

Plant Match

A project on unity of human and nature

Student name: XIA Yinyi, Number: 853283

Course: Laboratorio di Sintesi Finale

Faculty: Design del prodotto per l'innovazione, A.A 2016/17

Relatore: Giulio Ceppi

*Co-relatore: Massimo Facchinetti, Francesco Samorè,
Emmanuele Villani, Paolo Volontè*





Content

Abstract EN/IT

Chapter I: Interactive-green Lifestyle 2025

1.1 Scenery: Stressed planet, fast rhythm cities

Megatrend I: Planet Under Stress

1.1.1 Urbanization and environmental problems

1.1.2 Depressed citizens

1.2 Trend and solution: sharing, interactive green lifestyle

Megatrend II: New Welfare

1.2.1 Case of study I: Vertical ForestING, a global “green” trend

1.2.2 Case of study II: Mobike, “sharing” make a better city life

1.2.3 To be interactive...

1.3 Potential marketing

Megatrend III: Social production and Co-creation

1.3.1 Analysis of potential suppliers

1.3.2 Project Position

1.3.3 Potential users

1.4 Geography, society: Asia, developed but complicated

1.4.1 The green cover in main cities in East Asia

1.4.2 Social problems: environmental attitude, economy distance

Chapter II: Inspiration: TM Unity of man and nature

2.1 The special relation: poetic description

2.1.1 Plants described in poems

2.1.2 the “Four”

2.1.3 Plants in the traditional oriental gardens

2.2 Similarity and differences

2.2.1 Meridians of plants and human body

2.2.2 The organic differences

Chapter III: The senses

3.1 The five senses of plants

3.1.1 sight

3.1.2 hearing

3.1.3 touch

3.1.4 smell

3.1.5 taste

3.2 The sixth sense

3.2.1 6th sense and way of communications of plants

3.2.2 6th sense of human-being

Chapter IV: Technology

4.1 Future technology for human-body

4.1.1 Nanotechnology and health: cell-tracking

4.1.2 Case of study: Fitness trackers

4.2 Hi-technology and plant

4.2.1 How technology help us to communicate with plants





4.2.2 Case of study: “Music of plants”

Chapter V: Plant Match

5.1 The project system: Product as a tool

5.1.1 First concept

5.1.2 Main functions

5.2 Final Concept

5.2.1 Product: base pot and branch

5.2.2 App

5.2.3 Logo

Conclusion

Reference



Abstract | EN

The aim of my thesis project is to create the interaction between human and nature, using the product as a tool. Meanwhile, a product system is designed in order to improve interactive between human-beings as well.

The theme of this thesis is Nanotechnology X sixth sense, taken 2025 as the year of scenery. For me, in the next 10 years, the society would be consisted by the development of high technology, mainly nanotechnology, as well as the changes of human behaviors: the feelings and health, both physically and mentally, the respect not only for each other, but for nature.

For me the technology plays an important role for the whole project, the nanotechnology in my project is a tool to connect human body and plants, that enables human-being to see the improvements of themselves and the plants that they cannot see through their own eyes.

I have been affected by the oriental culture since I was born, so I take it as the inspiration for the whole project for this thesis. I would like to design a product

system, combining the technology and the concept together with my own culture. Especially, I am inspired by the poetic concept: “ the unity of nature and human ” which means the integration of nature and human, it is an ideal condition that the senses of human-being could be connected with that of plants, this oriental concept reminds me the meaning of sixth sense.

There are 4 main parts of research in this thesis before it reaches the final project, in the first part of this thesis I would explain the scenery: what would happen in the year 2025, how people would behave, how the society would be. The second part and the third part tells what is the meaning of sixth sense for me, both on the sides of culture inspiration and the theory basic of senses. The last part is all about the research of technologies and materials.

The final project intends to match human body with plant based on their own characteristics in order to find people their own plant after which they could improve together.

Abstract | IT

Il progetto di questa tesi intende a creare l' interazione tra gli uomini e la natura, usando il prodotto come uno strumento. Il progetto contiene un sistema di prodotto per migliorare anche la relazione sociale, la comunicazione e interazione tra le persone.

Il tema di questa tesi è Nanotecnologia X il sesto senso, prendendo anno 2025 come il periodo di scenario. Secondo me nei prossimi dieci anni, la società svilupperà con l' alta tecnologia come nanotecnologia, insieme al cambiamento dei comportamenti umani: la sensazione, la salute sia fiscale che mentale, e il rispetto agli altri, specialmente alla natura.

La tecnologia ha il ruolo di uno strumento in design per me, in questo progetto uso la nanotecnologia nel prodotto per collegare il corpo della umana con la piante, per farsi possibile vedere i micro cambiamenti che non riescono a vedere con i nostri occhi.

La mia ispirazione del progetto è la cultura orientale. Volevo combinare la tecnologia, e il concept con questa cultura speciale. Soprattutto sono ispirata dal concept poetico “unità di natura e umana”, significa l' integrazione di umana e natura, è una

condizione ideale che il senso umano può collegare con quello di piante. Questo concept orientale mi ricordo del significato del sesto senso in questa tesi.

Ci sono quattro parti della ricerca e analisi in questa tesi. Nella prima parte è stato spiegato lo scenario del progetto finale, cosa succederà nel anno 2025, come le persone comportano, come la società dopo dieci anni; La seconda e terza parte della tesi spiegano il significato del sesto senso nel mio punto di vista, dal punto di cultura e dal punto teorico sul senso. L' ultima parte mostra tutte le ricerche e i casi di studi della tecnologia che uso per il progetto finale.

Il progetto finale intende di mettersi insieme una persona e una piante dipende le loro caratteristiche, le loro condizioni e le loro similarità. Dopo il match, loro possono migliorare le loro condizioni insieme.



Chapter I:

Interactive-green Lifestyle 2025

The future 2025, belongs to the Generation Y, who has the early 1980s as starting birth years and the mid-1990s to early 2000s as ending birth years. As a much active generation than ever, they are willing to be contributors, to focus more on social welfare and sharing, communications with each other. Even with the development of high technologies, they will take the responsibility to protect our planet from the stressing condition, and will accept the advantages of agricultural lifestyles, to live in an interactive lifestyle with green concept.

For this thesis scenery year 2025, I

choose three Megatrends that I consider they are and will still be the concentrate points of whole world, especially in the developing continents such as Asia: Planet Under Stress, New Welfare, Social Production and Co-creation.

In this chapter I would introduce the scenery of my thesis project: Why I choose these 3 Megatrends, where would my project be realized, who would be the potential users and market suppliers, producers.

1.1 Scenery:

Stressed planet, fast rhythm cities

Megatrend I: Planet Under Stress

Nowadays the global environmental problem has gathered our concentration and the lack of resource has already caused the social problems, so it has already been and will be a problem that we will face and to find the solution to deal with in the future 2025.

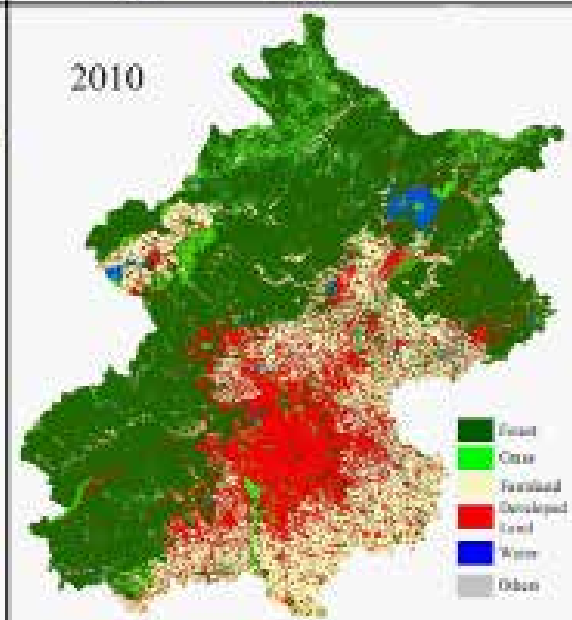
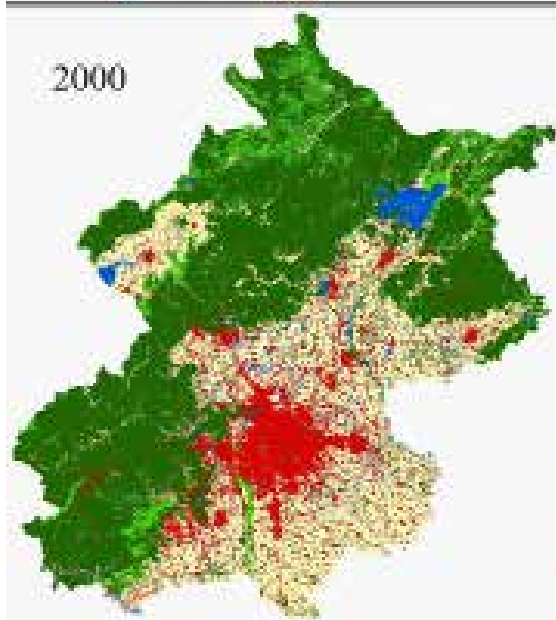
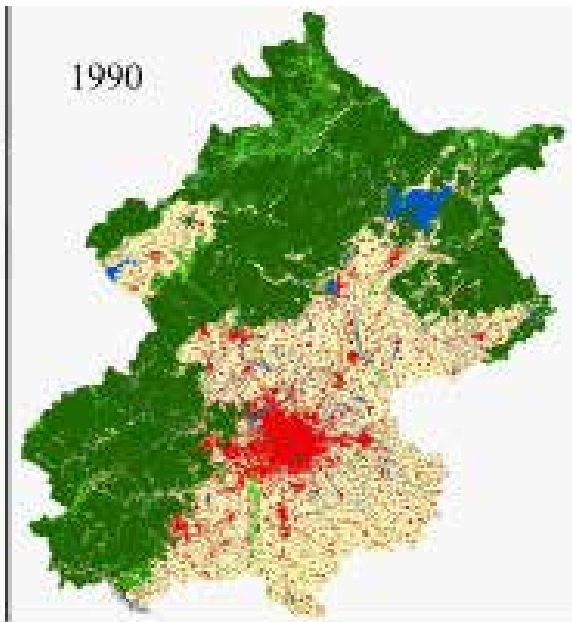
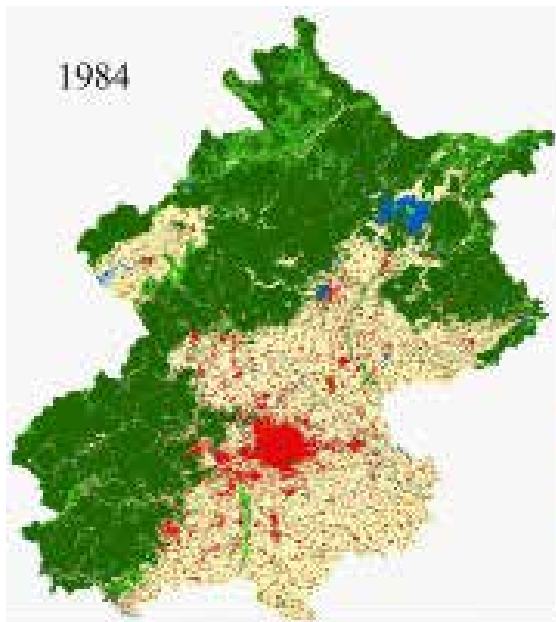
What's more, we are now living in an age that not only the planet faces the stress, also us human-being, most of us do not even have time to take a break and have a glance at the quality of our life, and this sort of lifestyle causes the mental stress also for the whole society, it focuses more on function instead of humanity. So it is credible that somehow the future also means to stop, to focus more on ourselves, to be healthy physically and mentally.

1.1.1 Urbanization and environmental problems

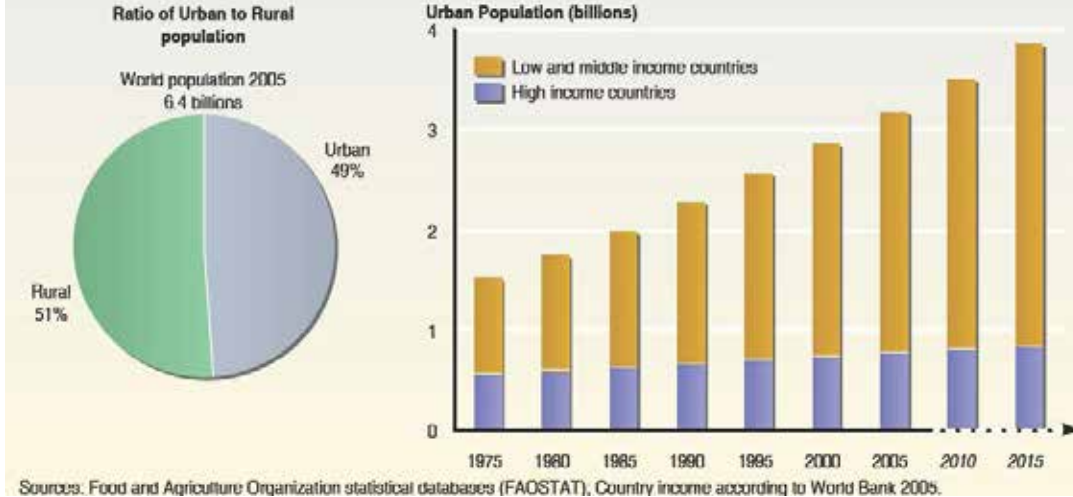
Urbanization and climate change may be the two most important trends to shape global development in the decades ahead.

The situation would bring us both positive and negative parts. On one hand, urban cities have the potential to serve as engines of change, driving economic growth in some of the world's least developed countries and pulling more people out of poverty than at any other time in history. However, the development of urban cities requires and lies on the industry, and this would cause pollution in the cities and even global climate change, it could undercut all of this by exacerbating resource scarcity and putting vulnerable communities at risk from sea level rise and more storms.

According to GHO (Global Health Observatory) data, the global urban



Urban population: status and trends



population is expected to grow approximately 1.84% per year between 2015 and 2020, 1.63% per year between 2020 and 2025, and 1.44% per year between 2025 and 2030. It is also said that by 2050, 70% of the world's population will be urban.

Together with social and economic benefits of urbanization, especially environmental problems. Cities comprise less than 3% of the planet's surface, but there is an extraordinary concentration of population, industry and energy use, leading to a massive local pollution and environmental degradation: approximately 78% of carbon emissions are due to human

activities in the cities.

By 2020/2030, there would be an age that not only the planet faces the stress, also people live in the city, they risk their everyday life facing the environmental problems, the stress of the planet, as well as the stress of themselves, physically and mentally.

In the cities of the developing world, where population growth is over the ability to provide the need of urban infrastructure and services. At the same time, the most serious environmental problems are expected in the immediate vicinity, with serious economic and social impacts on



the urban population. Cities in developing countries are also faced with the worst urban air pollution, which occurs as a result of rapid industrialization and increased motorized traffic. It is estimated that worldwide urban air pollution is cause of one million premature deaths each year and costs 2% of the GDP in developed countries and 5% in developing countries, take Peking, the capital city of China as an example, the citizens of whom suffer from the smog every winter in these 5 years, they have to wear masks to protect

themselves. It is reported by Xinhua, one of the biggest newspaper in China, “ Smog invades Beijing, China’s officials have controversially decided to classify as a ‘ meteorological disaster’ ”.

Since the living environment problem has gathered our concentration and the lack of resource has already caused the social problem, so it has already been and will be a problem that we face and find the solution to deal with in the future 10 years.

1.1.2 Depressed citizens

With the problems of this planet mentioned upon, human-being are facing not only physical problems, like diseases caused by air pollution, also, their mental health condition is getting worse.

As one of impacts of urbanization, the reason of increasing number of mental disorders has been studied by many professional organizations. A report by World Health Organization (WHO) has enumerated that mental disorders account for nearly 12% of the global burden of disease. By 2020, these will account for nearly 15% of disability-adjusted life-years (DALYs) lost to illness. Incidentally, the burden of mental disorders is maximal in young adults, which is considered to be the most productive age of the population. Developing countries are likely to see a disproportionately large increase in the burden attributable to mental disorders in the coming decades.

A recent research says that two-fifths of freshmen at Peking University, one of the most prestigious universities in China, thought of life as meaningless.

The revelation has attracted much attention in China. Meanwhile, it's not rare to see lethargic employees at work or hear news of suicides caused by depression. In China, it is estimated that about 100 million

people suffer from various types of mental illnesses. Out of those people, 16 million are believed to be severely affected by their conditions, living in big cities. Depression has become a leading cause for mental illness in China. What's more, globally, an estimated 700 million people suffer from mental illnesses.

A recent study has also surveyed young to middle-aged employees at 50 of China's top companies in 30 cities. It showed that 78.9% of those surveyed showed signs of agitation, with 59.4% reporting anxiety and 38.6% haunted by depression.

Obviously, a lot of us are still not getting used to the speed of urbanization and the environmental problems caused by it, physically and mentally. At the same time, the stress of competition (for example, huge population but few working opportunities) and the lack of communications between us have pushed it into an even worse situation.

1.2 Trend and solution: sharing, interactive green lifestyle Megatrend II: New Welfare

With the physical and mental health problems brought by the boom of urbanization, people have already realized that it is time to stop the process of modernization and industrialization, and considering more about the Earth and living condition, the quality of life of us human-being, as well as our next generations. So that nowadays, “Green” has already been a significant and indispensable concept for everything we are planning, and still for the next decades, it would not be ignored.

We would start re-thinking the meaning of our lives, whether the modern substances are even much important than our lifestyles, our feeling and life qualities. People begin to consuming the vegetal origin foods, some planted by themselves, they begin to walk out to communicate with others instead of spending whole day in front of digital equipments, they begin to contribute

themselves to their society first, in order to improve their own life qualities. “Sharing”, “Interactive” have become the fresh words for the contemporary society and for our future.



1.2.1 Case of study I: Vertical ForestING, a global “green” trend

In order to improve the city life, first of all it is necessary to improve the air that we breathe every moment. To face the stress, first of all it is necessary a better health condition.

Vegetation plays an important role in ecosystem processes and shows complex interaction with temperature, precipitation, topography, and management strategies. So in the future, more and more city gardens will be built so that we could make the maximum use of the limited area of city centers.

Trees are a key element in understanding urban projects and garden systems in this situation. Also, the choice of the types of trees will be made to fit with the garden's position. The plants used i should be grown specifically for the purpose of the project and will be pre-cultivated. Over the period these plants slowly got used to the conditions they will be placed in.

I will take the Vertical Forest designed by Boeri Studio in Milan as a successful example. Vertical Forest is a model for a sustainable residential building, a project for metropolitan reforestation that contributes to the regeneration of the environment and urban biodiversity, It is composed of two



residential towers, was realized in the centre of Milan, hosts 900 trees and over 20.000 plants from a wide range of shrubs and floral plants distributed in relation to the façade's position towards the sun. On flat land, each Vertical Forest equals, in amount of trees, an area of 7000 m2 of forest. In terms of urban densification the equivalent of an area of single family dwellings of nearly 75.000 m2. The vegetal

system of the Vertical Forest aids in the construction of a microclimate, produces humidity, absorbs CO2 and dust particles and produces oxygen.

It is not only a building that represents the concept of green city, and nowadays it also becomes one of the symbol of the Milan city.

Vertical ForestING, the concept used in Vertical Forest is considered as a worldwide



trend nowadays, the idea of giving back to nature the space we are taking from it with continuous urbanization, the architectural project Vertical Forest is realized as a prototype of the skyscrapers of the future. This attempt is extremely important for the future of our planet, because this single concept can have certain impact already, what if thousands of this would be realized in big cities all over the world; I believe as



a result, it can at least slowing down the climate changes, reducing CO₂ emissions,



1.2.2 Case of study II: Mobike, “sharing” make a better city life

The urbanization has caused not only the lack of natural resources, but also that of services and urban infrastructure. Nowadays the economic situation in the cities has been much improved, it leads us all become independent individuals, who has his or her own need and has the ability to satisfy it. However, this situation also has its disadvantages, we pay too much attention on self-satisfaction but have ignored that it needs resources to realize. In one city, we have a huge number, at least 1 billion of population, and almost everyone is dividing the limited resources to satisfy their own needs, as a result, it could be a huge loss our resources.

For resolving the problems mentioned upon, and as well as the trend of Internet of Things, we ought to have the conscience of “sharing” from now on and for the next decades, only in this way we could stop wasting our resources into the repeating work, and also, build the bridge of communications between one and each other, transforming from isolate individuals into contributors for the whole society.

Based on the “green” concept, many cities now have settled laws to limit the using of private cars, instead they encourage





citizens taking public transportations. In this background, the Mobike was born in Beijing, the capital city of China.

Mobike is the world's first bicycle-sharing platform that does not require cash, no fixed stations, and solves the problem of short-distance connections in cities, in another word, it is a bike sharing service that allows short trips in the city, the bikes can be used at any time, at any authorized parking point by downloading an app, it combines innovation design of the bikes themselves and today's Internet of Things technology, using the GPS to find the position of the bikes and a smart locking

system to ensure its security. Mobike is defined as ecological, reduces traffic and is constantly struggling to improve the quality of city life.

It is a successful case taking the "sharing" as the most central point of the whole system, proving that people are transforming from individuals into contributors, also would willing to guarantee their personal credit in this modern society. This is also accelerating the communications between the citizens because they are sharing something in common so they would unit to build a better city.

1.2.3 To be interactive...

“Interactive” is not a new word but it appears frequently in these five years, and will still be a trend in many areas in the contemporary world.

First of all, the dictionary has given “interactive” this definition: mutually or reciprocally active; involving the actions or input of a user; Especially: of, relating to, or being a two-way electronic communication system such as a telephone, cable television, or a computer, that involves a user’s orders as for information or merchandise, or responses.

When we are talking about “interactive” today, we would always connect the word with the use of electronic equipments, especially cell-phones, also new digital technologies. However, looking back to the origin definition of this word, which is reciprocally active, I disagree that we always instinctively involve this word to the digital word.

Interactive, to say it in another way, active from both sides, and who are the characters on these two or more than two sides, it cannot be defined. It could be people and people, people and object, people and plant, people and city, even people and universe.

Speak back to the communications I had

mentioned many times upon, from my point of view, interactive is the essential element for the communications of contemporary society, for any types of relation, both sides should contribute for communications so that the relation could be continued and there could be improvements for both sides.

Not only for the individual relations, also for marketing, “interactive” has been reported as one of the most concentrating trend for the next 10 years, and the 3 key advantages of interactive marketing have been introduced to lead the brands in the next decade: increased sharing of resources, personalization, positive brands experience. With interactive marketing, customers are more engaged because the campaign is more hands-on than traditional advertising. Enhanced customer engagement leads to increased satisfaction, which makes the customer more likely to share his or her experience with friends and family. A major advantage of interactive marketing is its ability to be customized and tailored to certain users and consumer groups, something that is more difficult, and sometimes impossible, to do via traditional advertising methods. With interactive marketing, you can have consumers share their preferences with your brand so you can better tailor the advertising message. Last but not least,



unlike traditional, non-interactive forms of advertising, which can be disruptive and irritating for customers, interactive marketing strategies stand to alleviate a brand's position in consumers' minds by being more fun, entertaining and engaging.

For all the motives, it is credible that in the future ten years, people in city would try as hard as possible to create an interactive, sharing life circle not forgetting the "green" concept and in this thesis, my project would considering this as a basic beginning point of design.

To conclude, even though there is not a specific case of study suitable for this

thesis, "Interactive" stands still one of the most important roles to consider as the trend of the future 2025. To be interactive is one of the indispensable improving human behavior in the next decades.

1.3 Potential marketing

Megatrend III: Social production and Co-creation

Today people are able to create authentic representations or even play with multiple identities of themselves on their own blogs, web pages or social media platforms such as Facebook or Twitter, from which they receive not only the exchange information and communication, but also sense of self-fulfill and satisfaction, they gain new value of themselves and contribute to the society at the same time by co-creation. So it is definitely a trend Social Production and Co-creation.

Basic on the fast development of technology and the trend of Internet of Things, a lot of organizations and enterprises are started up with fresh ideas and concepts that contribute to our society. In this section, I would select some of the existing organizations that has the basic concept close as interactive, sharing green lifestyle, in another word, the potential suppliers for

my thesis project, I would analyze them on both their positive and negative aspects. From these analysis as a starting point, I would set a project position for my thesis project and define the potential users.

1.3.1 Analysis of potential suppliers

There are several organizations on the marketing which are founded to study the plants, the relationship between human-being and the nature, especially the plants.

To have a basic position of my project on the marketing of future, I have searched the following organizations, which are different from one the other, some offer techniques, but some concentrate on the spirit. It is difficult to compare them because although they or study, and have passion on plants and new techniques. And I scored them from one to ten, taking public-private, unidirectional-interactive, human-plant, spirit-technology as keywords, also I consider them as the most important standard in a design project to score.

Potential technology support

Name: **Xsensio**

Type: **Nanolab**

Found Time: **2014**

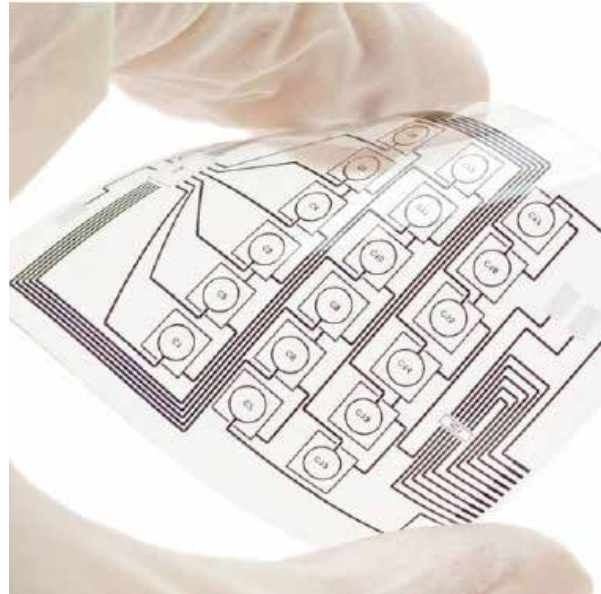
Country: **Swiss**

Xsensio is a private company founded in 2014 in Switzerland, it is an innovative zero-power wearable monitoring platform that develops next-generation Lab-on-Skin wearable devices that uniquely exploit biochemical information at the surface of our skin, providing unprecedented real-time information about our health and wellness, in a simple, non-invasive way. And the sensors is actually a sensing chip relies on a highly-miniaturized nanotech sensing platform developed at the Swiss Federal Institute of Technology.

This could be the potential technology support of my thesis project because my thesis project is straightly involved with nanotechnology and human health, it is the perfect choice as it uses nanotech to collect information from our skin, to sensing the health condition, even this technology has not been spread too much in these days,



xsensio



but it would be the trend for future, for how we would track our body condition.

Name: **AgSmarts**
Type: **Biosensor**
Found Time: **2014**
Country: **USA**



AgSmarts is a Precision Ag technology company that offers moisture-sensing technology, predictive analytics, and farm equipment automation that represent an innovative revolution in data-driven agriculture. AgSmarts helps growers lower operational expenses and optimize crop yields. Their field-based, internet-enabled sensor and controller networks give you unprecedented crop specific, predictive recommendations, and automated control. When farmers purchase AgSmart's hardware, they own it. The basic portal and web apps are free.

To realize the project in the scenery of 2025, to track the condition of the plants, it is necessary the technology of biosensors using the precision farming, that has already been applied in several developed countries. The biosensor technology plays also a significant role for



understanding the condition of plants and how they could produce benefits for our city.

Potential cooperate partner

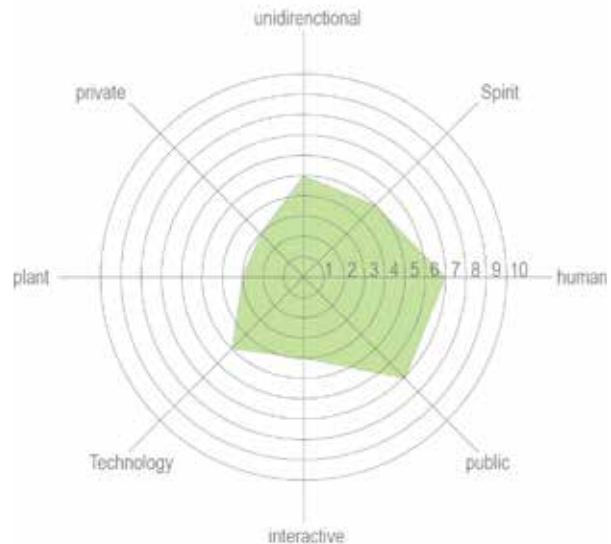
Name: **Asia Nano Forum**
Type: **Network Organization**
Found Time: **2004**
Country: **Singapore**

Asia Nano Forum (ANF) is a network organization founded in May 2004 and now a registered society in Singapore, known as Asia Nano Forum Society. Its mission is to promote responsible development of nanotechnology that educationally, socially, environmentally and economically benefits each economy by fostering international network collaboration. And its main objectives are sharing information, human and physical resources and expertise about nanotechnology, support regional economic and environmental development, Promote and coordinate standardization and safety of nanotechnology concepts and measurements, enhance public awareness and education of nanotechnology and associated social, environmental, health and economic issues.

I choose this organization as a potential cooperate partner for my thesis project



because it is a representative organization for promoting nanotechnology, its not a scientific organization but cooperates with several specific universities and scientific organizations in Asia.



Name: **Regenerations International Botanical Garden**

Type: **Organization**

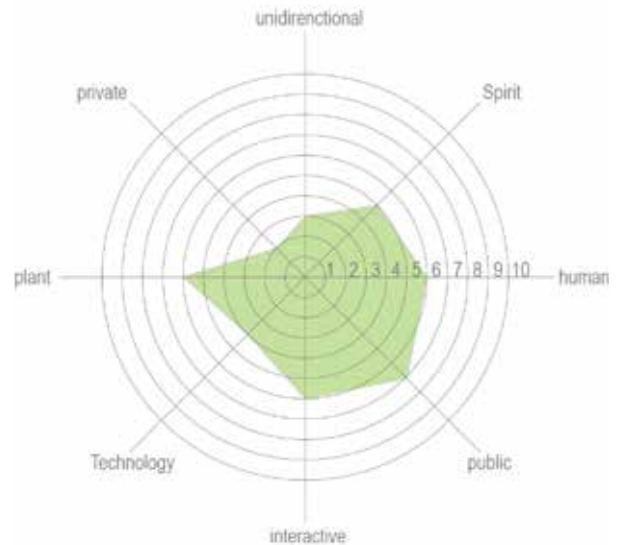
Country: **USA**



Regenerations International Botanical Garden is an organization which purposed on educating the general public about the importance of local and global plant diversity and the need for active conservation of such diversity and creating opportunities for the public to participate in sustainable plant conservation programs and activities by providing training and technical support. As a traditional organization, it could not be ignored because it spread new ideas about gardening with volunteers sharing their experience.

This organization is selected because its basic green concept and its knowledge about the nature, especially about the plants and gardening. And, it is an all-volunteer organization consisting of seven nonprofit board members who guide the operation and daily management of the Garden's business, supported by volunteers, so I

think it is an organization worth focusing even though it has no support with high technology, but it promotes the basic concept and knowledge of agricultural lifestyle.



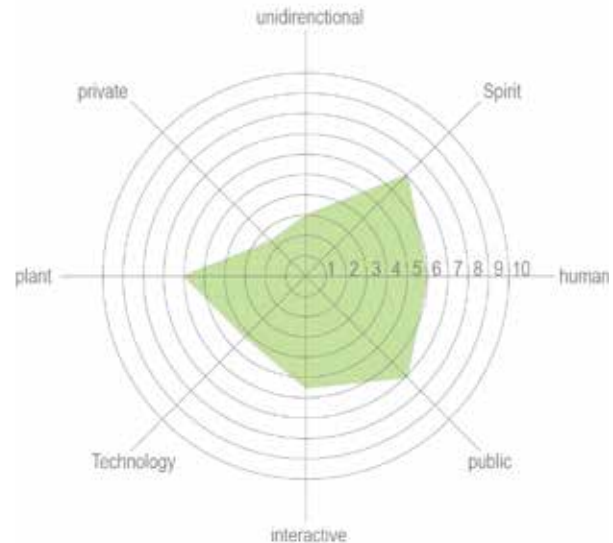
Name: **Damanhur**
Type: **Organization**
Found Time: **1975**
Country: **Italy**

Damanhur is an Italian organization founded under the inspiration of a fertile reality founded on solidarity, sharing, mutual love and respect for the environment. Every year it accepts thousands of visitors and attracts the interest of scholars and researchers from around the world in the field of social sciences, art, spirituality, environmental sustainability. In the 1970s, Damanhur had already realized the project “music of the plant” to explore the sensibility of the plant using electronic magnetic technologies, and the mission of the organization is to let people understand the spiritual world and respect the nature.

Spirit maybe not really existing in the real world but still we believe in it in order to make our world a better place, so it is necessary for every project a spiritual support.



DAMANHUR



Potential selling point

Name: Eslite

Type: Enterprise

Found Time: 1989

Country: Taiwan, PRC

Eslite was founded as a bookstore in Taiwan in the year 1989, but later developed with the concept of enterprise: Humanities, the arts, creativity and life. It has nowadays become a concept store in big cities like HongKong, Taipei, Suzhou in Asia.

It includes many concept stores that sell the products even belong to an individual designer. It aims to become the most influential leading brand in the cultural and creative industry for Chinese communities around the world, to actively contribute to the promotion of the arts and humanities.

So it is a potential selling point for this thesis project because the project is also related centrally into human, city, life and the product would anyway be used for the cities in the future.



1.3.2 Project Position

The position I have done is based on a cross, I have set four principles that I consider important to definite a project, as well as an organization.

Nowadays human-being is not the only role on the planet, even on the market, so it has concept of interactive, between human-being and the other living creatures, or simply between us.

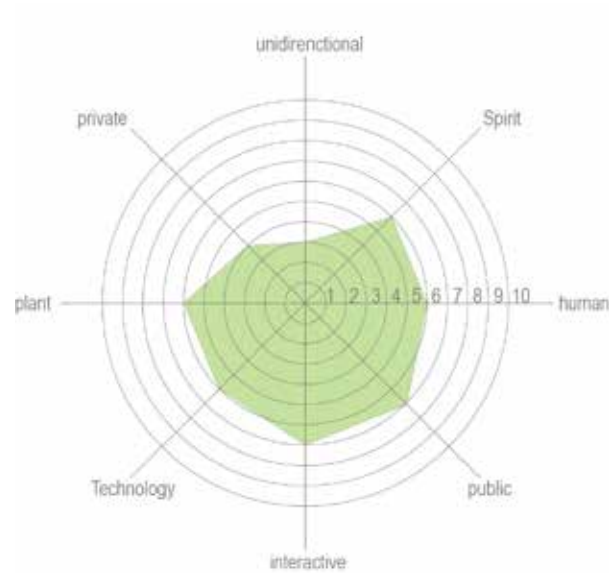
One project could not stand without the support of technology but still it is required to contain human activities and feelings. I definite it with the word “Spirit”, that contains part of culture, feeling, activities and the most important, design.

I positioned my project Plant Match on the part of interactive and spirit.

We have got organizations like Xsensio which concentrates on the technology, and the main role is human-being who is studying on the objects.

Also we have organizations like Regenerations International Botanical which concentrate on the communications and educations, interactive.

However, I hope that my project will create a new meaning that is combining human feeling with the nature, and using the high technologies, so interactive and spirit, but less spirit like Damanhur does.



1.3.3 Potential Users

The PET factors I have set for People are meaningful contribution and empathy & cooperation, for Environment Biotechnology and Circular Economy, for Technology Enhancing Meaning and Inclusive value network.

The main role in the future 2020/2030 will be the Generation Y, known as the generation that borns from 1982s to 2002s.

The characteristic of this generation is: most of them do not suffer from the problem of economy, and they focus themselves more on creating and finding new things, self-developing. They are now becoming economically active and independent, are more interested in meaningful work than in the pursuit of wealth or material status. Especially in advanced economies, the concept of quality of life is increasingly related to better living conditions, work-life balance, and personal fulfillment.

The rich and push ones, they are quite active and are not afraid of taking risks, they confirm that there will be opportunities in the crisis, for example they create new business models in order to change the marketing, to bring the marketing a pass forward. They use their own ability and base of economy to make contributions to the society, to resolve problems we are facing,

PET FACTORS



to promote new concept and lifestyles. However, they also know the importance of tradition and they believe the future do not leave the tradition and humanity behind. They hold the leadership and the people who are rich but in the pull role follow them.

For the people in the condition of scarcity, they also play a role that would not be replaced. They are the base of the society and with their efforts, they rich ones realize their ideals and pay back for them, have the chance to create something new. They are somehow the motor of the future society. They offer and share new ideas using the spread of Internet and exchange the information

about new concept and technology, find their own opportunities to start-up.

As the very bottom type, scarcity and pull, they learn more and work hard, they also develop their own creativities and personal values, for example, DIY their own products with personal ideas and share it on public platforms.

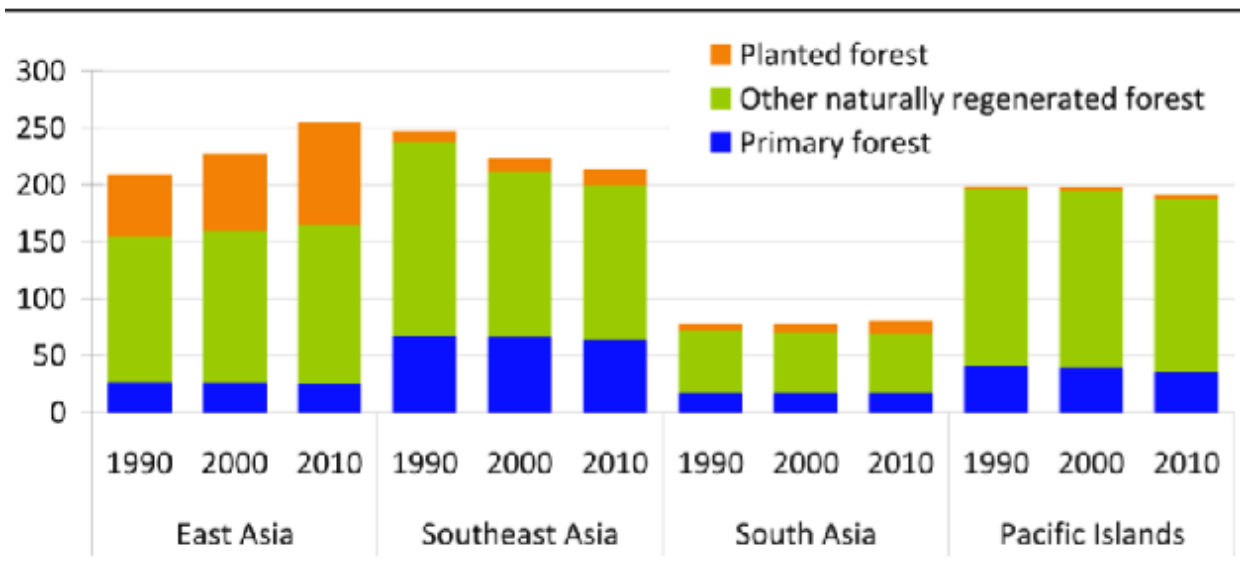
1.4 Geography and society: Asia, developed but complicated

The place I choose to realize my thesis project is Asia and especially for the east of Asia.

Asia is a continent much more complicated than the others, in there, exists developing country like China, which has huge population. At the same time there are countries like Japan, which are well-developed.

Nowadays it is not a very stressful problem for East Asia the resource because it has large area of land and the cover of the forest, especially in North-east of China, and most people in Asia has been out of the condition of poverty and they have awareness of environmental protection because of the promotion of government and receive of high education. Thus they chase for new self lifestyle and new personal values.





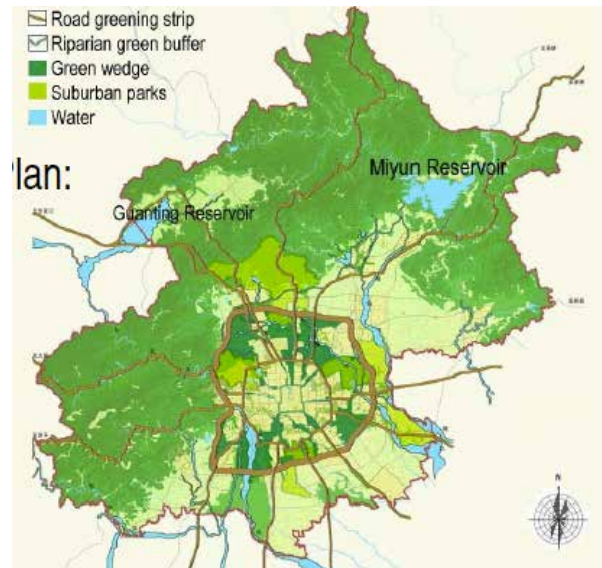
1.4.1 The green cover in main cities in East Asia

Regarding to the researches, with only 0.2 hectares of forest per person, the Asia-Pacific region is the least forested region in the world. Since 1990, there were 38.7 million hectares of primary plus some other naturally regenerated forest have been lost in the Asia-Pacific region. And the overall low levels of per capita forest area in the region make these reductions even more significant. In South Asia, 23 percent of the world's population

depends on only 2 percent of global forest resources and per capita forest area stands at only 0.05 hectares. The largest total reductions in forest area since 1990 were, however, in Southeast Asia where deforestation amounted to 33.2 million hectares or 7.6 percent of the land area.

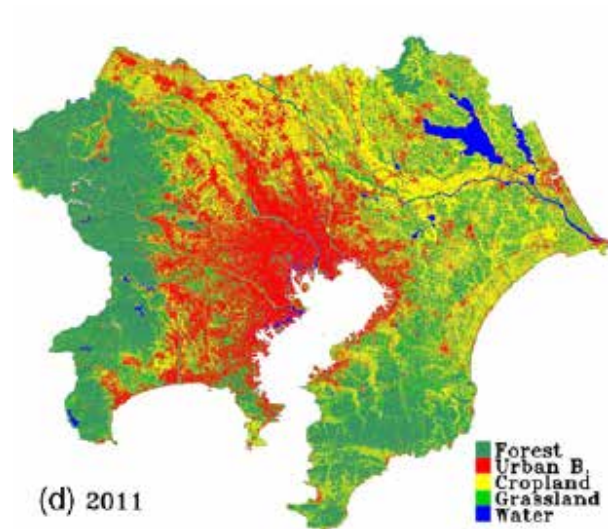
Beijing

Nowadays, Beijing has already 46% green space, but in the city center where lives 78% of the population, the green space is incredibly limited, to resolve this problem in the future, results indicate that in order to effectively realize their ecosystem service value, green spaces should occupy between 2.20% and 13.40% of the total urban area, located within a 50–550 m range from other developments, with green space patches so divided that each patch occupies more than 3.00% but less than 62.50% of the total green space area, and the ecosystem service value will be at the optimal level when each patch occupies 20.00% of the total green space area. Lastly, we stress the practical significance of the findings, urging an integration of the spatial patterns aspect of urban green spaces in urban planning practices.



Tokyo

The Japanese capital of Tokyo has been named the greenest city in the Asia-Pacific region, findings correlate with the latest available data from the World Bank which shows that in 2009, 43 percent of Japan's urban population lived in Tokyo, yet emission levels were far below that of other high-income developed countries. The growing trend for greener cities stems in part from an increase in the world's urban-to-rural population ratio. For example the United Nations Population Fund (UNFPA) estimates that by 2020 the ratio of urban to rural inhabitants in the Asia-Pacific region will approach four-to-one.



Seoul

The concept of parks and green spaces as planned facilities was introduced as a byproduct of modernization in the late 19th and early 20th century, in the history, Seoul has already 26.6% coverage of green parks in the year 2015, and the 2030 Natural Restoration Plan for the Han River was established to restore the natural waterway. In 2013, the city announced its “Green City Declaration” with public landscapers and has since been working on changing the traditional park paradigm, to create a “park city” that goes beyond traditional park boundaries to embrace all possible spaces, from streets, alleys, squares, rooftops, and even walls.

As a city which well aware of the value of urban farming, Seoul designed public vegetable gardens on Nodeul Island. Today, residents take the lead in managing these

green spaces; with examples including the Citizen Gardener and Adopt-a-Tree/Park programs. There are also green spaces specifically designed to be included in daily life, such as healing parks by life cycle; 80 vegetable gardens at schools and social welfare facilities; Ssamji Madang; forests for babies; and “customized” neighborhood hill parks. After relocation of the USFK base in Yongsan is complete, Yongsan Park (2.57 km²) at the center of the north-south green belt will be the ecological heart of Seoul.

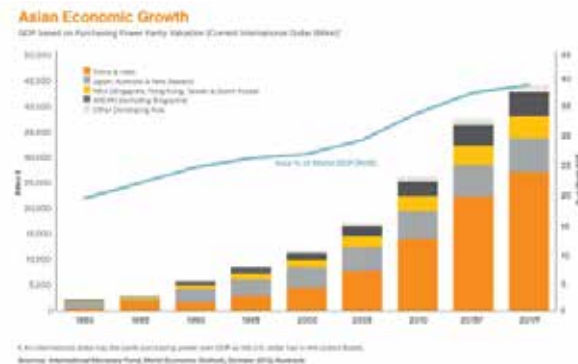
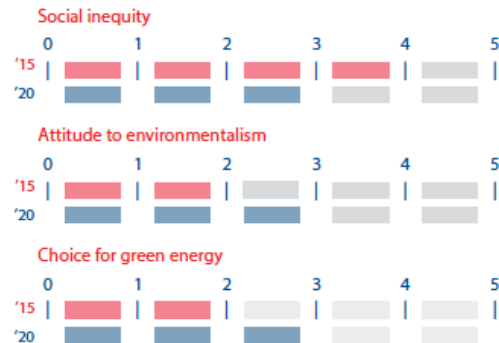
Year	Administrative District (㎢)	Population (10,000)	Planned Parks			Facility Parks			Facility Park/Planned Park Ratio (%)
			No. of Parks	Area (㎢)	Area per Person (㎡)	No. of Parks	Area (㎢)	Area per Person (㎡)	
1945	136.00	90.1	142	80.00	88.75	10	1.04	1.15	1.30
1961	268.35	257.8	124	25.22	9.79	N/A	N/A	N/A	N/A
1963	613.04	325.5	136	25.04	7.69	N/A	N/A	N/A	N/A
1968	N/A	433.5	152	55.81	12.87	N/A	N/A	N/A	N/A
1975	627.06	690.0	645	158.85	23.02	387	31.70	4.59	19.96
1980	N/A	836.7	908	173.99	20.80	367	41.20	4.92	23.68
1985	N/A	960.0	1074	153.73	16.01	713	48.73	5.08	31.70
1990	605.42	1062.8	1325	152.37	14.34	1038	89.51	8.42	58.75
1995	605.77	1059.6	1404	150.84	14.24	1141	105.79	9.98	70.13
1999	605.52	1032.1	1423	154.23	14.94	1258	130.26	12.62	84.46
2010	605.27	1046.4	2531	169.05	16.16	1925	145.05	13.86	86.36
2014	605.21	1038.8	2782	170.08	16.37	2184	148.15	14.26	87.11

Source: Seoul Parks Data & Annual Statistics

1.4.2 Social problems: environmental attitude and economy distance

Nowadays, although the economy crisis is a global evidence, but Asia has the second largest nominal GDP of all continents, after Europe, but the largest when measured in purchasing power parity. As of 2011, the largest economies in Asia are China, Japan, India, South Korea and Indonesia. Based on Global Office Locations 2011, Asia dominated the office locations with 4 of top 5 being in Asia, Hong Kong, Singapore, Tokyo, Seoul and Shanghai. Around 68 percent of international firms have office in Hong Kong.

The social inequity of Asia is absolutely high in the past years (score 4/5), especially in 1980s, there were provinces and cities like Shanghai, Tokyo, which are absolutely well developed but at the same time, countries like India and Vietnam they are still solving their own politic problems that affects their economic develop. In the late 1990s and early 2000s, the economies of the China and India have been growing rapidly, both with an average annual growth rate of more than 8%, that allows the government and citizens to stop developing the well-developed area and concentrate on improving the life and economy in the poor area, and the well-developed ones



shared the experience and resources with the poor areas, so that the poor areas started to change and earned their own value in a fast speed so that nowadays the social inequity for me it decreases to score 3/5, decreased but not totally resolved because there are countries like North Korea, still in the progress of developing.

The attitude to the environment in the past, score 2/5 because in the past 20 years Asia developed mainly the Industrial to help increase the economy, countries like China, they developed the industrial to resolve the problem of poverty of the society in that period but nowadays they realize it is important to respect the environment and learn from the European countries to use clean energy like wind and sun, but these technologies are less spread still in Asia comparing with those in Europe (score 3/5 nowadays), because countries like Vietnam

and North Korea, they do not have the economy base to do so.

The same situation for the green energy, Asia has Country like Japan that owns few resources but economy-developed, they had already chosen for green energy 10 years far (score 2/5) but now even most of areas in China has chosen using of green energy, there are still a lot to be improved(score 3/5).

As mentioned before, most area of Asia is now well- developed, people are getting rich and have their own ability of consuming and their own ways of being a consumer, but as they will focus on more with how to live with high quality.

The Household of 2015s in Asia is the third place in the world respect to the OEDC Data, about 7000000 million dollars in 2015, and is still increasing because people need to spend more in their own house like

green decorative products and nice interior living, high quality furniture.

For the part of Online spend, it is relevant high nowadays because the Boom of developing websites like Amazon and shopping App like Wechat in China, they sell well quality products in a discounted price because they do not need to pay for renting real shops.

It will still increasing but not in a fast way because people realize that to improve touch the products with their own hands, but with the spread of Internet in the less developing area, the data will still increasing.

For the part of supermarket, with the developing of urban service and public service, more and more high quality, well-designed products will choose supermarket as their platforms because it can be recognized by the public people in a

short time. And the number of supermarket in Asia will increase because nowadays people need the convenience of shopping.



Chapter II: Inspiration

TMunity of man and nature

The concept of “unity of man and nature”, also called “integration of man and heaven”, it is originated from the philosophy of Taosim, the basic idea is about “heaven and human should be in harmony”, and the word “heaven” in ancient Chinese means nature or universe, in the other word, human-being should **respect** the universe and the nature, including all the living creatures.

Later, the idea was developed by Confucious, he had given the heaven, the universe another meaning--**moral**. He thought that the human-being should follow the moral, their own spirit, as the universe, the nature has its own law.

Meanwhile, the latest concept wa called: Interactions between Heaven and Mankind , a set of doctrines formulated by Chinese Han dynasty scholar Dong Zhongshu, he believed that human physiological structure, **thought, emotions** and moral character are all modelled according to heaven’s will and thus that mankind is the incarnation of heaven, the nature.

2.1 The special relation: poetic description



The concept has influenced the way of thinking of Chinese, there were and now still there is a lot of pieces of art work that display this concept.

For example, The chinese painters prefer the theme of people losing in the beautiful view of mountains and lakes, which means the nature.

Also, it is not hard to discover that in most of the chinese painting, human-being is positioned in a less important mode, it also illustrates the respect to the nature.



2.1.1 Plants described in poems

The ancient Chinese love to express their emotions in the poems, some would prefer to describe a plant (a tree or a flower) in the poem but in fact the author was writing about a person, his or her spirit. The plant was just a metaphor of this person or this spirit.

The most famous plant that being offered as a metaphor of moral and spiritual is lotus.

Even if the author of the poems did not

indicate in an obvious way, we could still see the mind of combining human-being and nature in these poems, the imaginations and its combination with the reality.



2.1.2 The™Four

In Chinese art, the Four Gentlemen, also called the Four Noble Ones, are four plants: the plum blossom, the orchid, the bamboo, and the chrysanthemum. The term compares the four plants to Confucianist junzi, or “gentlemen”. They are most typically depicted in traditional ink and wash painting and they belong to the category of bird-and-flower painting in Chinese art.

Chinese people call them the “Four” because the four plants bloomed not only in spring or summer time, when the other flowers all blooming, especially the first three, they bloom also in the cold winter to bring the hope to people.

The forth bloom in autumn and it has its own smell, which could be recognized from a far distance, and this means it has its own spirit, different

from the other plants.

So it is not hard to see that the oriental culture is connected to the nature more strongly. The sixth sense for chinese, is probably much more reppresented on the connection with the universe, with the nature, with the plants.





2.2.1 Meridians of plants and human body

The basic and obvious similarities between humans and plants are that both are living organisms, both need things to keep them living, both produce substances that keep the other living, both are multi-cell organisms, both reproduce through sexual means by fertilization, both breathe, and both need water to survive.

When we look at the meridians of the both, we could even find out that both of them have clear stems and points of pulses.

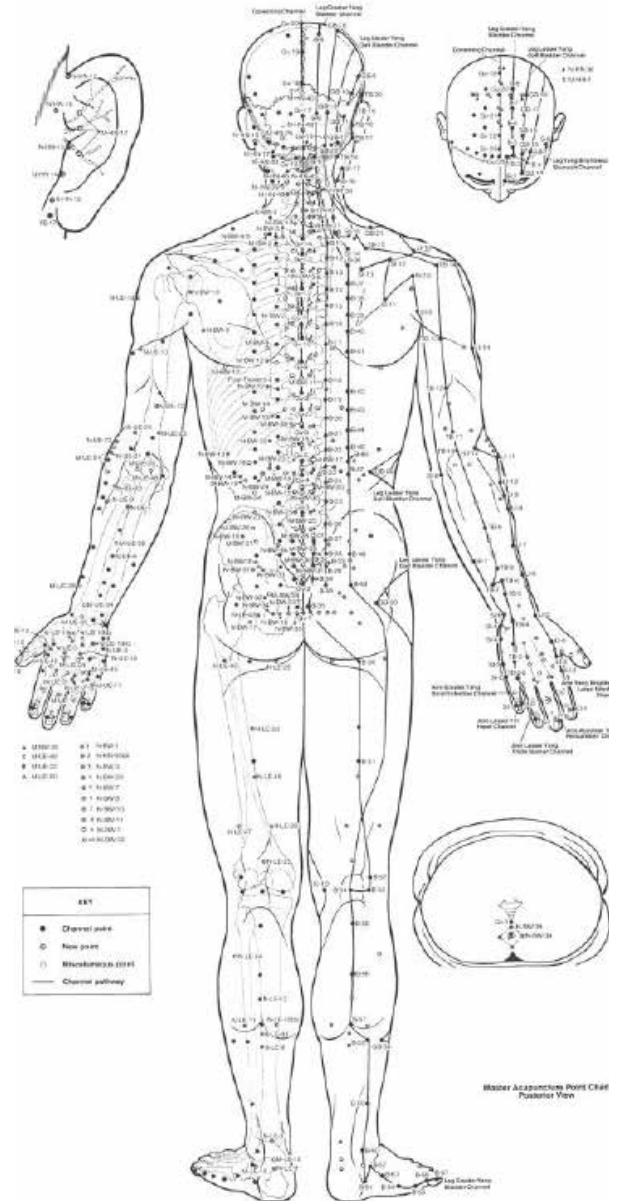
Just like what is recorded in Huangdineijing, the plants follow the law of nature, also human body.

It is also published that : “ the cells of all plants and all animals contain DNA in the same shape ” by Earthsky, Oct

13, 2008, which proves the similarity.

The concept is also mentioned in Huangdineijing, an ancient **Chinese medical** text that has been treated as the fundamental doctrinal source for Chinese medicine for more than two millennia.

From the medical part, the interior of human body is somehow also following the law of universe, so physically human-being is also connected with nature and the universe.







2.1.3 The plants in Chinese Architecture and Interior

Traditionally, people use plants as an element of decoration in Asia, especially in China. They use a simple geometric shape as a basic structure, to contain the plant inside, like a nature view, a picture. This kind of decoration is used in the area of art painting, even in product, modern interior design, but mainly in architecture design, take the traditional Chinese garden as an example.

So I take this tradition as the inspiration for the product form in my project.



Chapter III: The senses

The senses are an indispensable tool for life, reproduction, growth, defense and for this very reason, the vegetable world has never dreamed of doing it! One thing is certain: the plants have no eyes, no nose nor needles. How is it then possible to think that they have the sight, the feeling, the hearing, and even the taste and the touch? Everything tells us the opposite: our culture, our senses, and even what we can draw from simple observation. As far as we are concerned, plants grow. In other words they all add up to real estate, they make photosynthesis, sometimes produce some new sprout, sometimes flower or lose a leaf, and

little else.

The plants, as we shall see, have all five senses, just like us. Not only that, they also have another fifteen. Clearly, they have developed according to vegetal and non-human nature, but this does not diminish their degree of reliability.

3.1.1 Sight

Gottlieb Haberlandt, an Austrian botanist, hypothesized that plants could use the epidermis cells to reconstructing real imaged of the environment they are living in, just as us, human-beings use the cornea and the crystalline. Even though this theory had never been proved by the scientists, but it does not mean that the plants do not have the sense of sight.

There are variety definitions of sight as one of the five senses: According to the Great Hoepli Dictionary, the sight is the “Sense that permits the perception of visual stimuli”; Meanwhile, etymological dictionary defined that it is the “Faculty or sense of seeing. The sense of light and illuminated objects”.

Respect to the definition, the plants, even without an organ, described as receptor of the light, like eyes of human-being, however, are able to catch and recognize both quantity and quality of the light which is their energy-base, and with that they do the photosynthesis.

In reality, inside of the plants there is a serie of chemical molecules which are so called photoreceptors (light receptors), that are capable of receiving and transmitting information about the direction of the light, as well as its quantity and quality.

These photoreceptors exist not only on the leaves of the plants which is the main organ of the photosynthesis, also on parts of the stem, the tendrils, the buds, the vegetative summits, and even the wood, they spread on every parts of a plant because the organs of a plant they have evolved in the way different of those of human-beings, they avoid to concentrate their functions in a single area of the body, thus defending the risk that the snack of any herbivore may become a tragedy for the plant. So in this way, we could see that the plants in some way they are much more sensible than human-beings in the area of sight because we human-being only have the eyes to sense the light, and they are near to our cell, which controls every parts of our body.

3.1.2 Hearing

Some recent experiments, concentrated on the hypogea of the plant rather than on the aerial, have shown that the roots perceive a very wide range of sound vibrations and that their directional growth can be influenced by the vibrations perceived, according to a movement called “spell letter” (from Greek phoenix, sound, and trépein, turn). Even the ra say you hear and are able to distinguish the sound frequencies. In fact, depending on the kind of vibration perceived, in fact, give a little gift if approaching or moving away from the sound source. What does roots feel about vibration? We do not know yet, but the first assumptions on this point are suggestive and I tend to be brought back.

According to some research published in 2012, moreover, roots show an organized behavior, typical of swarms, which presupposes a form of communication between the radicals of each plant to explore the soil efficiently in order to direct growth. A great advantage for those who can not move and has a limited amount of space available!

If new discoveries were to support the theory that roots are able to communicate with each other through sounds, our plant idea should once again undergo a complete transformation.

3.1.3 Touch

In the vegetable world, the sense of touch is closely linked to that of hearing and it is used as small organs called “canonsible channels”, found somewhat throughout the plant, but more frequently in epidermal cells, or in those epidermal cells cells that are in direct contact with the outside environment. These are rich in special receptors (mechanically sensitive channels, in fact), which can activate when the plant touches something or when it is reached by vibrations. But if the lack of a sense organ is not enough to establish that the plant does not sit the corresponding sensory perception, even knowing that there are receptors is not enough to say that the plant is in possession, however good it is.

In the last 3040 years, since there are such statistics, it has been calculated that the number of lily species is increasing continuously pie of those that produce a trunk. Imagine for a moment being a newly-born seedlings in the heart of the Equal Reed Forest, where most of the lynx species are found. You are small, and you have a task to make your veins tickle your wrists: reach the light.

3.1.4 Smell

In nature, life is the result of a continuous balance that arises from the competition between predators and prey. For every defensive action the plants know will be able to implement against the predators, there will always be a new animal strategy, which plants will respond in time in more and more sophisticated ways: in this mecca we are not constantly improving lies the spring of the 'evolution and every possibility of survival of life on the Planet.

To smell, we aspirate the air with the nose and make it through the olfactory channel, coated with chemical receptors that capture the molecules present in the air and produce a corresponding nerve signal, which delivers smell / information to to the brain. In plants the sensitivity to odors is widespread: a little as if we had millions of small noses scattered throughout the body. From roots to leaves, each plant is made up of billions of cells, on the surface of which are often volatile substance receptors, capable of starting the chain of signals that communicates information to the whole organism.

3.1.5 Taste

As in animals, even in plants the sense of smell and taste are closely related.

In the case of plants, the organs responsible for the sense of taste are, in practice, some of the chemicals they use to feed, and which seek in the soil thanks to the exploratory action of the roots the plants producing a very high number of rootstocks corresponding to the areas where their concentration is higher and then growing until all the mineral salt has been effectively absorbed. A much more refined behavior than at first glance. In fact, the plant produces more roots depending on the chemical gradient it has been able to detect, acting in advance, using energy and resources that will only deliver results in future. A bit like a mining company that, in opening new galleries, invests massive resources by counting on the revenue it is earned to get: another clever behavior.

A study has been published about a plant capable of hunting worms with special underground traps! It is a purple that grows on the very arid and poor soils of the Brazilian Cerrado and has developed underground leaves that can trap and digest the nematodes, small worms quite widespread. The leaves are sticky and the worms that come close to it remain glued: they are

gested, providing a useful supplement to a diet other than nitrogen. It is a most important discovery, since an underground hunting technique has been described for the first time, which may also be present in other species, which are particularly poor in soils.

As we have already said, plants considered to be carnivorous are about six hundred today, but if we add to this number the so-called “protocarnivore” and any other underground hunters, we could talk about even more significant figures. And let us have a completely new idea of the vegetable diet.



Chapter IV: Technology

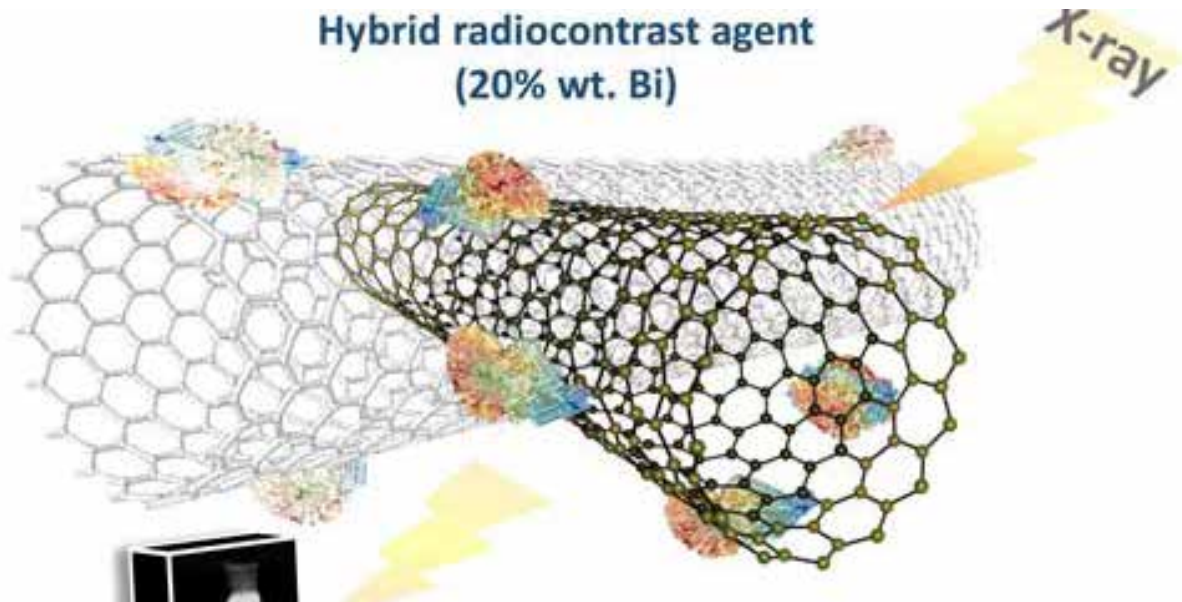
Nowadays with the fast rhythm of development of science and technology, the health of human-being has already been improved and somehow the hi-technology is used to check the health of human-being.

It is already become a trend the wearable hi-technology to track the health condition, and on the other hand, nanotechnology has been studied to cure diseases and prevent diseases especially.

Meanwhile, people requires personality using the hi-technology and they are trying their best to study the knowledge in order to guarantee the safety of themselves.

On the other hand, biosensors are used to chaae the condition of plants, and nanobots are studied to take multiplexed measuments that us human-being can not access.

4.1 Future technology for human body



4.1.1 Cell-tracking

Cell-tracking nanomaterial agent is studied to tag and real-time track the stem cells in the body.

The agent combines ultrashort carbon nanotubes and bismuth clusters that show up on X-rays taken with computed tomography (CT) scanners.

Even it is not a new invented material, carbon nanotubes is the most suitable material applicable on the project of this thesis, as the role of the main material used to track the condition of human body and plant.



4.1.2 Fitness trackers

Many different types of sensors are already used in health care, including self-care at home. Thermometers translate the expansion of a fluid or bending of a metal strip in response to heat into a number corresponding to body temperature. Paper-based home pregnancy tests contain a substance that changes color in the presence of hormones indicating pregnancy. In hospitals and other provider-based settings, you can find more complex types of sensors like pulse oximeters (also known as blood-oxygen monitors), which measure changes in the body's absorption of special types of light to provide information on a patient's heart rate and the amount of oxygen in the blood.

One example is the iSpO₂, a pulse oximeter from Masimo, an Irvine, California company. The iSpO₂ clips onto a finger and measures the amount of oxygen carried in blood. The device shines both infrared and red light into the digit; blood absorbs different amounts of each frequency

depending on how much oxygen is carried by red blood cells. Masimo already makes pulse oximeters for medical settings, but its new product is targeted at consumers.

Good health requires not only protecting our bodies but safeguarding things we put into our bodies as well. researchers developed a sensor using a thin membrane made from of a special kind of plastic. The researchers loaded the membrane with a compound that creates a voltage difference across the membrane in the presence of OSCS, a potentially deadly contaminant sometimes found in preparations of the commonly used blood thinner heparin. OSCS is inherently highly charged and interacts with the compound-loaded membrane without the need to apply an external electrical current. By measuring the voltage, scientists can quickly identify OSCS-contaminated samples before the heparin is administered to a patient. The reaction between OSCS and the membrane is also reversible, so the sensors can be used repeatedly.

4.2 Hi-technology and plant

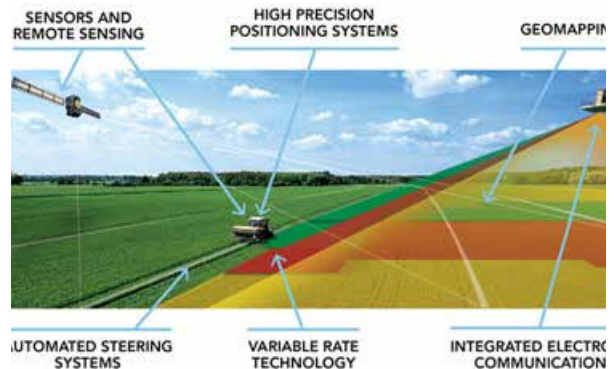
4.2.1 How technology help us know the plants

A team of scientists embedded spinach leaves with carbon nanotubes to transform the plants into sensors and wirelessly relay the information to a handheld device similar to a smartphone. The work has potential applications in agriculture, where the sensors could be used by farmers to monitor plant health.

Sensors and biosensors, like biorobots or remote sensors are used to collect data from a distance to evaluating soil and health (moisture, nutrients, compaction, crop diseases) of plants in the agricultural area these days. These sensors can be mounted on moving machines, later the data would be transformed into the net.

In my project, it is useful to collect the condition of the plant, for the reason that the data of the plant could be used in the first step, to compare with those of a person.

These sensors and technology can be used in my project, to collect the data of



the plants that would be arranged in the regular area (where the project would be held), and the data would be automatically collected, recognized when an user find the proper match.



Wireless sensors have been used in precision ag and/to gather data on soil water availability, soil compaction, soil fertility, leaf temperature, leaf area index, plant water status, local climate data, insect-disease-weed infestation, and more. Perhaps the most advanced and diverse technologies to date are found in water management. Across the country, increased regulation of water use and water scarcity

will continue to drive improvements in this area. In fact, BCA Ag Technologies' Ben Flansburg says soil moisture and rainfall sensors have been some big sellers. And many more producers in California are using moisture sensors to help irrigation scheduling.

On-the-go sensor information has become more valuable as well. On-board applicator options developed over the past

few years include GreenSeeker (Trimble), OptRx (Ag Leader), and CropSpec (Topcon). They communicate real-time crop health conditions to help immediately tailor product applications.

Another innovation? WeedSeeker, Trimble's weed detection sensor made for precise site-specific application of herbicides. "Its use is growing in geographic regions where weeds have developed a

tolerance to standard glyphosate-based broad spectrum herbicides," notes Mike Martinez, Marketing Director.



High-resolution X-ray CT is a technology that provides non-destructive three-dimensional mapping of density, enabling topology, structural visualization and quantitative analysis for a wide variety of samples, including live vertebrate and invertebrate animals, insects, plants, fossils, electronics and materials.

I select this technology to serve the face morphing part of my project, because in this

part, it is necessary to visual the mapping of the plant in a clear and accurate way, in order to compare and match the human face with the technology of facial recognition.



The project “music of the plants” started by the organization Damanhur in 1976. The Damanhurians researchers had created a tool capable of capturing electromagnetic changes in the surface of the leaves and roots and transforming them into sounds.

So it in some way confirms the assumption that also the plants have emotions like human-beings.

It also provides a way of following the condition of the plants, on the level of emotion especially.

From a technical point of view, the project works by transmitting an electrical current ultra low voltage between the roots and leaves of the plant, and the translation into music through a synthesizer, variations in resistivity of the plant.



Chapter V: Project

Plant Match

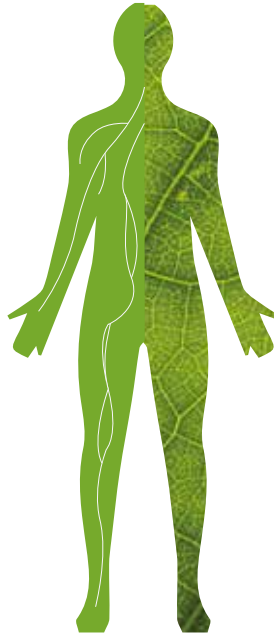
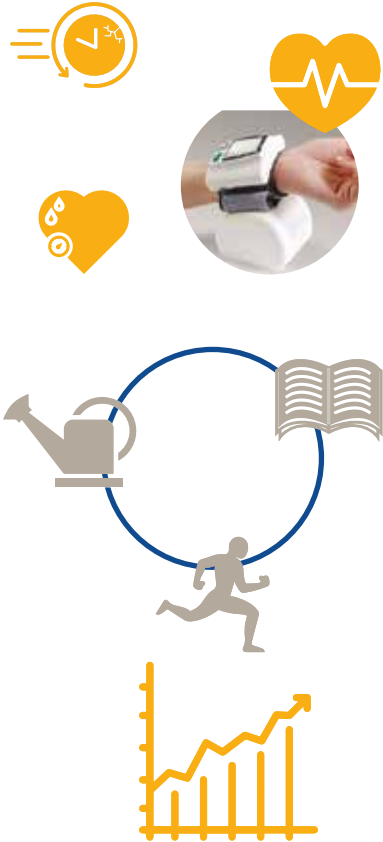
Plant Match is a project that intend to match a human body with a plant based on bio-analysis in order to find people their own plant that they could improve together.

The bio-analysis bases on nanotechnology, biotechnology. For human it analyze several factors like blood pressure and stress index by testing the movements of blood in the body; At the same time, a sensor that indicate electromagnetic radiation of the surface of the leaves and roots would be use to observe the interior movement of the plant, When it comes a match, people could follow the condition of the plant and that of themselves on an app, to see whether both

of them are improving. The way they improve on the farmhouse would be interactive, the plant offer nenviroment for human body like healthy food, fresh air, DIY experience to help people anti-stress; People learn more and care more on the plant for its growth.

MATCH

Body Condition



Plant Condition



First Concept

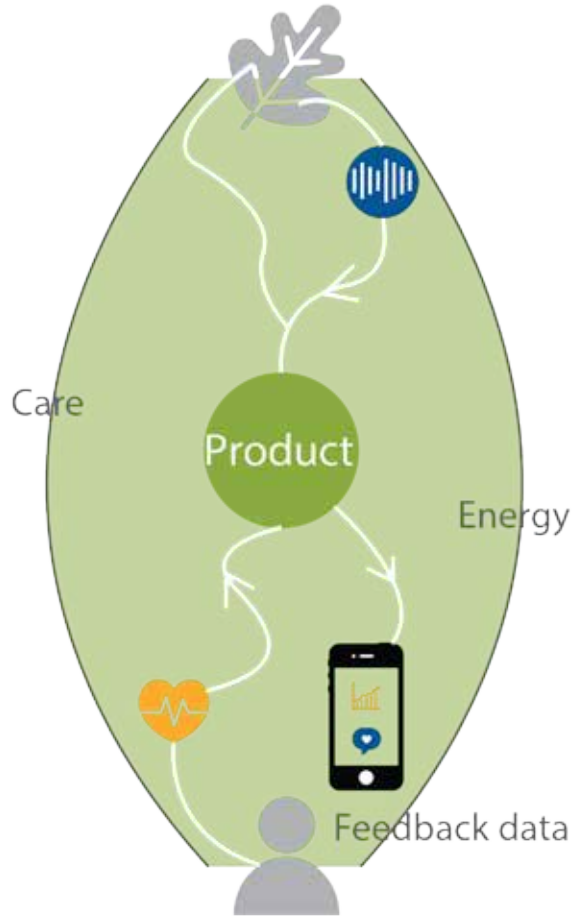
The first concept is to create an app and a system that would match a human body with a plant, and then I add a product as a tool, the product intend to use the nanomaterial, nanotechnology in a safe way that could be used on both human body and plants, in order to see through the inner information about the two.

Concept

MATCH



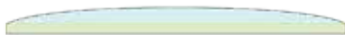
System



Product



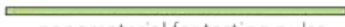
Sticker that test the human body condition based on the pulse



impermeabile material



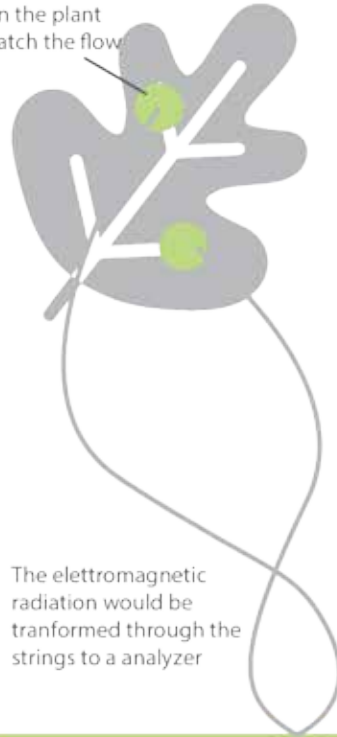
nanomaterial for testing pulse



material sticking on the skin



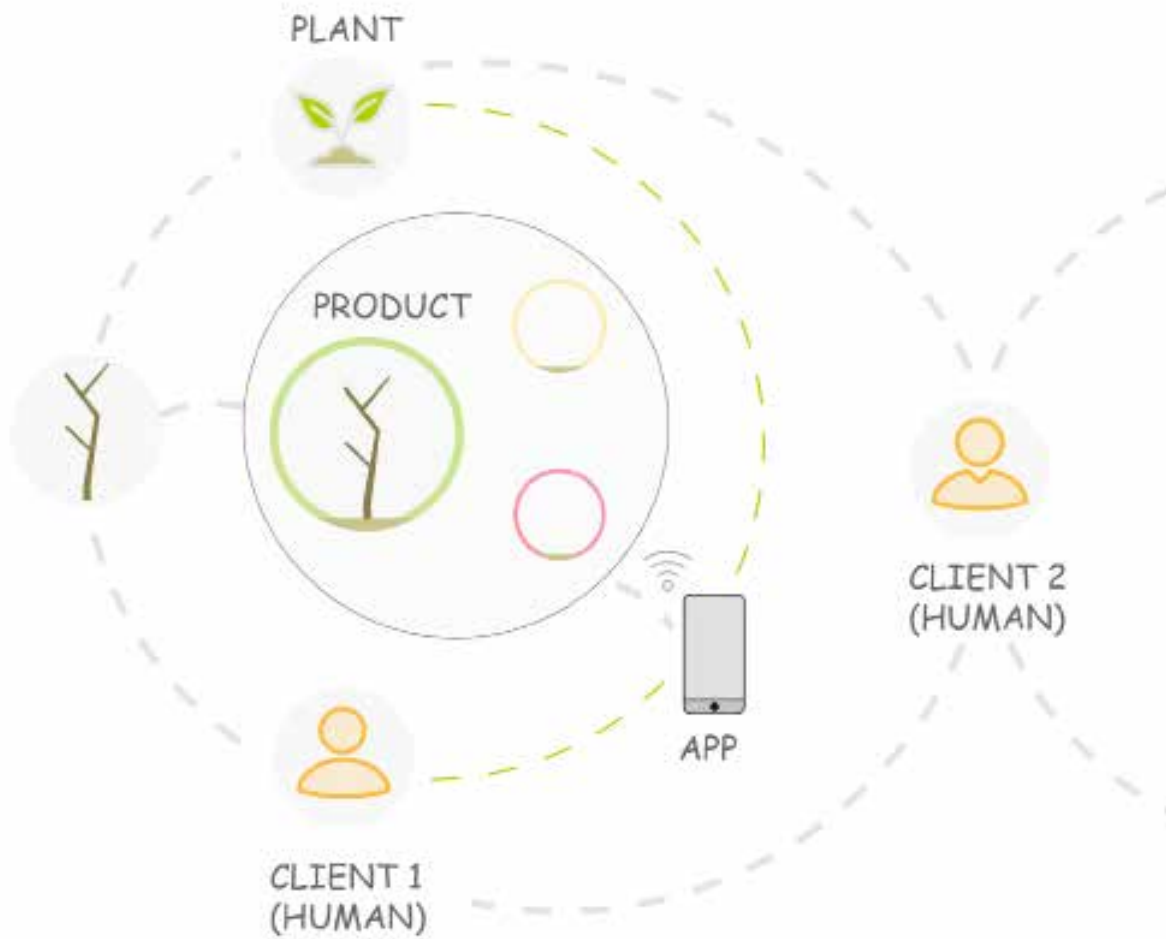
Clip on the plant
that catch the flow



The elettromagnetic
radiation would be
tranformed through the
strings to a analyzer

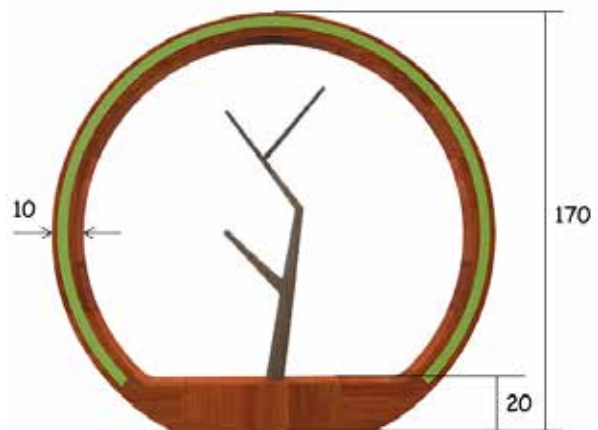
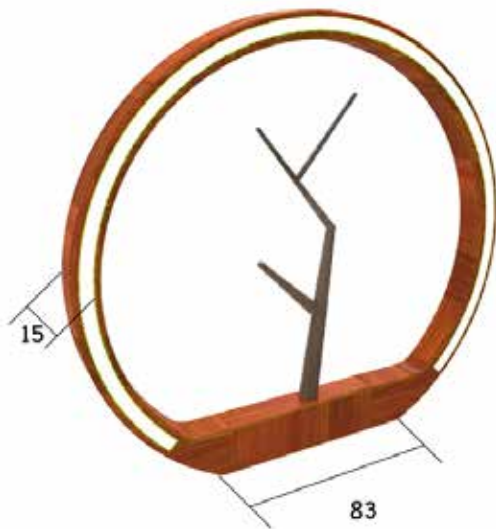
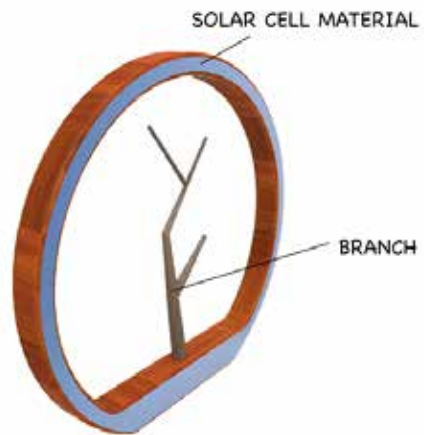
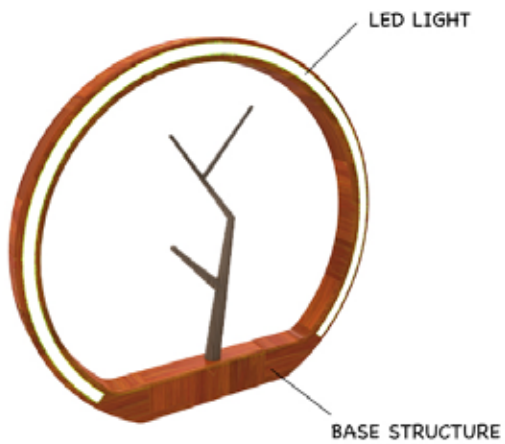


Plant flow analyzer



THE PROJECT SYSTEM

- THE SYSTEM HAS 2 MAIN CHARACTERS, HUMAN AND HIS OWN MATCH PLANT.
- THE DIRECT STRUCMENT TO REALIZE THE INTERAC TIVE BETWEEN THE 2 IS THE BRANCH PART OF PROD UCT.
- THE MAIN ROLE OF PRODUCT BASE IS TO , ANAL IZE THE DATA COLLECTED BY THE BRANCH PART AND GIVE SIGN TO THE CLIENT ABOUT THE BOTH CONDI TIONS.
- THE MAIN ROLE OF APP IS GIVE MORE INFORMA TION, DATA IN ORDER TO LET CLIENT UNDERSTAND MORE ABOUT THE CONDITION OF BOTH THE 2
- ALSO, VIA APP IT IS POSSIBLE TO CONNECT AND COMUNIA TE WITH ANOTHER CLIENT MATCHING THE SAME PLANT BUT USING ANOTHER PRODUCT.

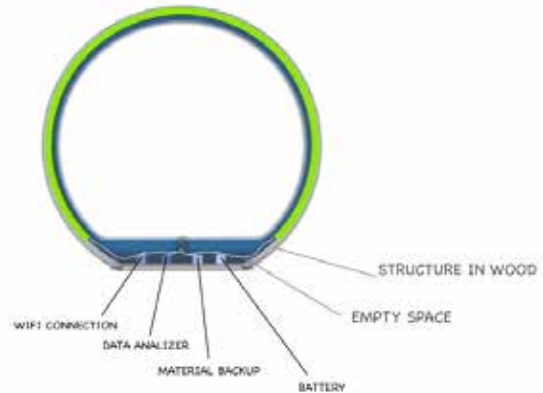
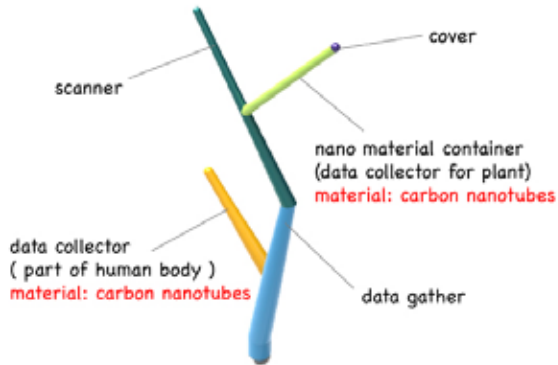
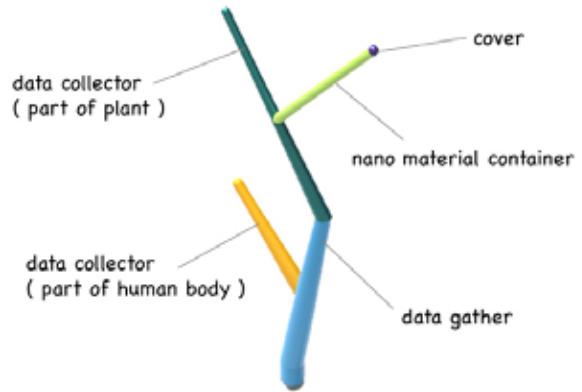
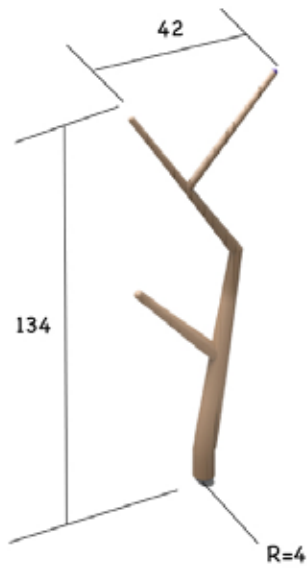


The product

The product is like an interior decoration so that the measurement of the product is modest, with a circle diameter 170 mm.

It uses the solar material in the wooden structure in order to collect the solar energy as the battery energy of the whole product.

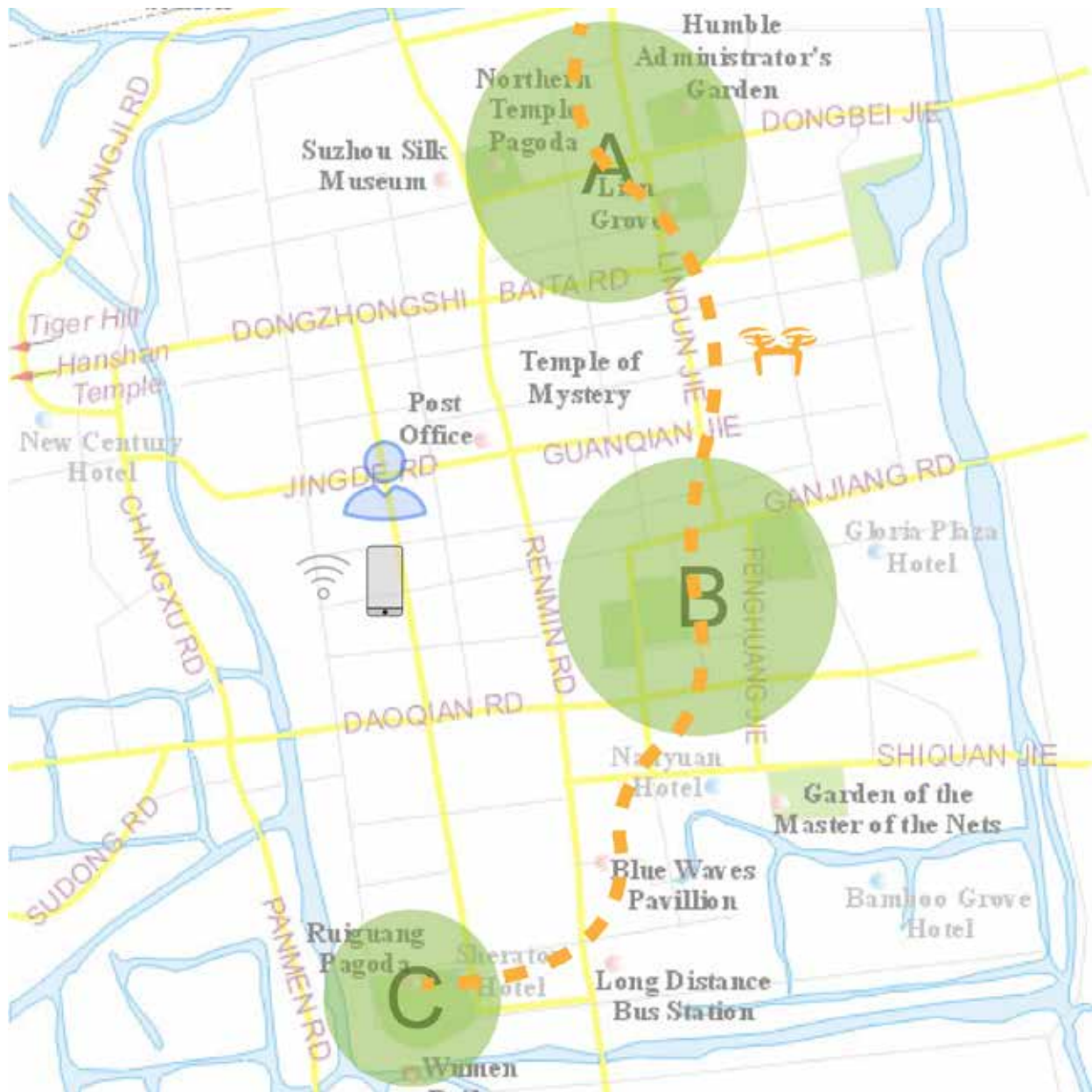
On the other side, there is an LED instructure that wuld indicate the condition of both plant, and human body, if one of them gets worse, it would change the color to remind the user take care of the conditions.



This branch part of the product is the main tool to connect the human body and the plant.

It has different parts, the part to collect information about human body, the part to collect information about the plant's condition.

So it is necessary to bring it outdoor to check the micro movements of the plant.



How the project will be realized?



The areas where the urban plants gather would be settled as the position of the realization of the project



The UAV biosensor would fly over these areas to collect the data and send it to the users.



The users with the app would find the match plant with the data analyzer.
The users already found the match could track the plants' condition.





At weekend...



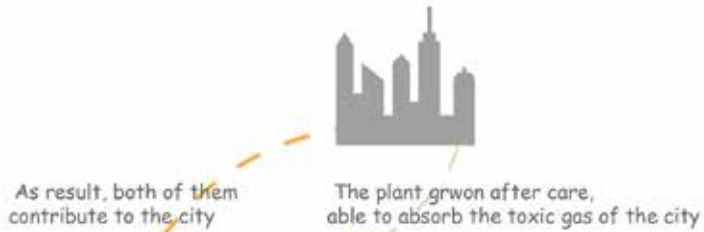
Wake up & find the LED yellow which means a warning



Check the app to find both himself and the plant in modest condition



Pick the branch part
go out to the area where his own
founded match belongs.



As result, both of them
contribute to the city



The plant grwon after care,
able to absorb the toxic gas of the city



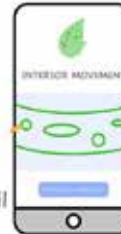
To look after the plant,
user himself go out and breathe
fresh air of city created by plant



Follow the tip,
remove the weed



Scan to the the detail
movement





Crossing the process, there could be several other users around him, contact them with app to make new friend, share info.



After cure the plant, physically and mentally, himself improved during the weekend



Reference

www.wikipedia.it

www.pinterest.it

www.xinhua.com

researchgate.net

answers.net

<http://www.damanhur.org>

<http://simonitesirch.com>

Ribg.org

<http://www.stefano-boeri-architetti.net/en/portfolios/bosco-verticale/>

http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/

La società a costo marginale zero, Rifkin

Climate Change 2014, IPCC