score of APP from the statistics demonstrates more works should be done to improve the pleasure of the APP.

The game My Earth was designed to replace the dull Government Money Reward System because the latter is negative for pleasure and is hard to carry out. The other two users were invited to take part in the new evaluation of the App and Tablet, the pleasure of the App was significant improved as can be seen from the average point above table, but the sense of freedom and satisfaction is medium, People might have a little Psychological stress that their earth would be desert if they do not care about the environment problem.

The Tiger's 4 pleasures were used to test the pleasure of tablet and App and the result of every statement shown in the table below can be coupled with questionnaire above for pleasure evaluating.

Test by 4 users	Tablet	App
Physio-pleasure	<ul style="list-style-type: none"> ● Portable: 4 yes/ ● Flexible: 3 yes/1 no 	Easy to touch: 2 yes/ 2 no
Socio-pleasure	<ul style="list-style-type: none"> ● My friends would be envious: 3 yes/1 no ● I feel distinguished: 4 yes/ ● Easy to share my life: 2 yes/ 2 no 	<ul style="list-style-type: none"> ● My friends would be envious: 2 yes/ 2 no ● I feel distinguished:1 yes/3 no ● Easy to share my life :3 yes/1 no
Psycho-pleasure	<ul style="list-style-type: none"> ● Make life easier: 3 yes/1 no ● Easy to use: 2yes/ 2no 	<ul style="list-style-type: none"> ● Make life easier: 2 yes/ 2 no ● Easy to use: 4 yes/
Ideo-pleasure.	<ul style="list-style-type: none"> ● Owning an hi-tech-device: 3 yes/1 no ● Free App: 4 yes/ 	<ul style="list-style-type: none"> ● Free App: 4 yes/

Critical reflection on the design process

In this paper, I reflect on the design process of App, a design to encourage people to use more environmentally friendly products. The human-being instinct is considered as the core element in the design process, it is coupled with user needs became the source of idea generating. The whole App design process is concern with the aspects of usability, accessibility, aesthetics and environmental responsibility, they were used as a evaluation criteria to test and improve the design.

The original idea of the App is derive from rewarding aspect, since it is hard for people to use environmentally friendly products in the context of their interest were been damaged, particularly in relation with money because the price environmentally friendly products tend to higher than the price of ordinary product in many areas. Encouraging people to use environmentally friendly products by rewarding such as government pay some money to individuals can be considered as a way to achieve the goal but it will be accompanied by many problems when usability, accessibility are taken into consideration. The feedbacks from the user are as follows:

- In terms of government, user doubts whether the government could not afford so much money for rewarding people, even though the government can afford it, individuals could not get lots of money.
- With regard to people, the little money people get from the government as a reward could not encourage people efficiently because they could not get enough power to use the use environmentally friendly products.
- From the evaluation of the pleasurable of the App(Reward System) using a Pleasure with products questionnaire(can be seen from the part 2 report), the statistic shows that people tend to be accept for the shopping list function as it provides useful information and people feel more attached and reliable on it. However, The score of user's sense of feeling excited, feeling entertainment and enjoyment is very low. It reflects the pleasurable of the App is not strong enough.

A design compromises was made to improve the pleasurable experience. The shopping lists and the green rate information function were preserved. What has been modified is the final rewarding function. Using a game called My Earth to replace the rewarding function is a better way to make the App more easily to achieved and pleasurable. The green rate of product is coupled with the game My Earth, a game similar with electronic pet. The analysis of this new design is as follows:

- **Usability**

My Earth is design as a electronic pet, it is easy to operate and learn and remember the function after use. The product people use can influence the earth is common sense, so it is easy to be accepted by people.

- **Accessibility**

The App is realistic to today's technology and easy to be used in Facebook and Twitter. Because it is designed for common sense as mentioned above ,there is not cultural constraints. It is simple and focus on

- **Aesthetics**

The interface is designed using poster effect, the colour of text is changed with the change of the earth surface condition.

- **Environmental**

Because the green rate of product people use will influence the health of App My Earth. People's intuitive such as competing with friend on the green score on the Facebook and concerning about their own area will encourage them to use more environmental product. The analysis of why the product influence the My Earth is a good way to popularize environmental protection knowledge.

The disadvantage of the App can be seen from the questionnaire is that the sense of freedom and satisfaction is medium, which might derive from people's small Psychological stress during use the App.

In sum, user test and data analysis are effective way to improve the design during the design process.