INTERFACE DESIGN

WINE DEFECTS DETECTER

PIC HERE

PIC HERE

- liquid filter, thermometer and quantity measurement device

The variation of the wing can be

There are 3 LED lights on each seed which will be lighted up and rotate with the seed, create the light painting captured by the low shutter speed, multiexposed camera. The variation of the wing can be done with Scotch tape, then they will provide different

A controller, which works as a potentiometer. A ring connects with a phone or any other device and can be used to control the level of sound and have a function programmed for a button (e.g. a stop/play command). It would also have a small LED which would indicate programmed information (e.g. missed call for the phone).

BEACON KEYCHAIN

RING CONTROLLER

SMART FINGER

LIQUID TESTER

MAPLE SEED

HEARING LIGHTLY

WINTER SEMESTER

2013/2014

TITLE

CONCEPT

DESCRIPTION

As usually all the best ideas are [illegible] we are lying down in a bed and trying to fall asleep. Most [illegible] people are too lazy to wake, turn on the light and write down the ideas and there's a many of ideas are lost because of that.

[illegible] over the flying natural object, [illegible] is a very interesting design [illegible] alternative for displaying [illegible] properties: light weight, free form [illegible] structure. Its auto rotation ability [illegible] more fasinating flying object. Consid[illegible] the functional attribute, the way the [illegible]

MASTER PROJECT

A controller, which works as a potentiometer. A ring connects with a phone or any other device and can be used to control the level of sound and have a function programmed for a button (e.g. a stop/play command). It would also have a small LED which would indicate programmed information (e.g. missed call for the phone).

FUTURE LAB DESIGN TEAM // PROF.DR. JENS GEELHAAR

Future Lab//Master Project WS 2013 // Interface Design

Bauhaus University Weimar // 3D MID Lab

Water Quality Tester & Filter

The main idea is to create a water filter and tester as one gadget. It would indicatethe TDS in the water and it would be able to purify the water by using UV daylight.

Future Lab / 3D MID Design / Interface Design / Master Project / WS 2013/2014

Aidas Čergelis

Future Lab / Interface Design / Aidas Čergelis

Master Project / MA 2013/2014

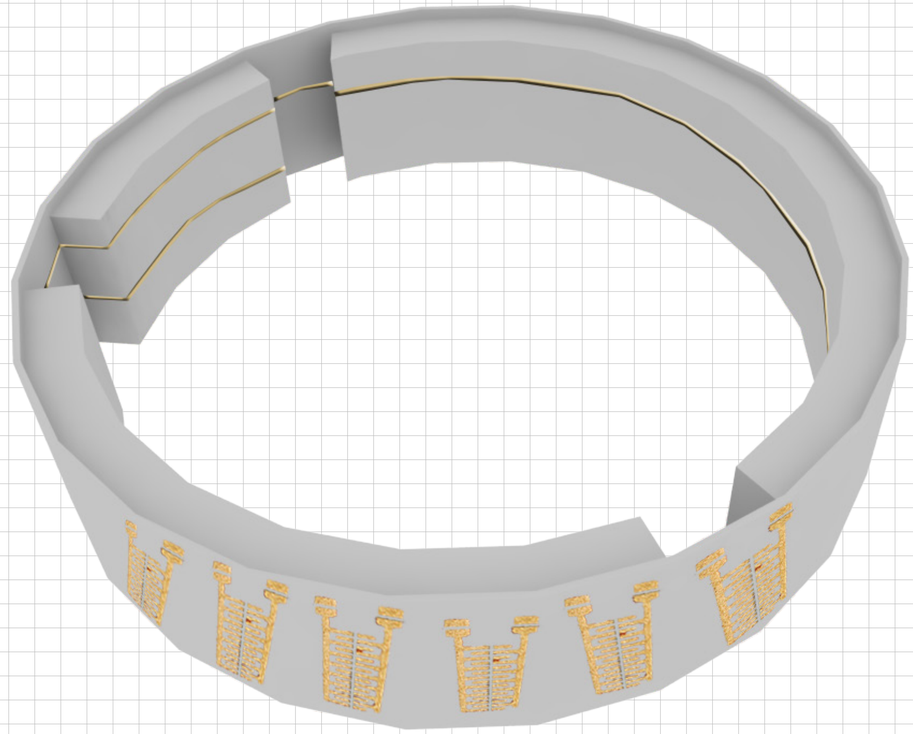
TDS Water Tester

TDS Total Dissolved Solids are the total amount of mobile charged ions, including minerals, salts or metals dissolved in a given volume of water. TDS, which is based on conductivity, is expressed in parts per million (ppm) or milligrams per liter (mg/L).

+ Water filter

The idea is to purify the water by using UV coming from the daylight so it would not need much energy from the battery. A small LCD display shows the water TDS results and indicates when water is prepared to drink.

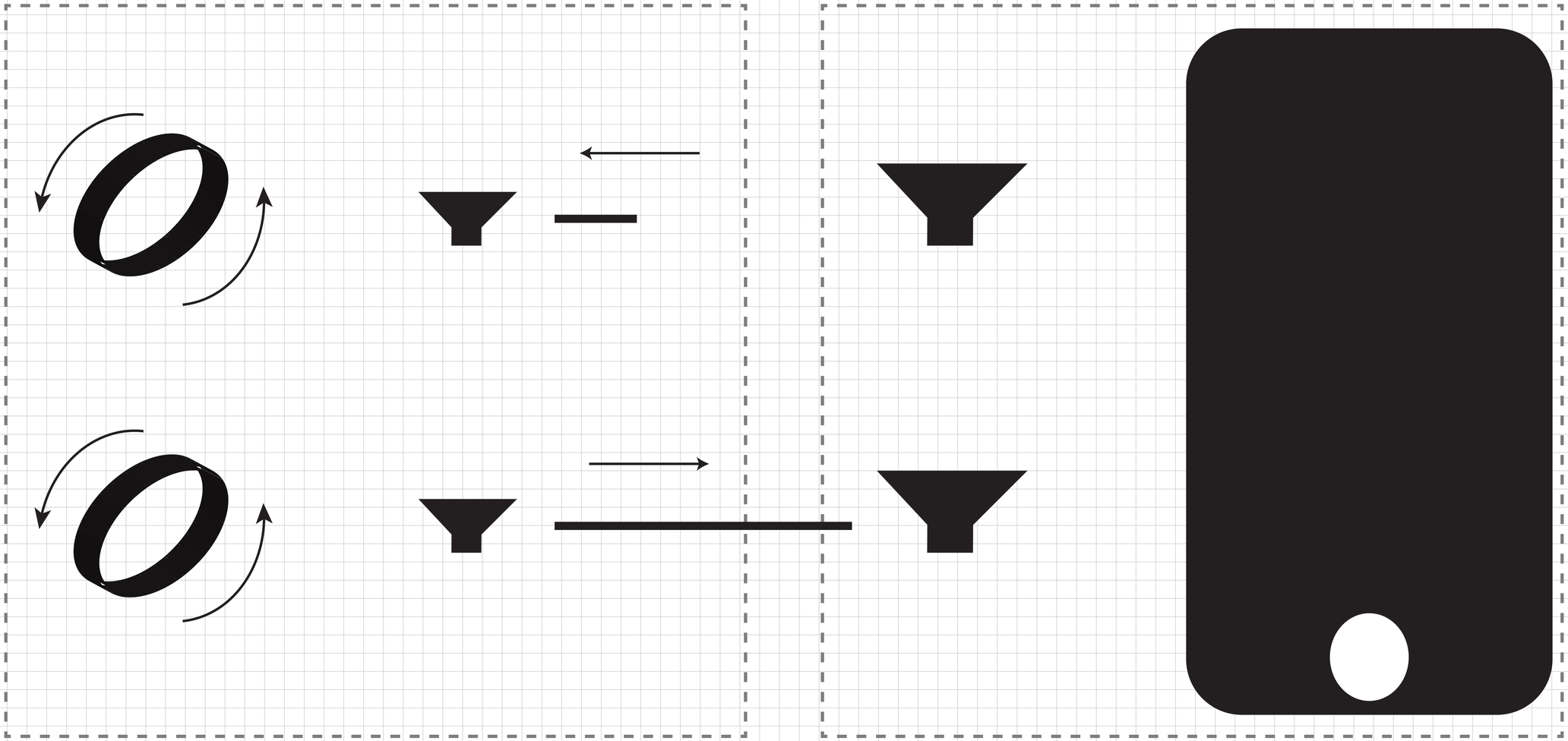
RING CONTROLLER



A REMOTE EXTENSION OF ANY MOBILE DEVICE WITH A BLUETOOTH CONNECTION

Future Lab / 3D MID Design / Interface Design / Master Project / WS 2013/2014

JONAS LIDEIKIS

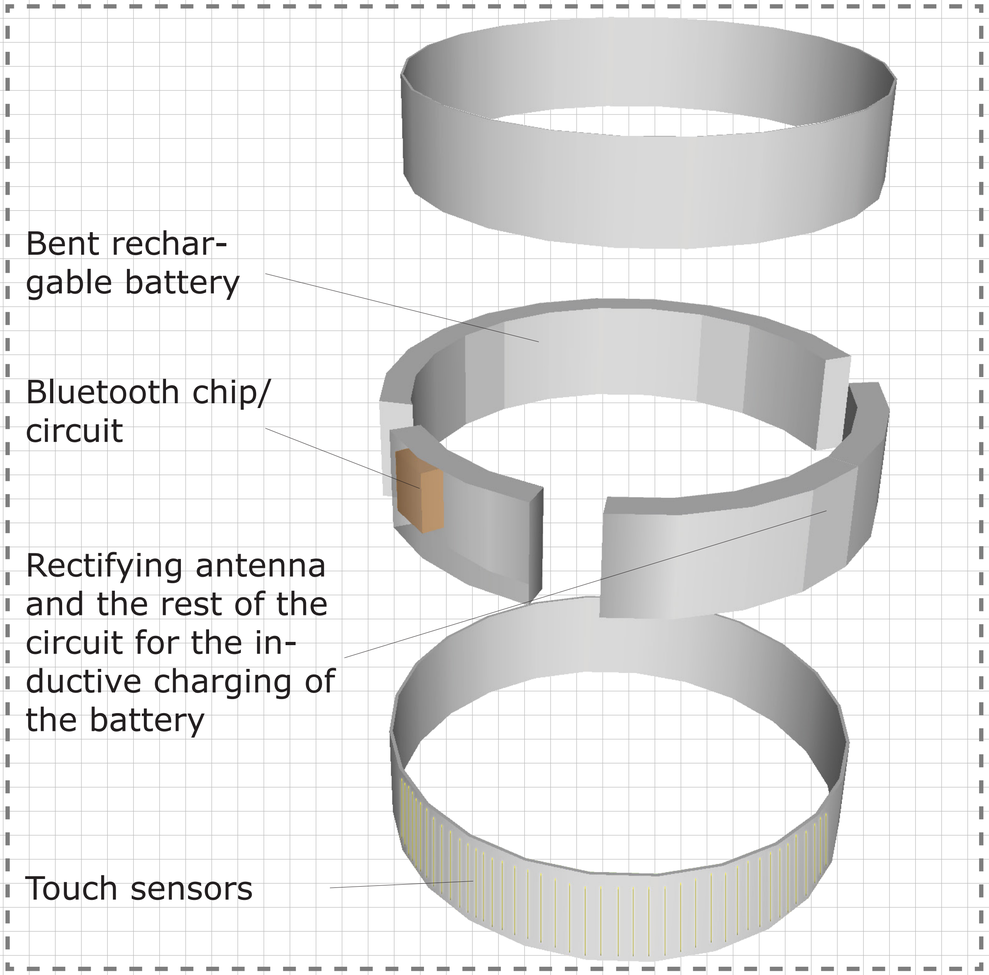


Ring Controller

The Ring Controller is a device allowing to control a sound level remotely on any portable device with a Bluetooth connection (such as phones, tablets, music playing devices). It consists of a Bluetooth chip, rechargeable bent battery, conductive charging part (main element - rectifying antenna) and touch sensors. By sliding through the sensors on the outer side of the ring it acts in the same way as a potentiometer.

Future Lab / Interface Design / Jonas Lideikis

Master Project / MS 2013/2014



INTERFACE

Scroll with finger - controlling the volume
Double tap on one place - switching the mode
(the scrolling action applies to other function)

TECH. SUPPORT

Bluetooth chip - currently available at a very small size of 2.0 x 1.6 x 0.45 mm.
Bend battery - currently available at a size of 2.0mm*10mm*24mm. By lowering the with and increasing the length it would be easily applicable and at a very reasonable price. Even smaller batteries are used for medical devices.
Rectifying antenna - a long time since it has been printed, therefore non expensive solution.

Future Lab / Interface Design / Jonas Lideikis

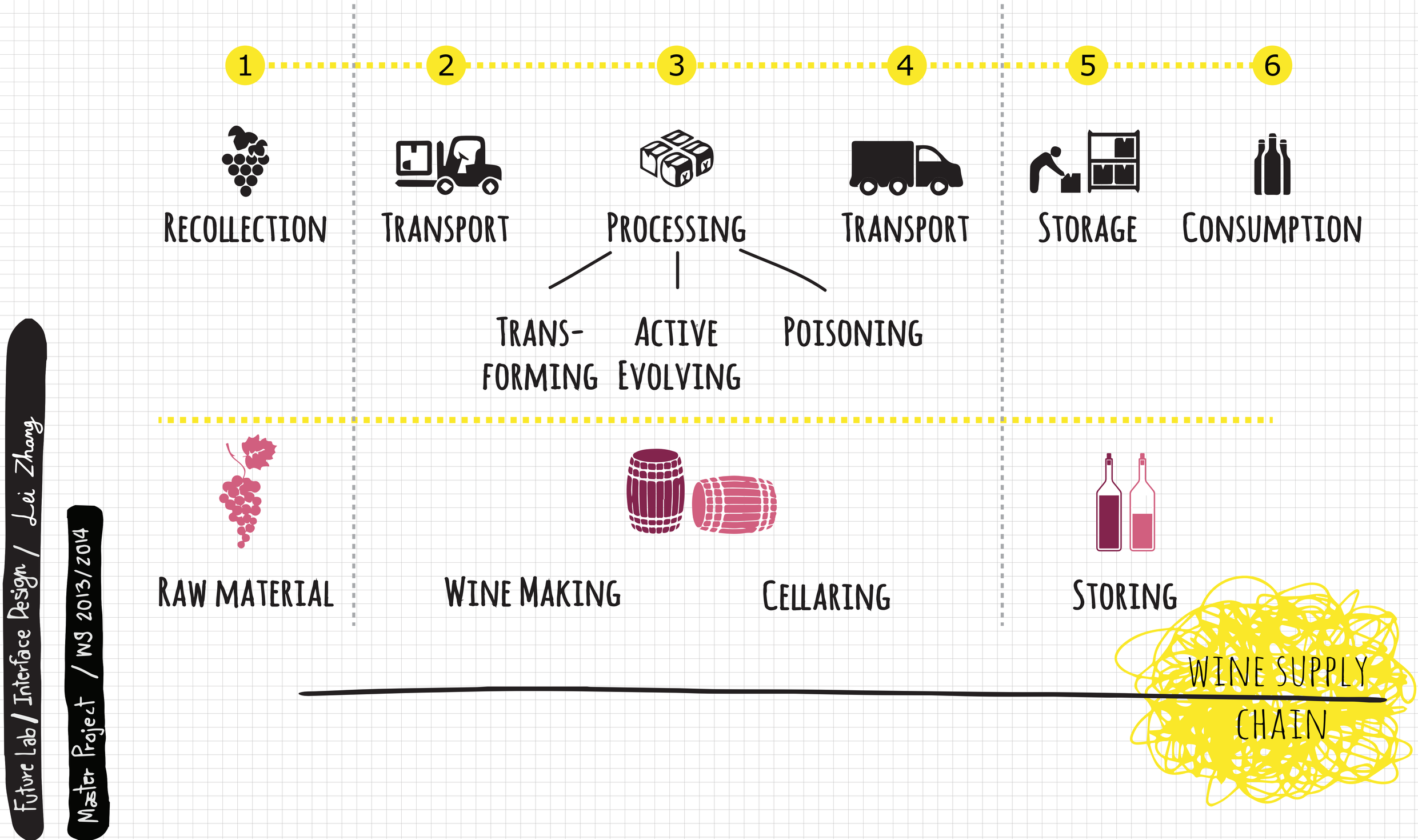
Master Project / WS 2013/2014

WINE DEFECTS DETECTER

FOR
MASTER WINE MAKERS
&
WINE ENTHUSIASTS

Future Lab / 3D MID Design / Interface Design /
Master Project / WS 2013/2014

LEI ZHANG


1
2
3
4
5
6
Recollection
Transport
Processing
Transport
Storage
Consumption
Trans-
forming
Active
Evolving
Poisoning
Raw material
Wine Making
Cellaring
Storing
Wine Supply
Chain
Future Lab / Interface Design / Lei Zhang
Master Project / WS 2013/2014

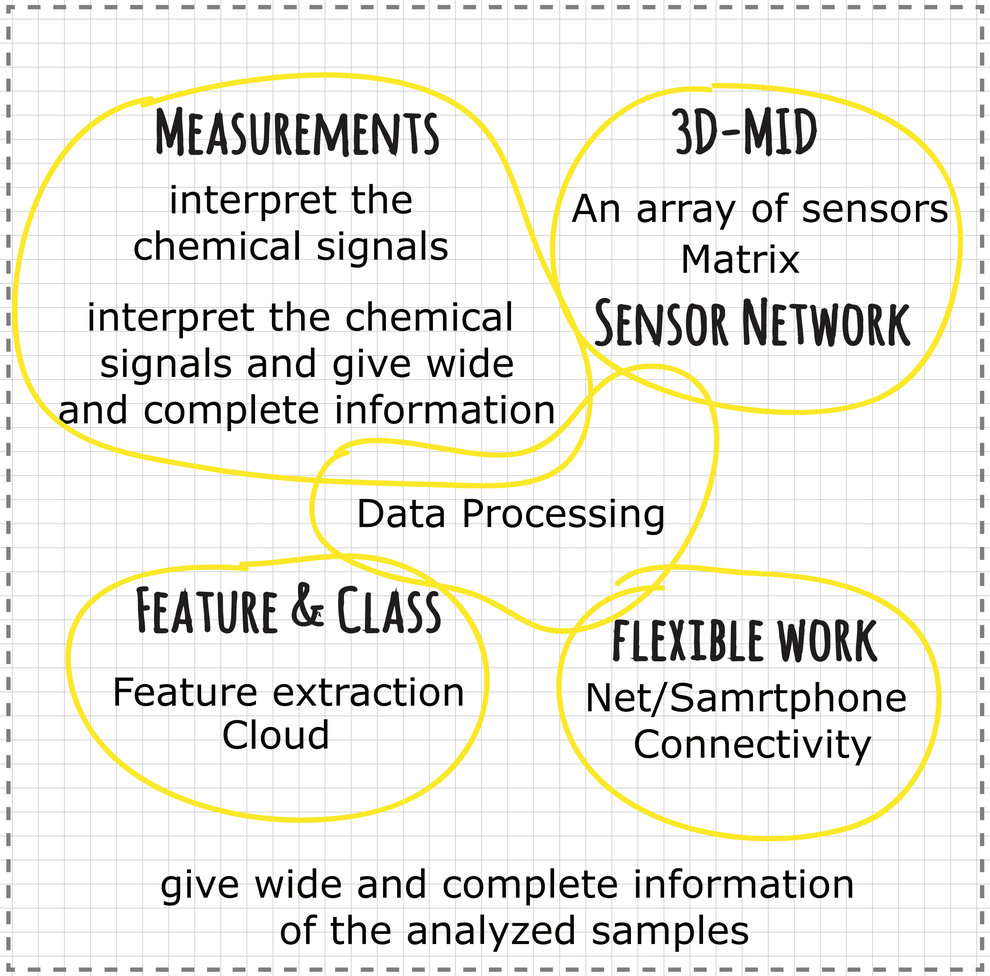
Process	Wine Making			Storing
Harmful Substances	Quantities of Nitrates & Left Synthetic Fertilizers	Mercaptans		
		Disulfides & Free Sulfur Dioxide		
		Hydrogen Sulfide		
Wine Making Environmental Factors			Temperature	Temperature
			Humidity	Humidity
			Nutrients	
			pH	
Resulted Defects Factors			Residual Sugar	
		Oxygen	Nutrients	
		Carbon Dioxide	Acetic Acid & Ethyl Acetate	
Factor Analysis	Raw Produce	Causes of Chemical Spoilage	Causes of Microbial Spoilage	

The most common defects of spoiling wine, and spoiling factors analysis and how to detect them.

HOW TO TELL WINE IS SPOILING?

Future Lab / Interface Design / Lei Zhang

Master Project / WS 2013/2014



FRAMEWORK

Give wide and complete information of the analyzed samples。

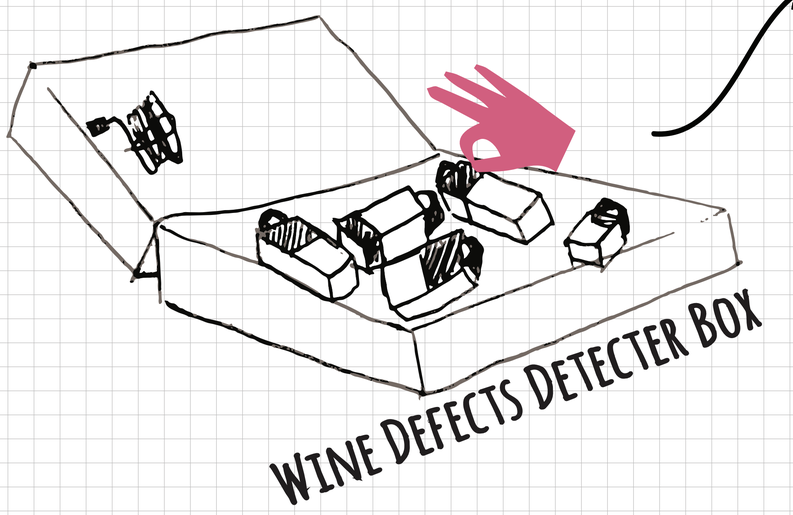
SCENARIOS

Your Wine could be spoiling in every process:

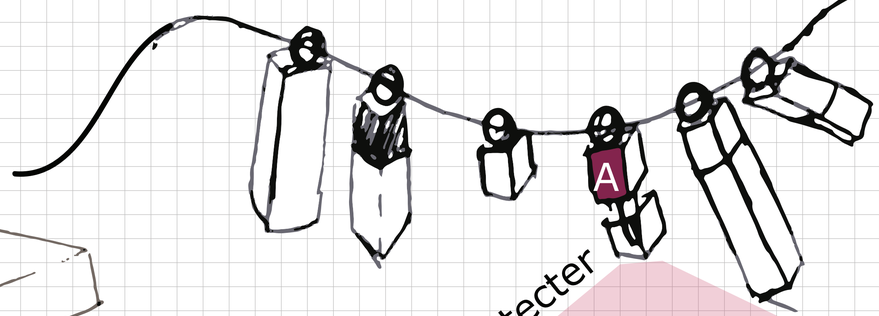
WINE MAKING, CELLARING, STORING.

Knowing and Controlling conditions can affect your final wine quality.

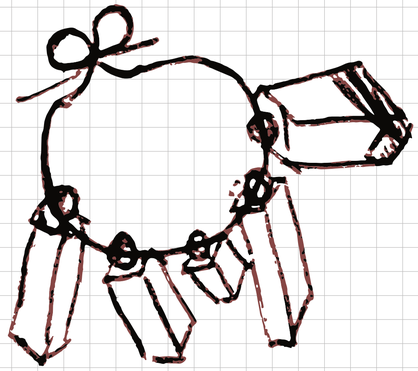
Future Lab / Interface Design / Lei Zhang
Master Project / NS 2013/2014



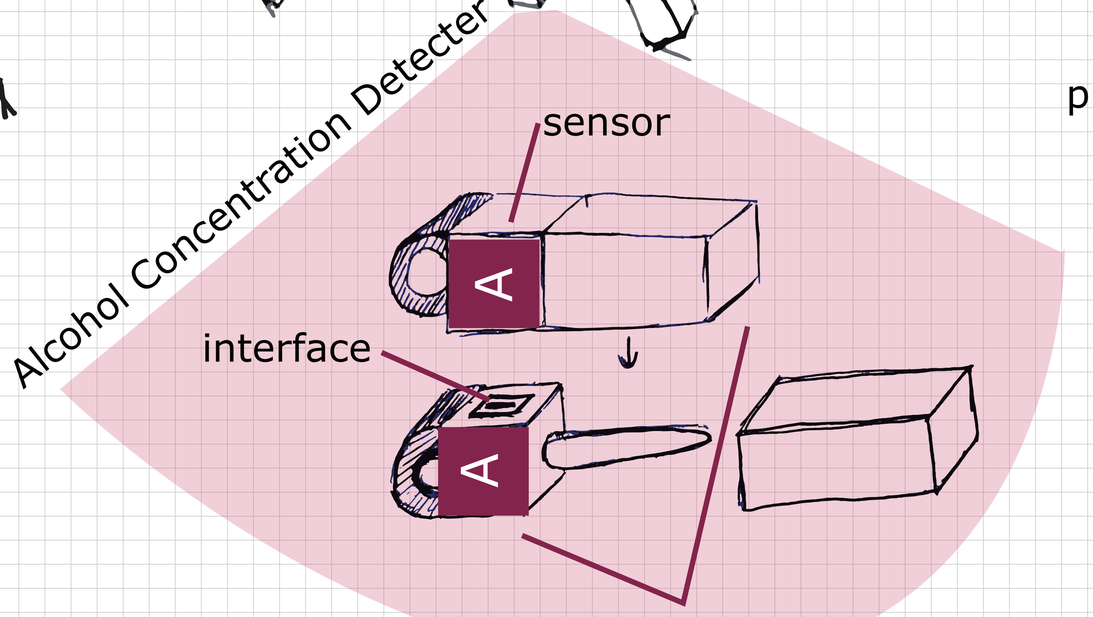
WINE DEFECTS DETECTS BOX



FLEXIBLE SENSORS ARRAYS



Take them to cellar or other places you want.



CHEMICAL SENSORS MODULE

Wine Defect Detecter could help you alter your winemaking process by offering the conditions data of the most common defects detecting.

FUNCTION

FEATURE

Future Lab / Interface Design / Lei Zhang

Master Project / WS 2013/2014

sensor data

A

CO_2

O

HS

Alcohol Concentration

Acetic Acid & Ethyl Acetate

Carbon Dioxide

Oxygen

Hydrogen Sulfide

Temperature

Humidity

Quantities of Nitrates & Left Synthetic Fertilizers

pH

pH

A

SENSOR
for scientifical accuracy and enhanced durability.

APP

APP

CO2

Alcohol Concentration

16.9

TRACKING
CONTROLLING
CONDITIONS

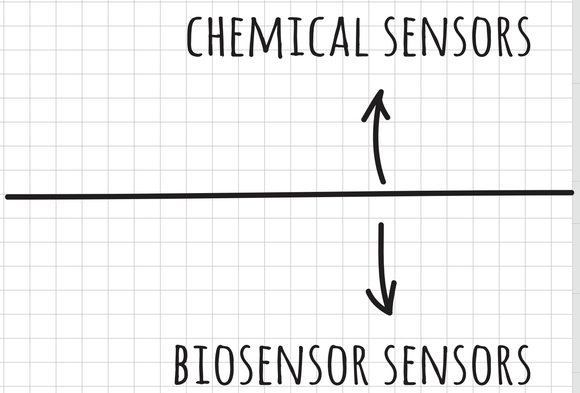
WINEMAKING
CELLARING
STORING

PROTOTYPE &SYSTEM

Future Lab / Interface Design / Lei Zhang

Master Project / WS 2013/2014

SENSORS TARGET & COST ASSESSMENT

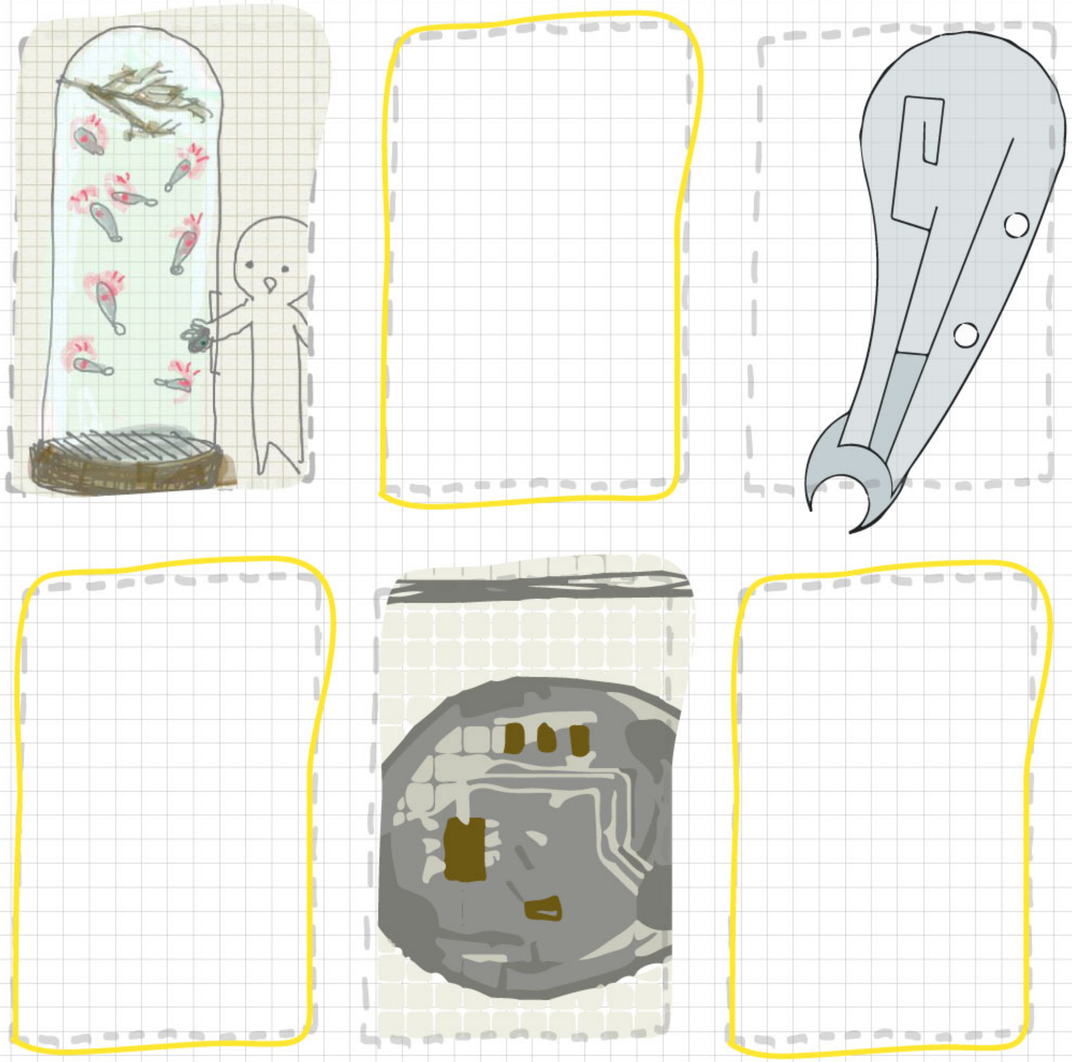


No.	Target	Possible Menchanisms	Price	Maturity	Accuracy
1	Temperature	Integrated semiconductor transducer	<€1	high	medium
2	CO2	Infra red spectrum absorption detector	<€150	high	high
3	Oxygen	Electrochemical (oxidation-reduction)	<€70	high	high
4	H2S	Electrochemical (oxidation-reduction)	<€70	high	high
5	Humidity	Integrated MEMS humidity transducer	<€10	high	high
6	Sulfite	Sulfite oxidase	/	high	high
7	Nitrite	Cytochrome c nitrite reductase	/	high	high
8	pH	pH probe from Vernier	/	/	/
9	Alcohol	biosensors	<€3	medium	medium

Future Lab / Interface Design / Lei Zhang

Master Project / WS 2013/2014

MAPLE SEED



AN INSTALLATION WITH3D MID MAPLE-SEED-SHAPED COMPONENTS

Future Lab / 3D MID Design / Interface Design / Master Project / WS 2013/2014

APASRI TITATARN

DESIGN FOR 3D-MID . . .

Design Brief

Design an object suitable for 3D MID technology.
The main purpose of the design is set to show the special properties of 3D MID which normal electronic board cannot serve the design

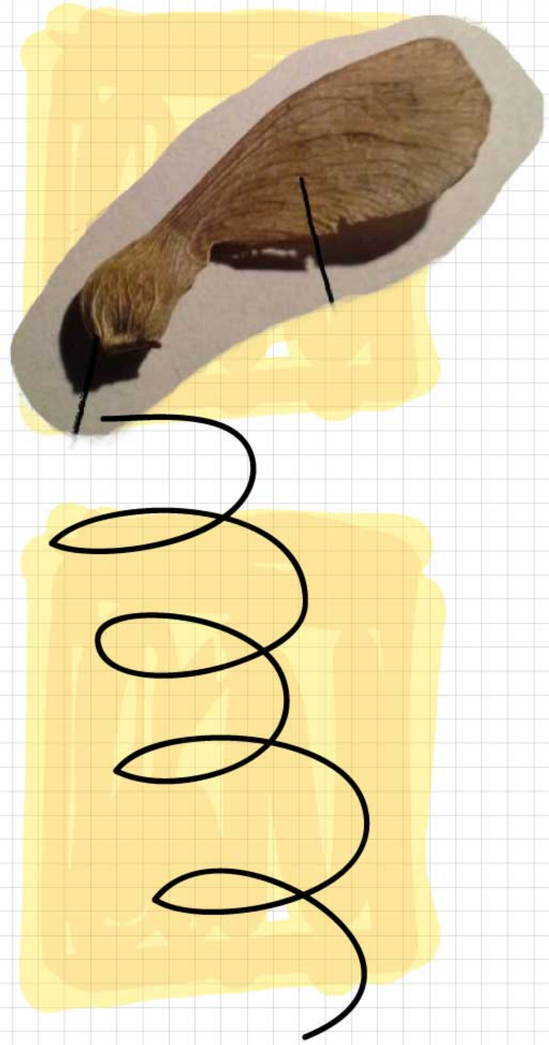
Analysis

which is supposed to be
- the design cannot be realized with normal PCB
- Light weight object
- free form 3D structure
- the structure embedded with conductive line, no additional wire required

The selected design is based on the shape of Maple seed because.....

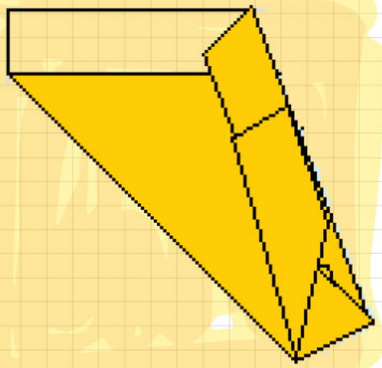
- its light weight is a good design for displaying the 3D MID properties
- free form structure.
- Its auto rotation ability makes it even more fascinating flying object.

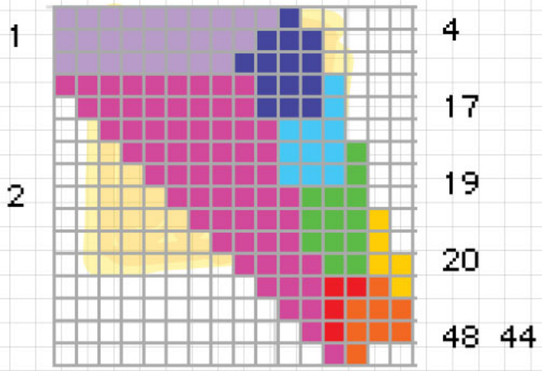
Considering the functional attribute, the way the seed landed softly on the ground while rotating causes less damage to the object itself than normal way of falling.



WHY ...MAPLE SEED?

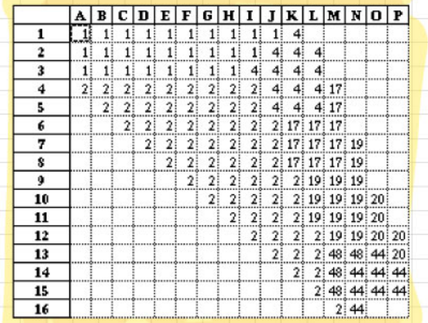
Future Lab / Interface Design / Aparsi Jitatam
Master Project / NS 2013/2014



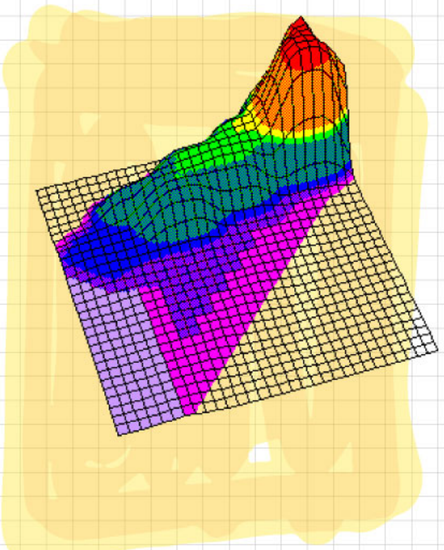


The pictures show the weight distribution , which make the seed able to autorotate.

<<http://www.cs.indiana.edu/~jwmills/EDUCATION.NOTEBOOK/-weightdist/weightdist.html



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	1	1	1	1	1	1	1	1	1	1	4					
2	1	1	1	1	1	1	1	1	1	4	4	4				
3	1	1	1	1	1	1	1	1	4	4	4	4				
4	2	2	2	2	2	2	2	2	2	4	4	4	17			
5		2	2	2	2	2	2	2	2	4	4	4	17			
6			2	2	2	2	2	2	2	2	17	17	17			
7				2	2	2	2	2	2	2	17	17	17	19		
8					2	2	2	2	2	2	17	17	17	19		
9						2	2	2	2	2	2	19	19	19		
10							2	2	2	2	2	19	19	19	20	
11								2	2	2	2	19	19	19	20	
12									2	2	2	2	19	19	20	20
13										2	2	2	48	48	44	20
14											2	2	48	44	44	44
15												2	48	44	44	44
16													2	44		



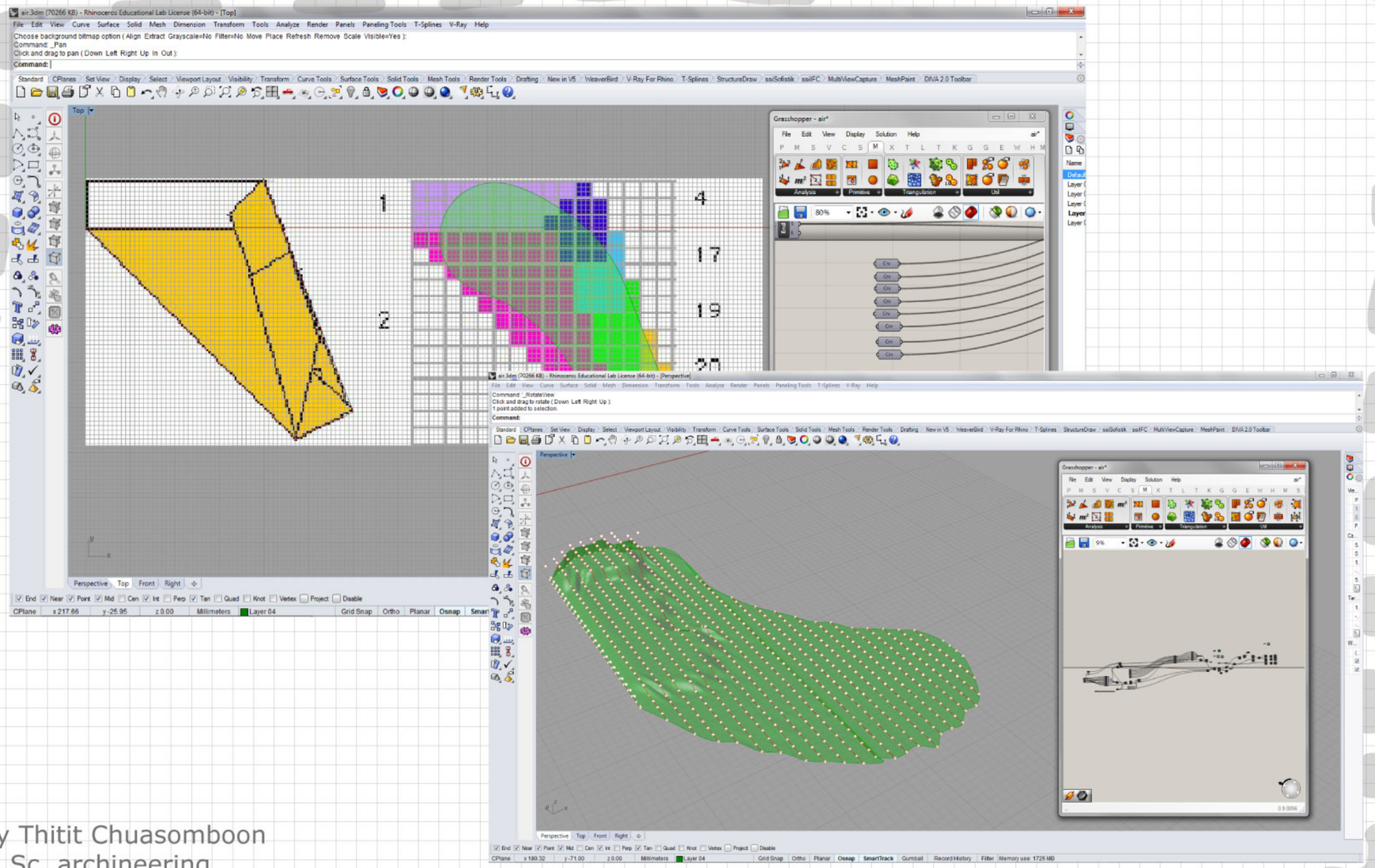
There are many researches in both scientific and artistic field about Maple seed structure.
How does it fly?
What makes it be able to rotate itself while falling to the ground?

From the Journal of Maple Seed Science
They made a origami prototype imitating the Maple seed and analyzed the distribution of weight of the origami seed which successfully rotates while falling down as the way the real seed does.

Calculating further from the weight distribution from the previous research, the 3D model is generated with Rhinos software.

GATHER INFO. FROM PREVIOUSLY EXISTED RESEARCH

Future Lab / Interface Design / Apassi Jitatam
Master Project / NS 2013/2014



by Thitit Chuasomboon
M.Sc. archineering

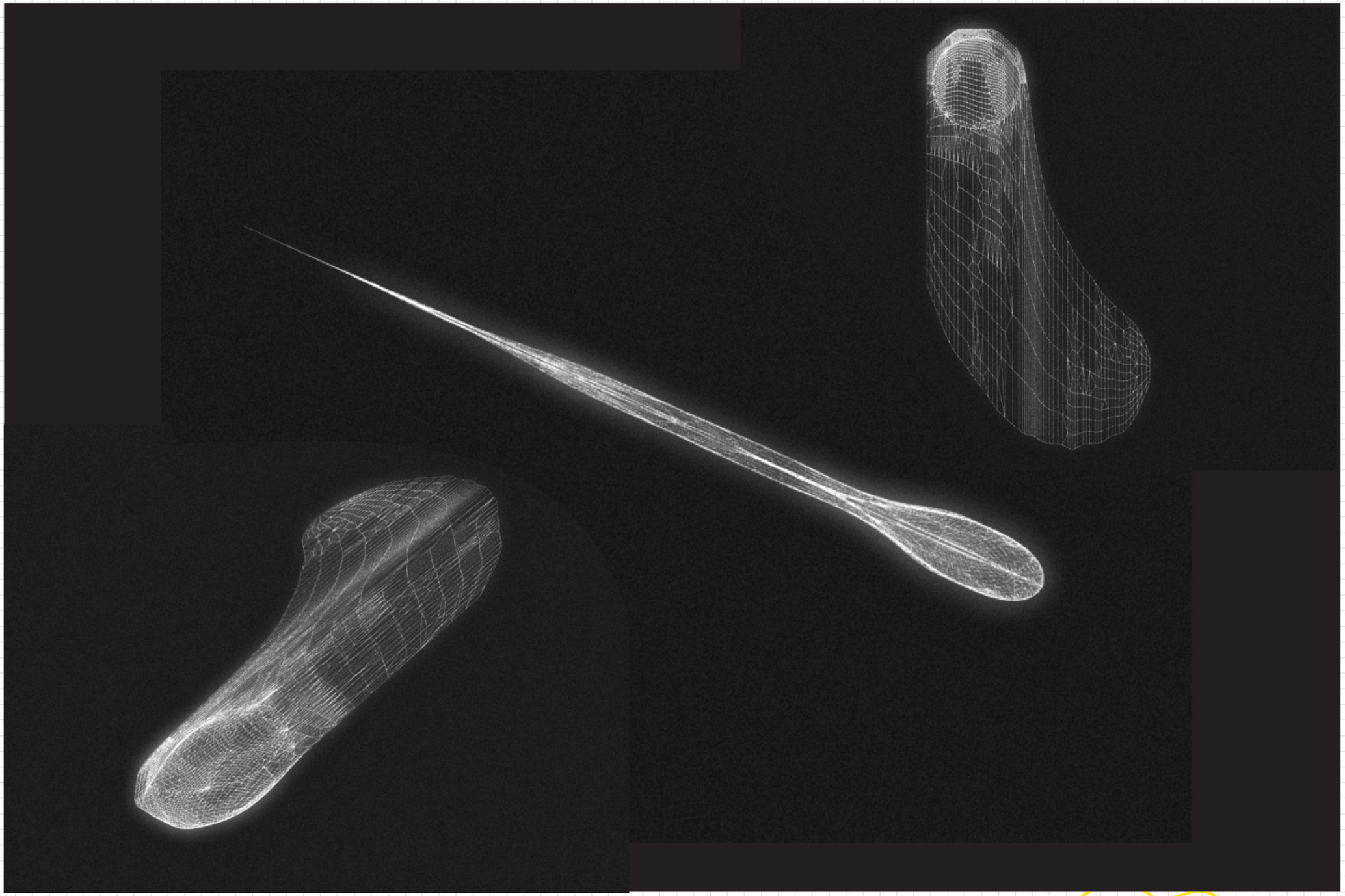
Future Lab / Interface Design / Apassi Jitatarn

Master Project / NS 2013/2014

pictures from Rhinos 3Dmodel program....

3D MODELING

generate Maple seed shape according to weight distribution data from the research



Future Lab / Interface Design / Apasri Jitatarn

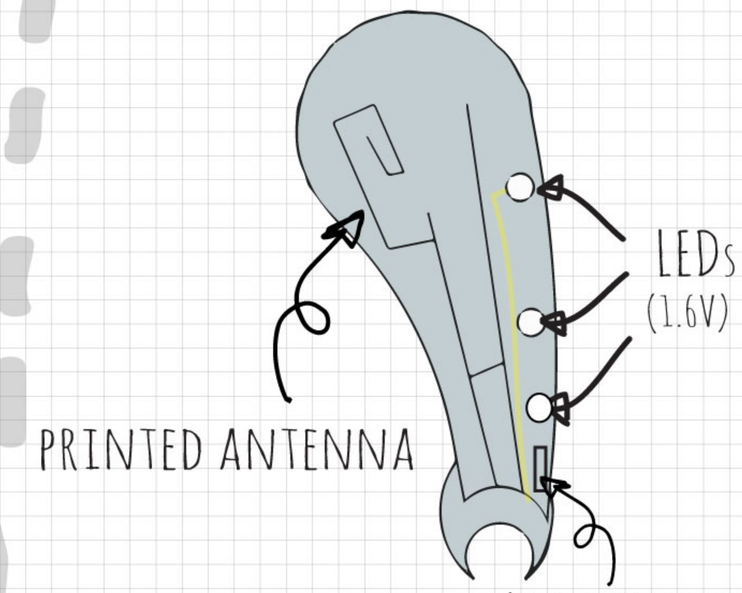
Master Project / NS 2013/2014

pictures from Rhinos 3Dmodel program....

3D MODELING

generate Maple seed shape according to information on weight distribution research
by Thitit Chuasomboon MSc archineering

3D MID PART(WING)



NORMAL PCB PART

-BATTERY (FOR EXAMPLE CR927 3V.)

- TINY MICROCONTROLLER

- WIRELESS CHIP : (FOR EXAMPLE NRF24L01)

THE NORDIC SEMI NRF21L01+, A SINGLE-CHIP, 2.4GHZ BAND WIRELESS TRANSCEIVER

1.9V,

DETAILED DESIGN

The Maple seed consists of two parts : First the wing which is made with 3D MID technology according to the 3D model calculated from weight distribution substract with the weight of LEDs and sensor. The second part is based on a circular PCB, on which the battery and signal sender and receiver located.

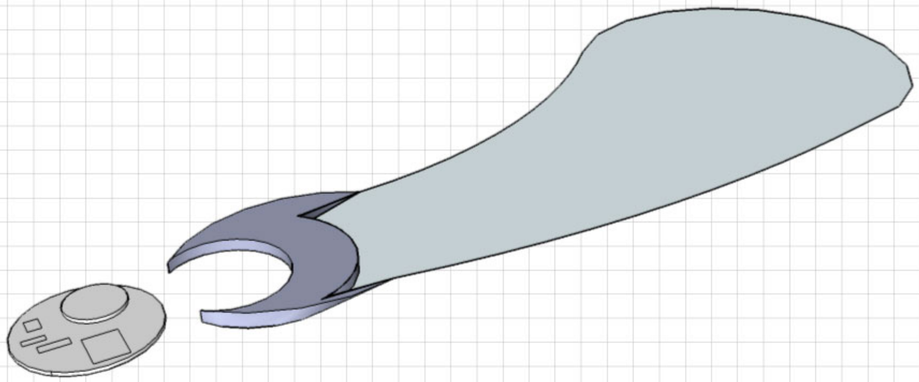
Future Lab / Interface Design / Apassi Jitatarn

Master Project / NS 2013/2014

Future Lab / Interface Design / Aparsi Jitatarn

Master Project / WS 2013/2014

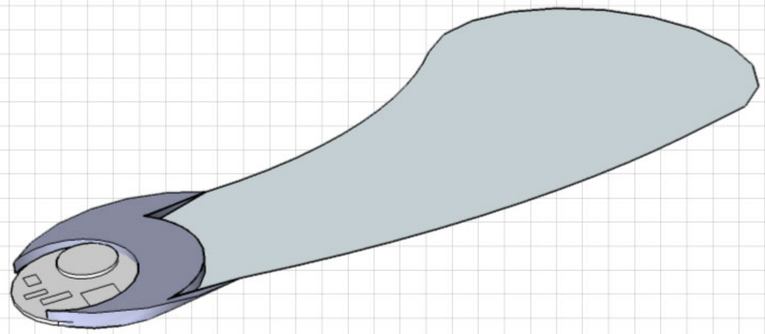
JOINT DESIGN



DETAILED DESIGN

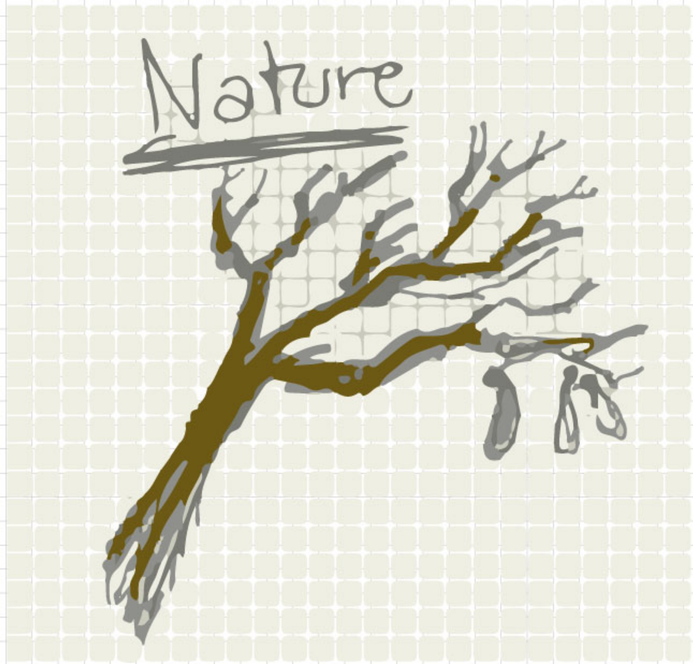
The Maple seed consists of two parts : First the wing which is made with 3D MID technology according to the 3D model calculated from weight distribution substract with the weight of LEDs and sensor. The second part is based on a circular PCB, on which the battery and signal sender and receiver located.

JOINT DESIGN



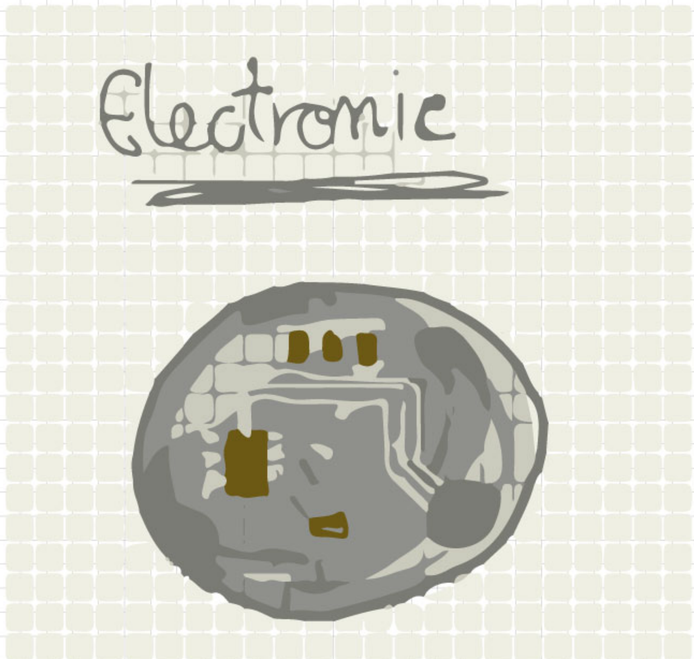
DETAILED DESIGN

The Maple seed consists of two parts : First the wing which is made with 3D MID technology according to the 3D model calculated from weight distribution substract with the weight of LEDs and sensor. The second part is based on a circular PCB, on which the battery and signal sender and receiver located.



and

vs



INSTALLATION CONCEPT

The combination of the design which is based on natural form and the electronic element is like mixing warm and cold sense together. On one hand, it can blend and make the mood of electronic pieces becomes more friendly. On the other hand, the high contrast feeling can be perceived from this combination. Inspired by this contrary, the installation concept is set to show contrast between nature and electronic, cycle of lives in nature and the intervention from the human side.

Future Lab / Interface Design / Aparsi Jitatam
Master Project / MS 2013/2014

DYNAMIC

STATIC

GREEN

RED

VISIBLE

INVISIBLE

LOOP CYCLE

BREAK LOOP

DISCOVER

INNOVATE

FREE

CAPTIVATED

FLYING

FALLING

WARM

COLD

INSTALLATION CONCEPT

Future Lab / Interface Design / Apassi Jitatam

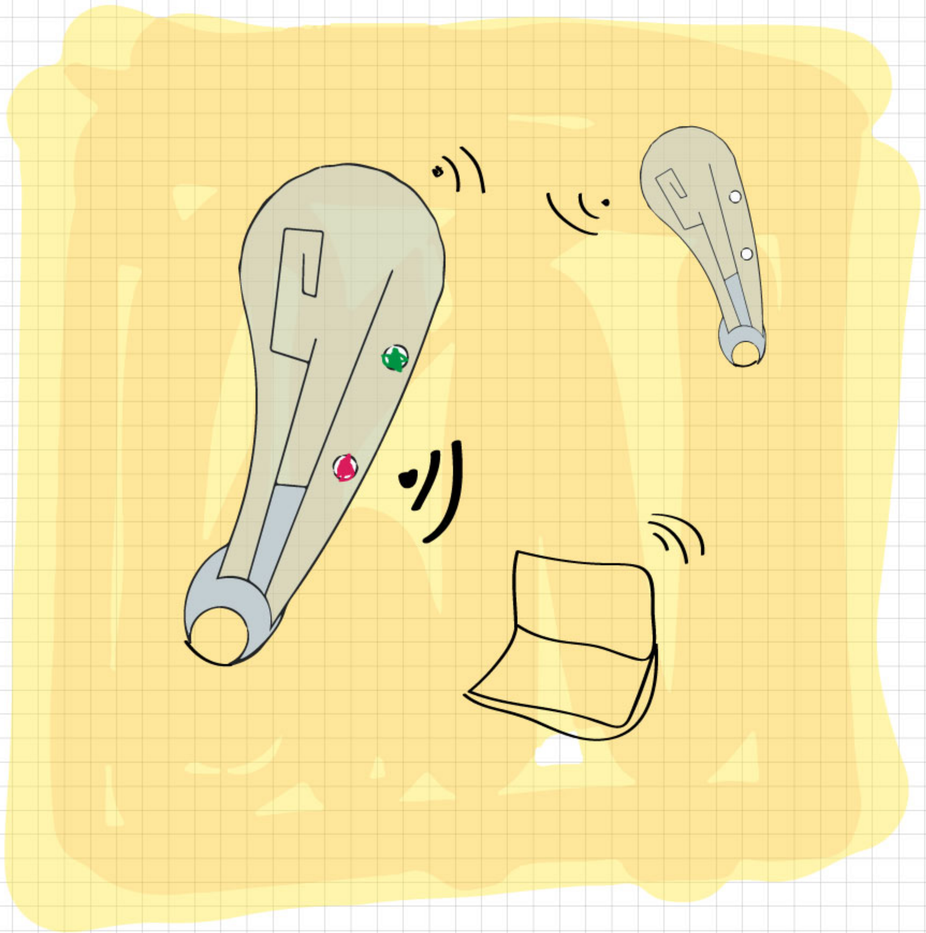
Master Project / NS 2013/2014

“PLEASE DON’T TOUCH”, SAID THE SEED

THE INSTALLATION

Future Lab / Interface Design / Aparsi Jitatarn

Master Project / NS 2013/2014



1.AIR TUBE

An air tube,a 60 x195 cm transparent tube made of Acrylic, its surface creates a slightly distorted picture. At the bottom, there is (a) fan(s) to create the dynamic flow of the air in the tube, in order to keep the electric seed flying in the air. There are 3 small windows letting people put their hands in to catch the seed

2. THE MAPLE SEEDS

Each seed contains red and green LEDs and a Accelerometer which will send the information from the sensor back to the sever. The server will gerenate sound from the parameter received from the sensor on each seed.
Each seed contains wireless transceiver module which allow them to communicate with the server and among themselves.

Future Lab / Interface Design / Apassi Jitatarn

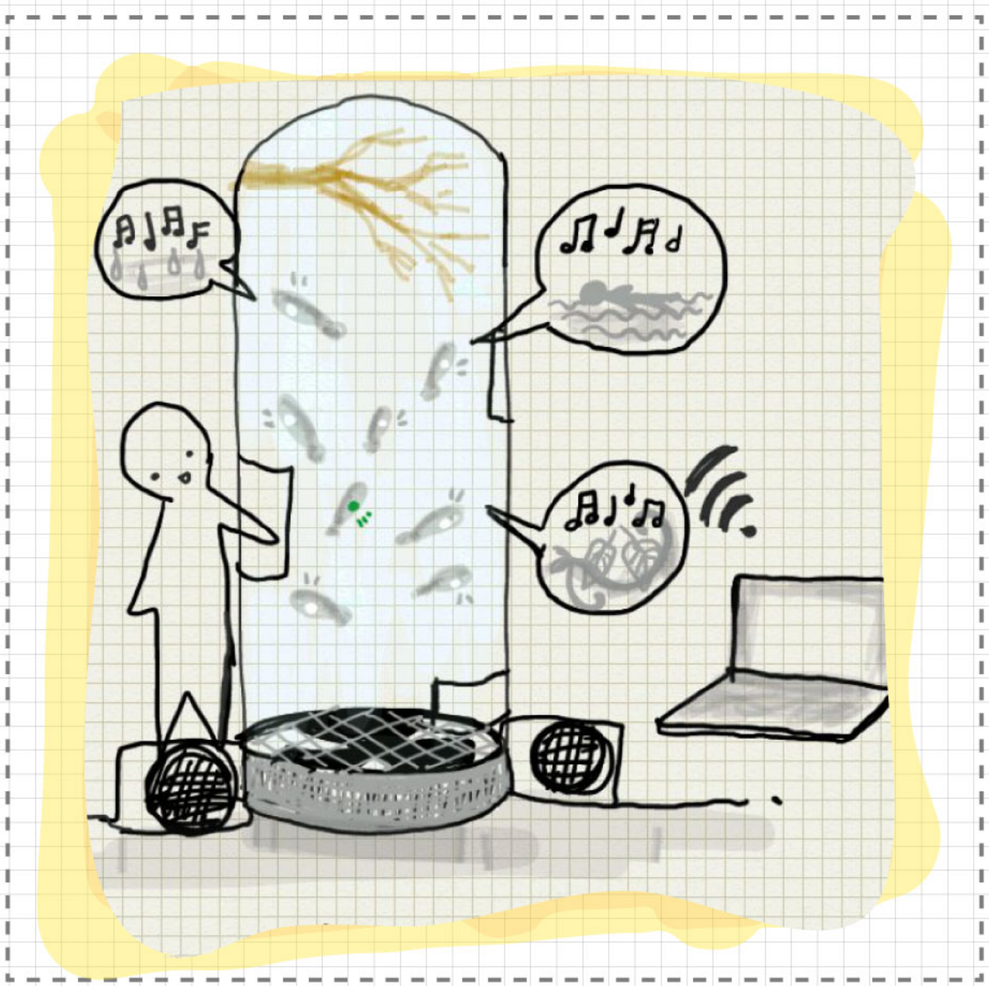
Master Project / WS 2013/2014

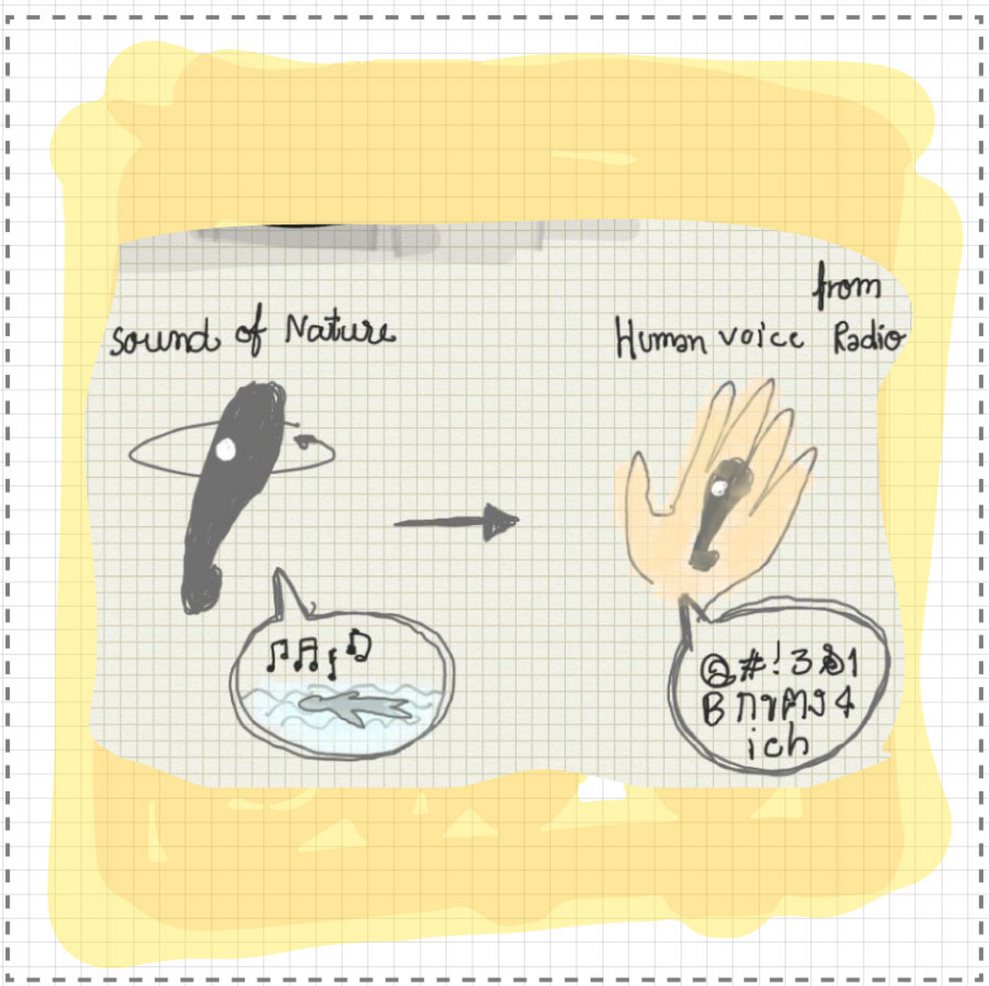
WHAT DOES IT MEAN?

From the core concept of showing contrast, this installation aims to depict the interaction between the dynamic life cycle of nature and the interfere from human side.

Future Lab / Interface Design / Aparsi Jitatam

Master Project / MS 2013/2014





HOW TO PLAY ALONG?

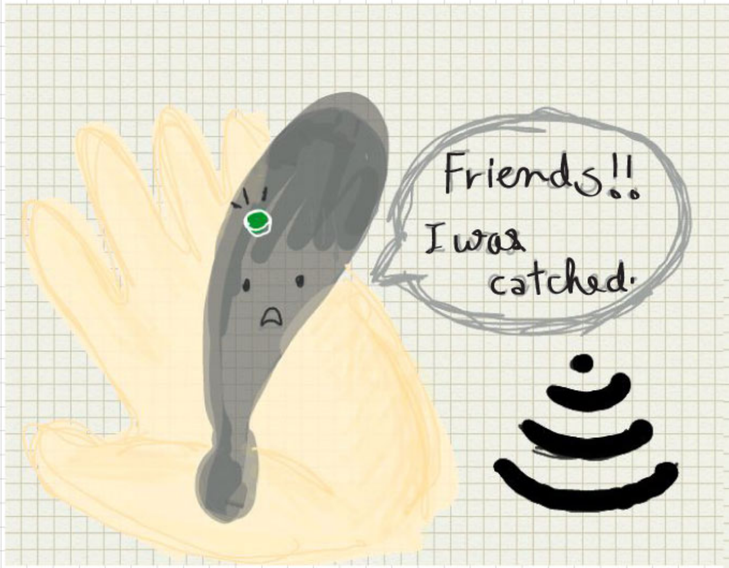
The seeds are flying and falling inside the air tube, sending parameter from accelerometer to the server to create dynamic sound of nature in rhythm.(e.g. sound that you hear when you floating in the water, the wind blow the leaves,etc.)

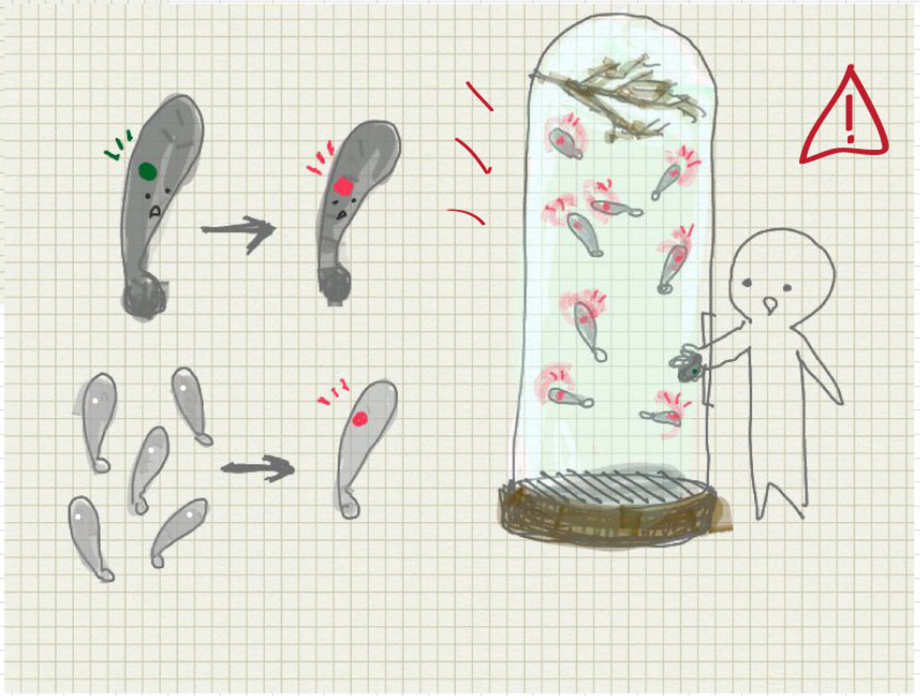
While they are flying the white LED on the wings are blinking in random rhythm differently from one seed to another.

Once the seed is catched by the participant, (the server can detect the catch from the changing parameter from accelerometer)the nature sound contolled by that seed will be replaced with the sound of human voice from the radio.

Future Lab / Interface Design / Apassi Jitutam

Master Project / WS 2013/2014





Future Lab / Interface Design / Aparsi Jitatam

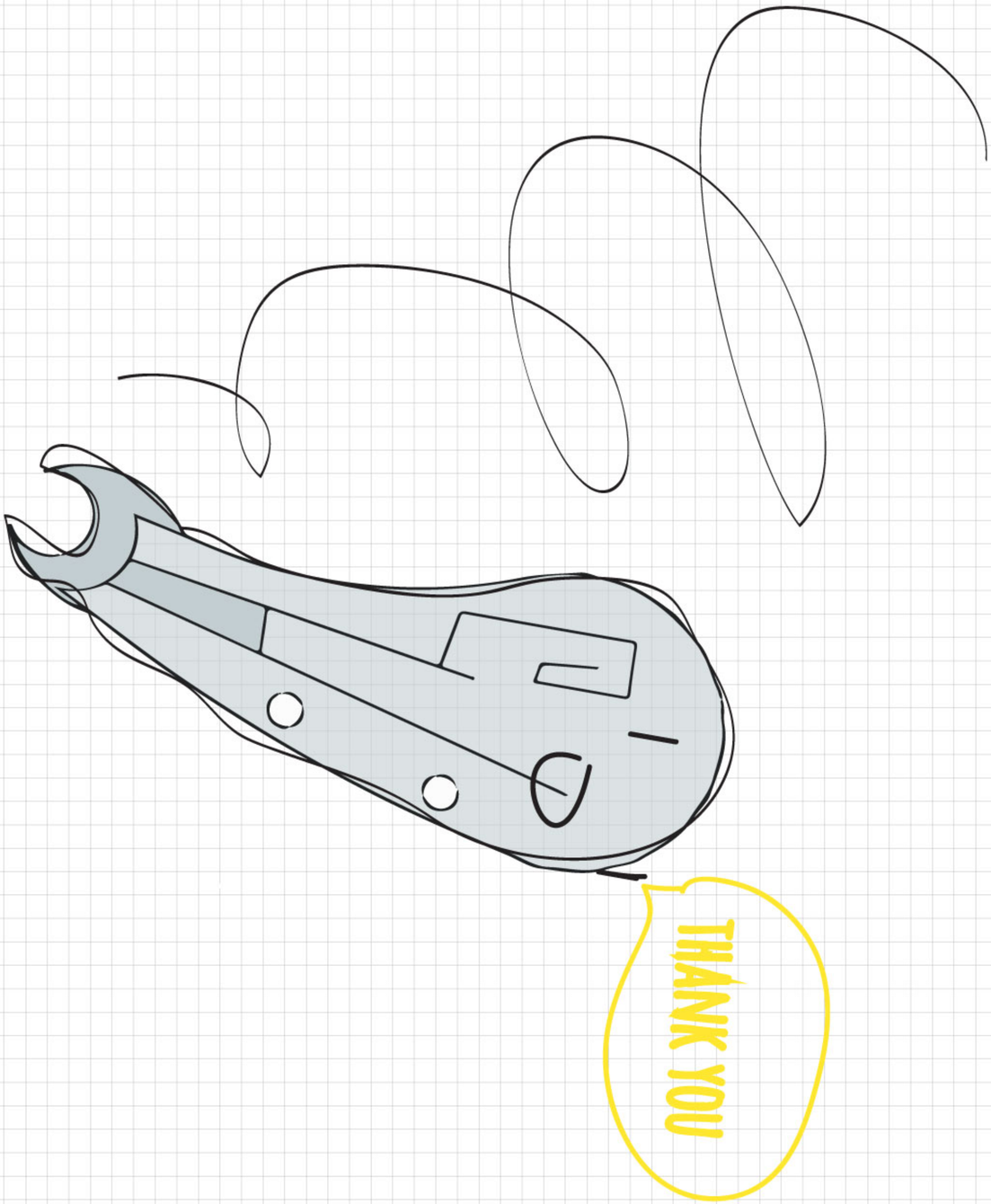
Master Project / WS 2013/2014

HOW TO PLAY ALONG?

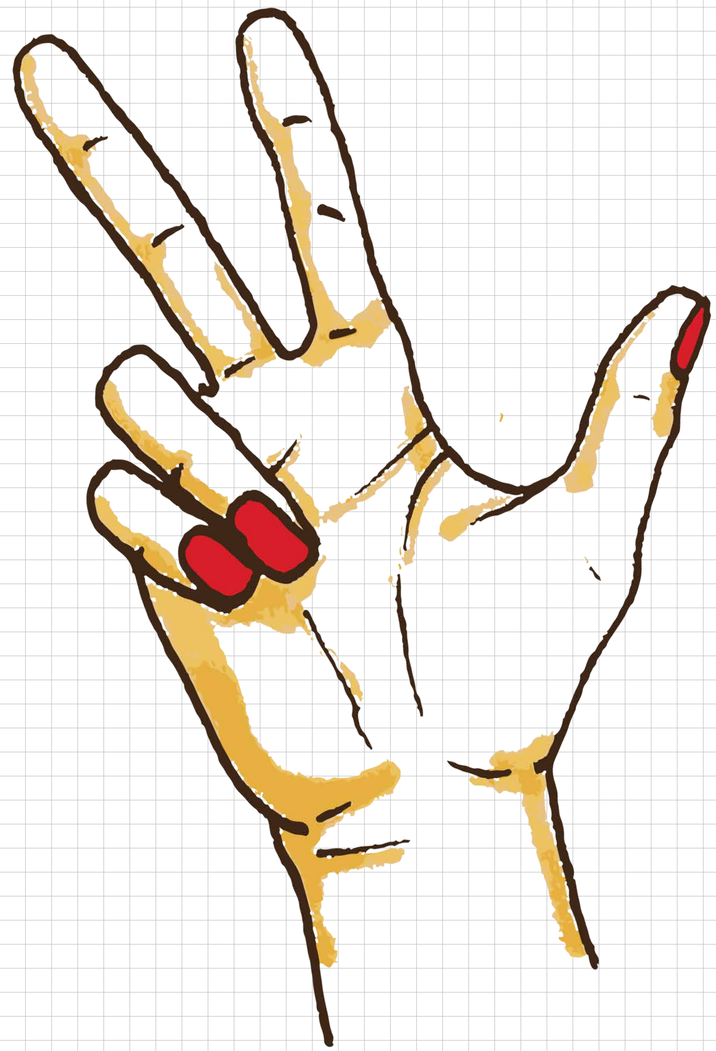
From 15 seeds there is one seed with the green LED blinking which is the symbol of the seed that has possibility to grow to be the little maple tree. The system will randomly select in every 2 to 12 seconds which seed will be the green seed. If the participants catch the seed with the green light, every seed in the air tube will blink the red light, and the system of the air tube shuts down.

Future Lab / Interface Design / Apasri Jitatarn

Master Project / WS 2013/2014



SMART FINGERS

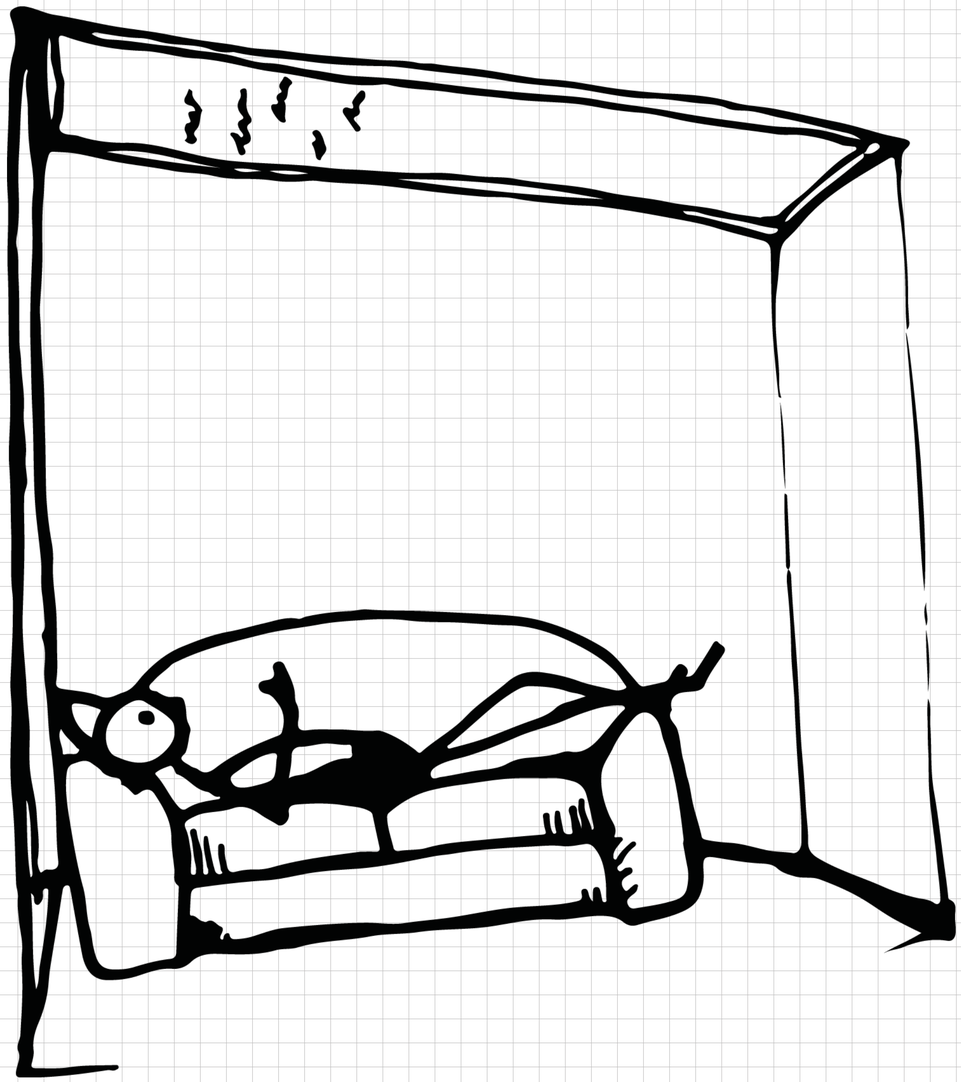


WRITE UP YOUR IDEAS

Future Lab / 3D MID Design / Interface Design /

Master Project / WS 2013/2014

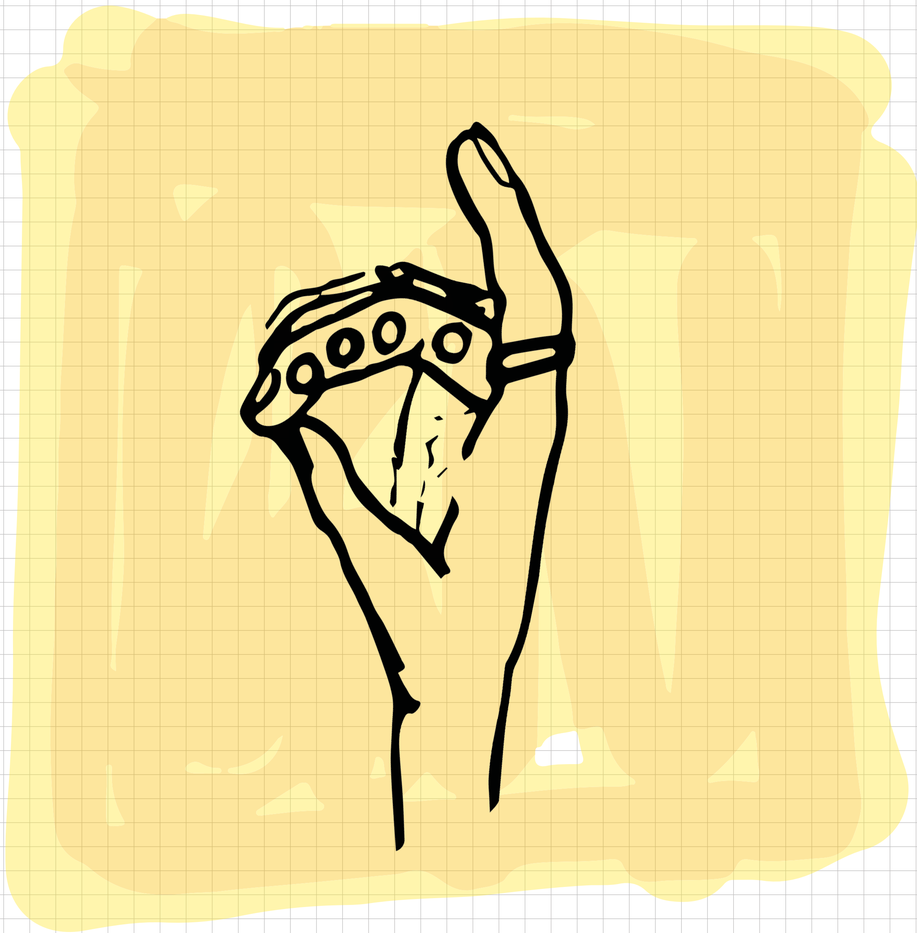
MARIAM GIGUASHVILI

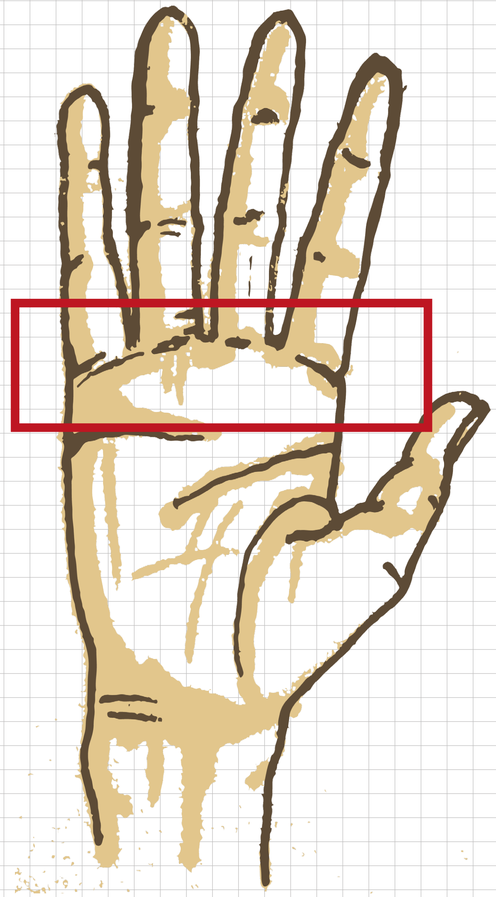


IDEA

As usually all the best ideas are coming up when we are lying down in a bed and trying to fall asleep. Most of the people are too lazy to wake up, turn on the light and write down the ideas and there's a many of ideas are lost because of that.

First idea was to make smart ceiling and distance pointer on the hand to solve that problem. And it's also a alternative way to avoid sitting all the time at the computer or at the table while brain-storming and generate ideas.





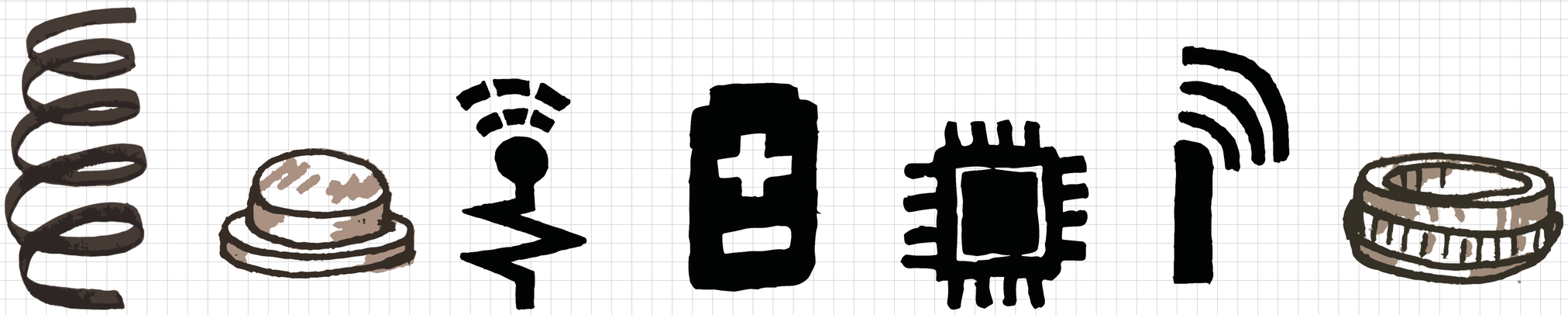
FINDING A FORM

Finding a form of a device – comfortable for hand and intuitive to use
There’s a four or five (depends on a finger size) comfortable spots on the middle finger to touch with a thumb.

A scroll can have a ring form. Also the rings might be used as a part of the device to fix it on the hand.
Between the hand palm and the fingers will be located power source, antennas and other technical components.

Future Lab / Interface Design / Mariam Giguashvili

Master Project / WS 2013/2014

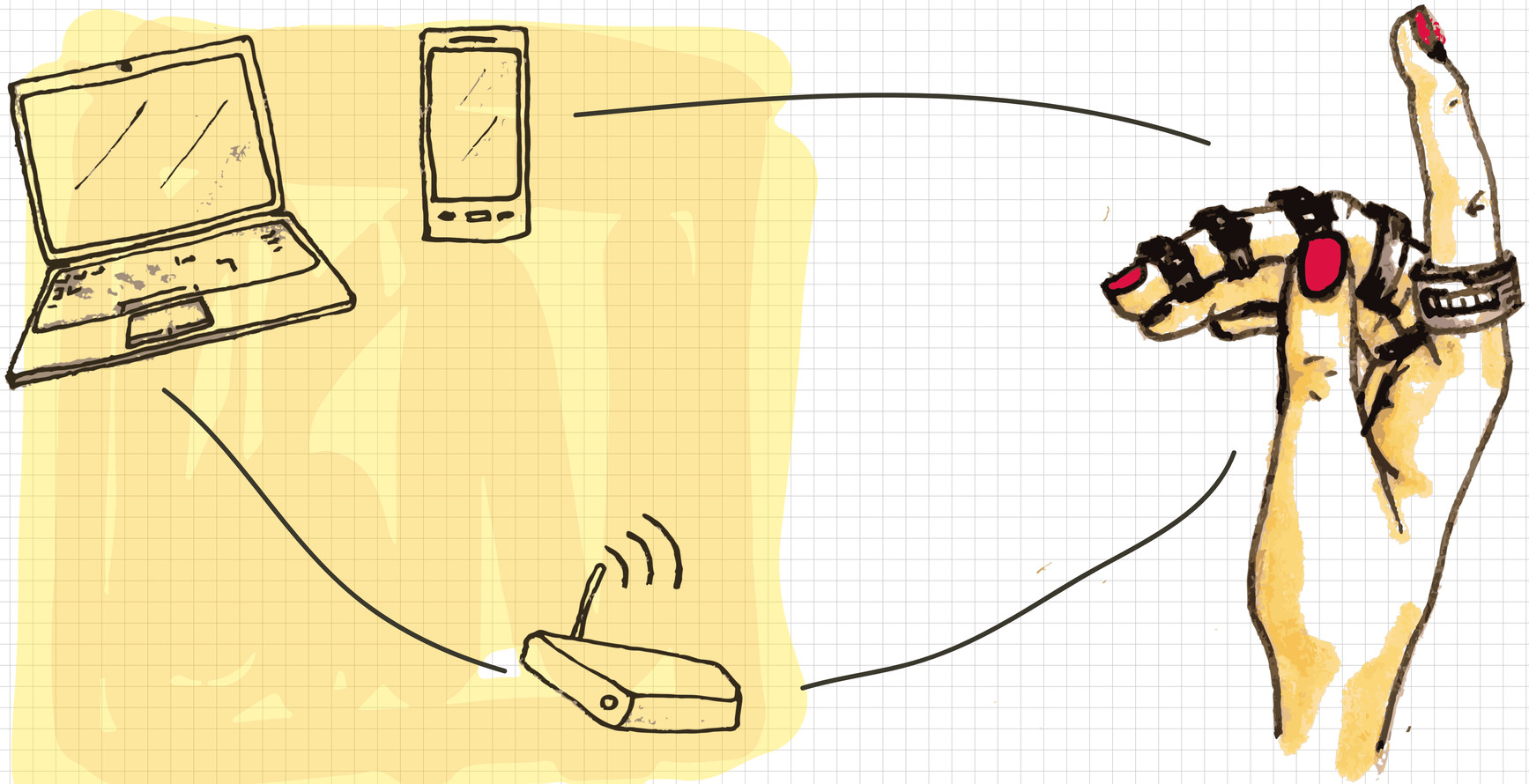


BODY OF THE DEVICE - BUTTONS - SENSORS - POWER SOURCE - MEMORY - ANTENNAS - SCROLL-RING

COMPONENTS

On the index Finger will be located sensors and scroll to zoom in and out.
On the middle finger will be located five shortcut buttons. Using a thumb user can click.

3D MID technology gives us a possibility to make things more compact and flexible and better to navigate, either on a flat surface, or in a three dimensional space.

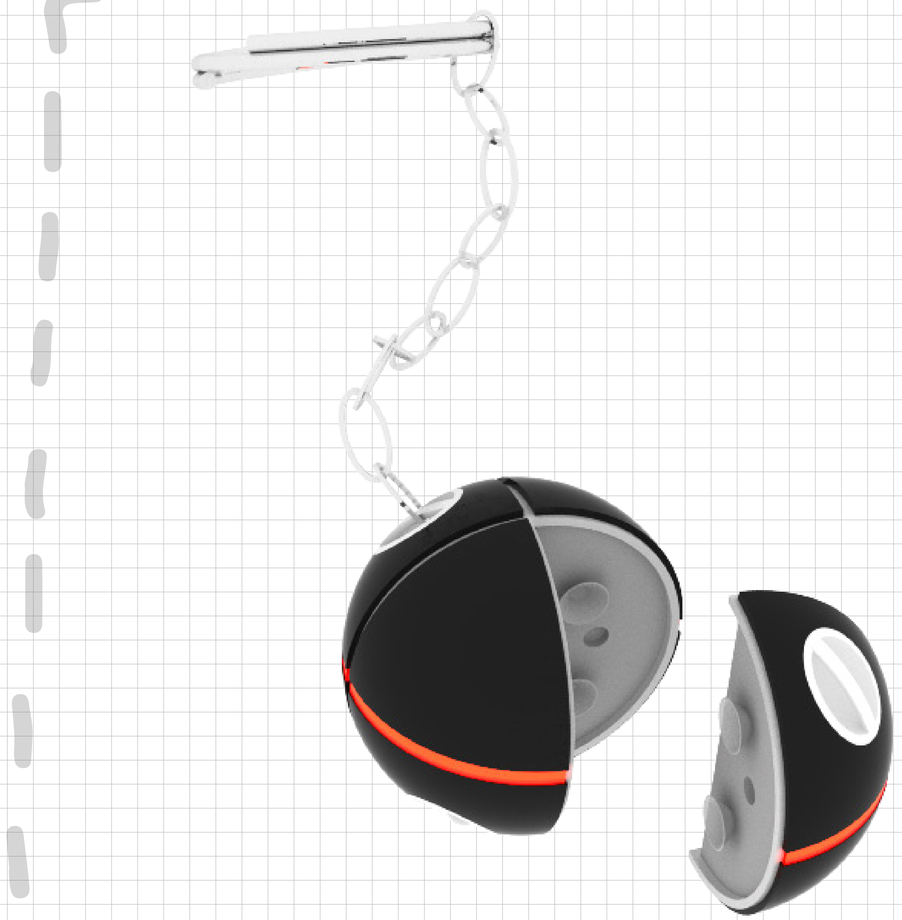


CONNECTION

Connection to other devices - smart house – to control the light, the heating, the volume of the music, to change even the theme of the wallpaper.

Depends on an application, the interface and the numbers of the buttons could be different. For some case they might be more and with a different functions. To play the game might be look like to cracking the knuckles.

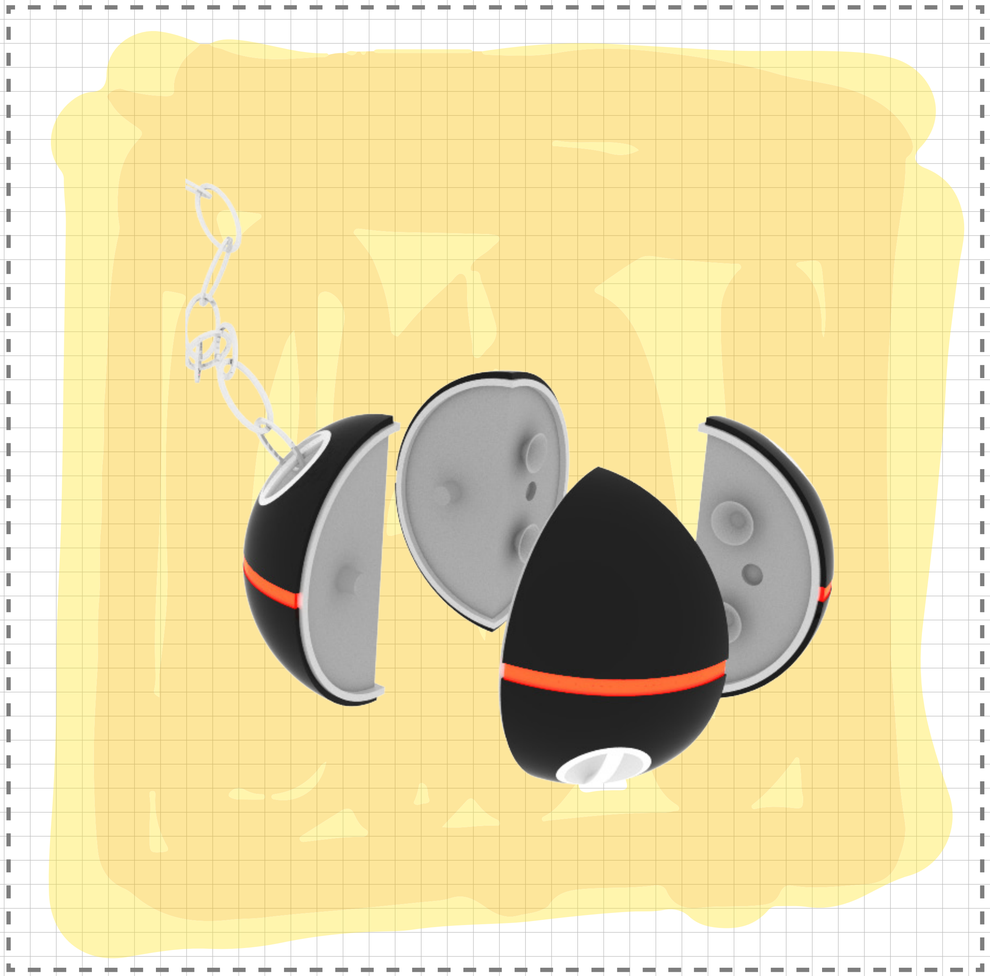
BEACON KEYCHAIN



PORTABLE
LOCATION-AWARE
MESSAGE SYSTEM

Future Lab / 3D MID Design / Interface Design /
Master Project / WS 2013/2014

REINALDO VERDE



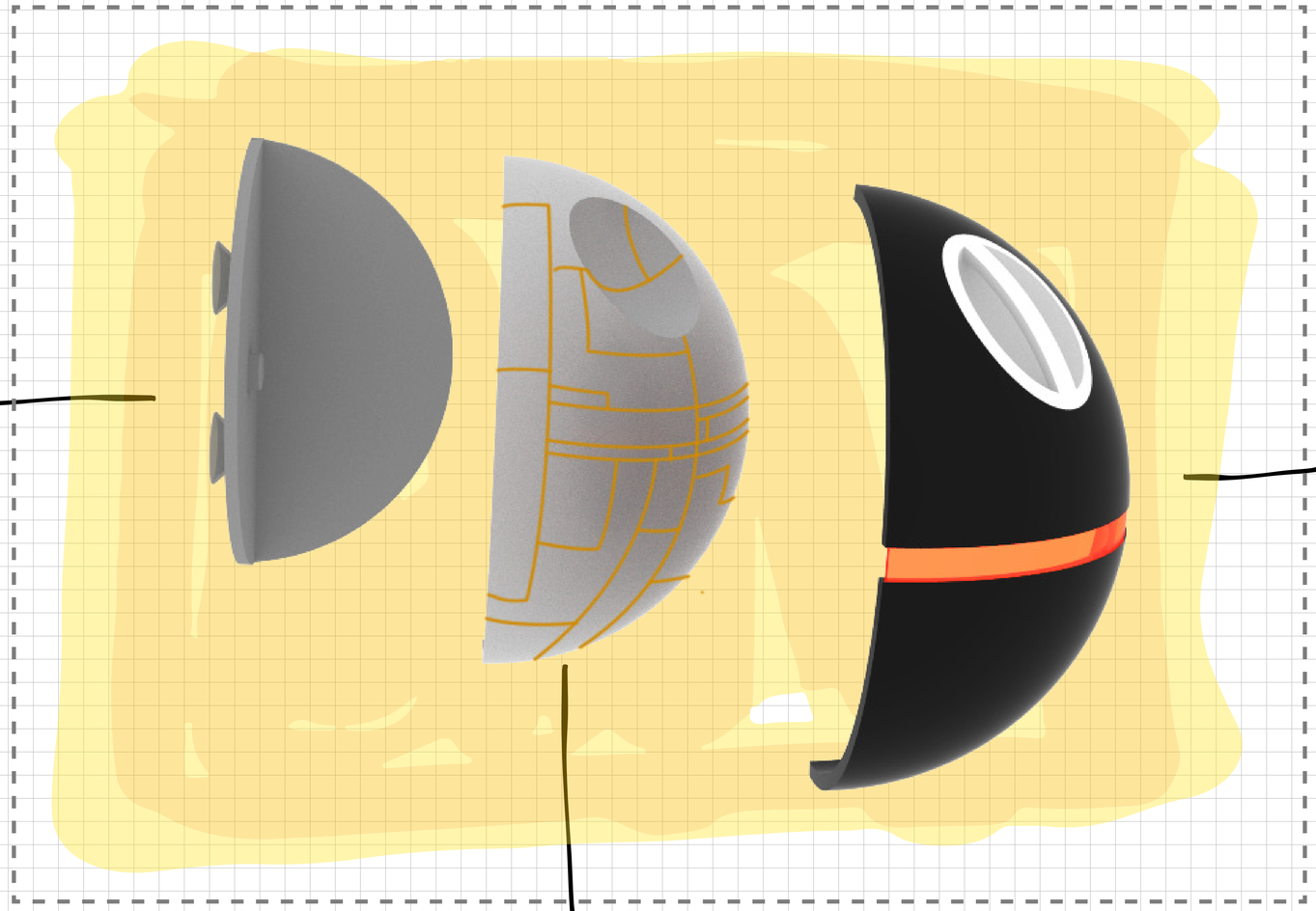
BEACON KEYCHAIN

The system would consist on a smartphone app and a keychain with separable small beacons made with MID-Technology. These beacons would be programmed to send a signal to a smartphone, making a message and/or reminder appear in the smarphone of a member of the app's network when he/she comes near it.

This could be an interesting tool in an office or a home environment, making it possible to leave notes and messages to intended receivers in specific locations. And it would also be useful for one self, as a remider system of things to do or take at specific locations.

Future Lab / Interface Design / Reinaldo Verde

Master Project / NS 2013/2014

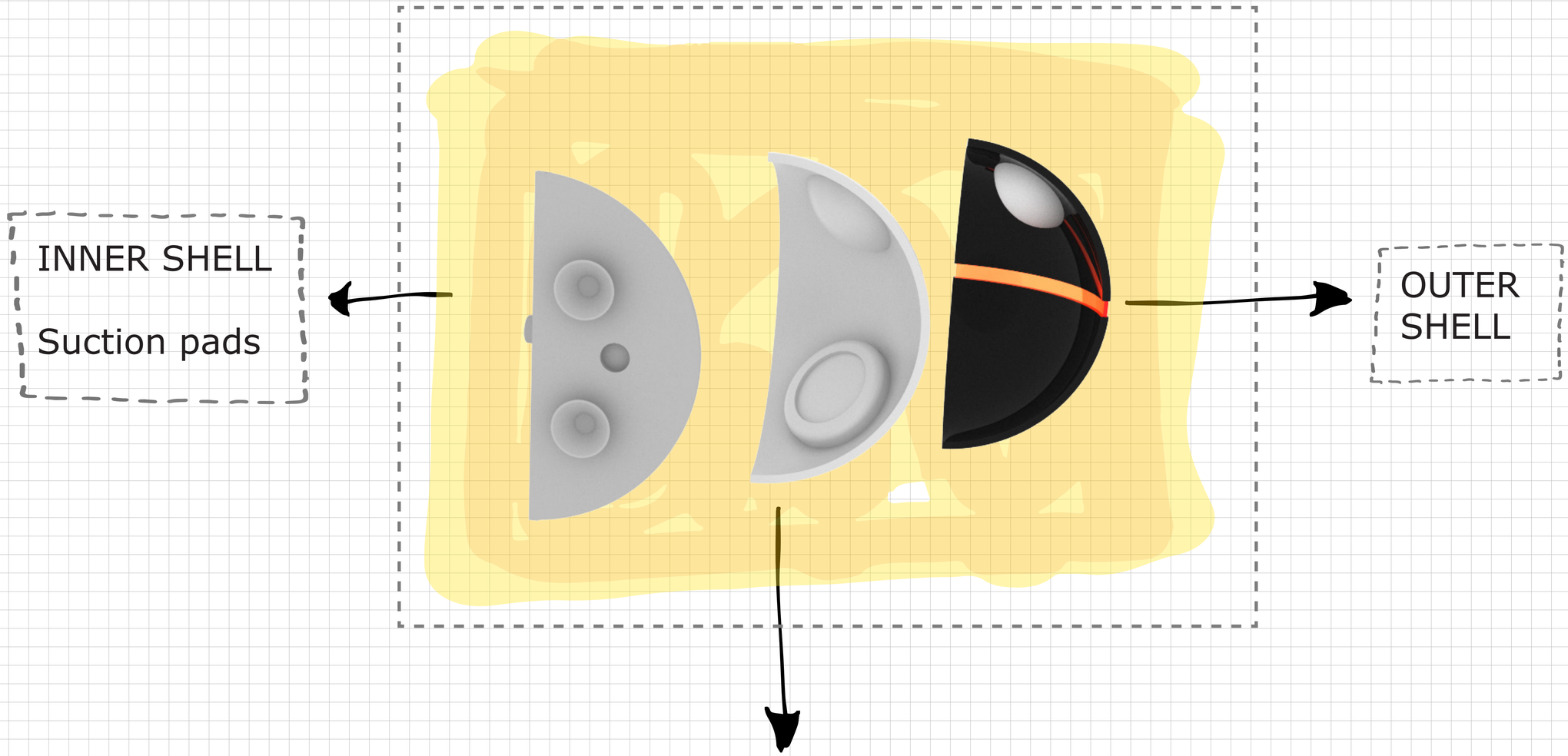


3D MID Electronics

RFID tag
Wifi receiver
LEDs

Future Lab / Interface Design / Reinaldo Verde

Master Project / WS 2013/2014



Future Lab / Interface Design / Reinaldo Verde

Master Project / WS 2013/2014

Server checks RFID info and
sends back message
(if it is the intended recipient)

Smartphone
reads RFID tag
and checks
server

Beacon sends
RFID signal

Future Lab / Interface Design / Reinaldo Verde

Master Project / NS 2013/2014

Master Project

Media Art & Design (MFA)
Media Architecture(MSc)

Prof. Dr. Jens Geelhaar
jens.geelhaar@uni-weimar.de

Future Lab / Interface Design / Master Project / WS 2013/2014

FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

FAPS -
Lehrstuhl für Fertigungsautomatisierung
und Produktionssystematik

Bauhaus-Universität
Weimar

Bauhaus-Universität Weimar