

FRESHNESS



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FINAL PROJECT "FRESHNESS"

A PROJECT TO PREVENT MORE FOOD WASTE AND PLASTIC WASTE

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Summary

Summary of my final project. In this project, I make a few problems clear. Like food waste and plastic waste. Also, I am going to show how we can fix this with my project.

1. In the first part of my paper, I show you a scenario. The example is for every person who does shopping for food. This scenario explains the different problems we have nowadays. Food waste and too much plastic use.
2. The facts about how much food waste there is.
3. The facts about how much plastic we waste and throw away.
4. A new scenario with my idea for using less plastic.
5. Case study's about the different packaging for preventing foodwaste
6. What kind of Case study's for different packaging
7. Explanation of the box and the colors I used.
8. My logo and the explanation for the logo and the idea behind it.

SCENARIO 1

I start this final project with an example what you all know.

Example 1:

You go to the supermarket because you need some food to eat. You are walking through the vegetable area and you take a plastic bag and put some vegetables in it. Then you go to get your other food and finally you go to get some fresh fish. You order the fresh fish and the woman behind the counter gives it in a plastic package. You pay and you discover you can't drag all your purchases and you buy a plastic bag. You go home and you put your food in the freezer and you throw away your plastic bags.

You got a call from your friend. She invites you to get something to eat together but you know you just bought some fresh vegetables and some fish. After a long talk with your friend, you decide to go eat with your friend and let the food a day longer in the freeze. You had a nice dinner with your friend. When you are at home you are tired from the dinner and go directly to your bed so you have some more sleep before you go to work tomorrow.

Next day you arrive at your work and you realize you had a late meeting at your work and that you wouldn't eat at home. The vegetables and the fish will be a day longer in the freeze and after a while, you have to eat your not that fresh vegetables and fish. In the end, you throw a few vegetables because you don't know for sure if it is fresh and good anymore.



With this example, I want to show you how easy it is to throw away food you have bought and never even touched because it is still in the package. We throw away too much food and plastic. An average American family of four people throws away half a ton of food waste and leftover and spoiled food every year.

You probably also realize that you also will have a few times that you throw away some food because you don't know if it is still good and don't want to try it anymore. You throw your food away and maybe it was still good to eat. But with this example, I also want to show that you will also throw away the plastic what you never unpacked.

With my final project I want to show how much food we waste and what I do against it. First i will give some information about this and then show my solution for the food waste.



Picture : Robert Clark | National Geographic

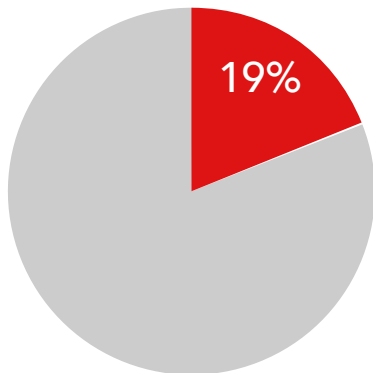
An average American family of four people throws away half a ton of food waste and leftover and spoiled food every year. Displayed in the dining room of the Waldt family in New Jersey, these grocery stand for the 1.2 million calories that an average family wastes - more than enough for a fifth family member. This food was later donated to an NGO.

FOODWASTE

Food waste

How much food does the people waste?

We all buy a lot of food but sometimes we don't even know if we are going to use it. We throw away a lot of food but how much do we really use and how much is really going to waste?



We buy about 19% (70 kg each person each year) of our food for the trash can: about three-quarter of it, rounded 14% of the edible food is avoidable (and just unnecessary waste). The other 5% is for example bones from meat, the rest part of the fruit or vegetables, like a potato peel. That 19% of food is worth around €155 for each person each year. Those products are waste in the following categories. The products

are sorted on what is waste the most as first. (here by we don't count the water who you waste in the sink or your orange juice)

1. Milk and Milk products
2. Bread, Cake and Cookies
3. Vegetables
4. Potatoes
5. Fruit
6. Meat, Meat products and fish
7. Rice and Pasta
8. Sauces, oils and fats
9. Cheese
10. Candy and Snacks

We all know that we waste a lot of food but where do we go wrong and where do we waste our food?

At first, we make a lot of mistakes in the purchase phase. We buy too much food we don't even need. Fresh food like vegetables we buy too early and is not good anymore when we want to use it. We don't know what we need and just buy a lot what we think we need. A lot of the times you don't know what you have at home because you didn't check what you already have at home. We also buy package who are too big. For example, you buy 6 pieces of meat but you only need 4 but it is cheaper to buy one package of 6 pieces and not 2 packages of 2 pieces.

Second, this is when we have to keep the food in-house. We are scared to eat the food because we don't know if it is still good. We don't look at the expiration date what is on the package and we throw away some stuff who we think are not good anymore. But it is also the other way around sometimes we keep it too long or with a wrong use. For example when you forget to put your meat in the freezer or we just have our freeze in the wrong degrees. That products are not good for the temperature the freezer is.

Third, Making plans for dinner and preparation of the food. A lot of people have trouble to know how much they have to prepare for every person. That is why they make too much food for the number of people who are going to eat the food. That is why that there is a lot of remnants and that often is thrown away. A quarter of the waste is from meals who don't get eaten. Also people think too easy about food. I don't want the food anymore so I will throw it away.

And as last awareness of food waste.

A lot of people don't think a lot about how much they throw away and they don't want to know.

PLASTIC WASTE

A lot of plastic got wasted.

I begin the information about plastic waste with a quote what makes me think about the seriousness of plastic waste:

“If we don’t change the way we produce and use plastics, there will be more plastics than fish in our oceans by 2050. This is a challenge that citizens, industry, and governments must tackle together.”

I think it is an amazing quote. We can’t imagine that that will happen. If you see this quote you will realize how much plastic is wasted and how much plastics there are in the sea. Every year there is 13 million ton of plastic waste in the ocean. That is around 1 garbage truck of plastic every minute. And then I am only talking about the plastic what ends up in the world’s ocean.

We produced around 8,3 billion metric tons of plastic waste. (1 metric ton = 1000 kilograms) of that total waste, only 9% was recycled. 12% was incinerated and 79% was discarded in landfills or the natural environment. According to the study’s estimates, roughly 12 billion metric tons of plastic waste will end up in landfills or the natural environment by 2050. The landfill will be full of plastic and it is not that plastic degrade really quickly. Plastic takes more than 400 years to degrade so how are we going to solve this problem. The country’s in Europ create a lot of plastic waste. The average is 31kg of plastic packaging a citizen each year! This is why we have to change the habit to not recycle your plastic and not separate it. We all have to separate it so we can recycle better and have a last waste each person.

What can we do for have less plastic waste.

Say no to plastic straws

You get it at a restaurant. Ask your waiter or waitress you don’t need one. Don’t forget hereby the drive thru from a fastfood chain.



Use reusable produce bags.

Make a place in your home where you put your plastic bags. For example in a place you use to put your cleaning stuff. Use them more times that you do it now. Use it for a example for the trash can.

Don’t eat any gum anymore.

Not only are you chewing on plastic, but you may also be chewing on toxic plastic.

Buy boxes, not bottles

Buy laundry detergent and dish soap in boxes instead of plastic bottles.



Reuse glass containers

You can use a glass container for what every you want. Use them as a way to store your pencils, cotton pads or just your home made food.

Use reusable bottles and cups

Bottled water produces a lot of plastic waste. Refill a reusable bottle and save a lot of plastic. Bring a reusable bottle to your work and fill it when you want more coffee this will prevent a lot of coffee cups.

Prevent to buy frozen food.

Because there you get a package from the store or use Freshness. (freshness will be introduced in a later stadium in this project).

Don't use plasticware

Say goodbye to the throw away plates, spoons, forks and even sporks. Start bringing your one set of kitchenware for on the go.

Use cloth diapers

It takes around 80.000 pounds of plastic and more than 200.000 trees a year to manufacture disposable diapers for american babies alone. You not only preventing plastic waste but also saving yourself some money.

Don't buy juice

Instead of buying juice. Make it yourself. It is fresher and also a lot healthier because you will get a lot more vitamins.

Find out if your city has an recycling program

Some city's have a recycling programma who you can join to learn about plastic waste and tell you ways to recycle better. Or look at [here](#) for the wrap recycling action program.

Separate your trash

Separate your plastic in a different part of the trash. Use a garbage bin for plastic, paper, green waste and tin. If you don't know what you have to put in the plastic bin. Just look at what is possible for in the plastic bin.

Do the 28 day plastic purge challenge! (pinterest challenge)

(you can find this challenge on the next page.)

Stop plastic chemicals from leaching into your food

Recycle
old plastic
storage



Use less
cling wrap

Upgrade
your water
bottle



Get a
water
filter

Swap
baggies
for beeswax
wrap



Get
plastic-free
food
storage

Be wary
of "BPA-
Free"

Week 2: Re-Think Your Garbage

Smart practices to keep plastic out of the trash

Use
mindfulness
to buy less
plastic

BYO
takeout
containers

Line
trash cans
with
shopping
bags

Dump
wastebaskets
into larger
trash



Be your
own trash
compactor



Shop for
stuff with
less
packaging

Compost!



Week 3: Clean Up Your Hygiene

Banish plastics from your bathroom

Swear off
microbeads

DIY
skincare
products

Phase out
phthalates

Get
replaceable
toothbrush
heads



DIY
hair
products

Swap out
vinyl
shower
curtains

Opt for
bar soap



Week 4: Conquer the Kitchen

From store to plate, keep plastic out of your food.

BYO
grocery
bags



Make
your own
soda

DIY
"packaged"
food

Ditch
plastic
cookware

Enjoy
French
press
coffee



No bags?
Carry it out
by hand

Get an
ice cream
cone



SCENARIO 2

What is interesting about this second example is that we have a new product where I talk about. It is my own designed product called: Freshness.

My Idea

The idea of Freshness. I started that I want to be part of solving the problem food waste and too much plastic use. I was thinking about where you can find a lot of plastic and what can I do to prevent that.

I was looking at a normal day of my life and I saw that I take a lot of plastic when I go to the supermarket. When you go to the supermarket you take a plastic bag at the vegetable area and get some packaging around your Fish in the fresh fish area.



Different packaging examples from different people

That is why I wanted to make a new package where you can put in the fresh food you buy in the supermarket. You can use it to lift the food easily to your home without breaking a plastic bag. You can also use the package to warm your food and to freeze it and eat it another time. You don't have to use a different package anymore. (like the Tubberware in the example) and just use the new packaging you buy at the supermarket. You can also see on this package when there are too much bacteria in it so you will throw away later then usely. (I will talk about this later in my paper) So this package will prevent you to be sick of too much bacteria and help you a lot with preventing plastic waste.

The next couple of things the product already help you with:

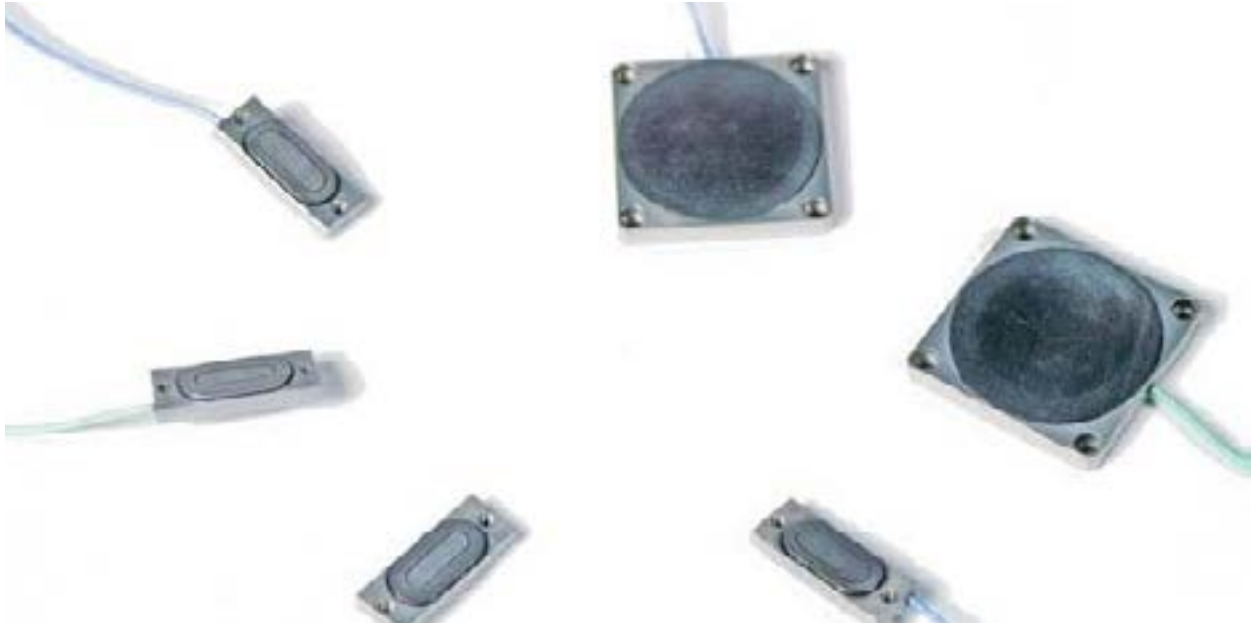
- Prevent you to get a plastic bag at the vegetable or fish area
- Prevent Breaking a plastic bag and drop your food on the ground
- Have a good box where you can put your food in the freezer
- A package you can warm and freeze your food in.
- To prevent foodwaste because of you maybe throw away because you don't know if it is still good.

CASE STUDIES

PREVENT FOODWASTE

Case study's for preventing food waste

To know what there is on the market I wanted to do a case study and look with kind of products there are for preventing food waste. I will not show all the case study's I found only the one I think is the most interesting for my product.



1. Nanosensors

Deterioration is caused by moulds, viruses, and bacteria which multiply rapidly under certain circumstances. Nowadays producers take expensive precautions to prevent contamination but nanosensors could detect bacteria at an earlier stage. With a nanotestone could test cargo right before it is shipped. If less contamination occurs less food has to be thrown out. Cheap and user-friendly sensors could be interesting for consumers in order to check the final product. One expects a great deal from smart labels. Think of packaging material that pales as soon as food has gone bad, or chips warning you if it has passed its expiry date. [Link](#) to Nanosensors doc.

Why is this interesting for my product:

This product interesting because at this example they use electronics for changing the color from the packaging and detecting the bacteria or expire date. This is not necessary but when I saw this technology I was looking for a way to find the way to change packaging without using electronics.



2. Interactive and intelligent food packaging

A system that knows what is in the box and knows what you have in your house. How much there is in the packaging and say when you have to buy new of this product.

[Link](#) to this video for more information

Why is this interesting for my product:

This example is really interesting for my product because it is a way of new living and changing of the shopping method and can I interact on a new way of shopping? I think in this product there is too much use of technology and that is why I don't want to do more research about technology shopping.



3. FreshPaper.

Is a paper that you put next to your fruit and make it last longer. If you put this paper next to your fruit. Your fruit lasts longer and you can it save longer. Fresh paper is a paper with some edible, organic and botanical extracts in it. This mixture prevents bacteria to grow faster and made the food last longer.

[Link](#) naar freshpaper.

Why is this interesting for my product:

This is interesting for my product because it is a whole different way to last vegetables longer. I was looking for the ingredients to use fresh paper in my product but this is of course secret. I like the idea of using a single paper for preventing food waste and I think I don't have to look that far as possible for changing the packaging as I thought earlier.



Packaging who moves

This packaging is made for letting see how fresh the fish in the frozen packaging is. The packaging moves when people are in the neighborhood. The packaging is stayed easy to have the focus on the fish.

[Link](#) for this information

Why is this interesting for my product:

This product is really interesting for my product because it is another way of selling your product with a different packaging in an interactive way. I don't like that the packaging only cost more then they do effort for the fish. the moving part of the packaging is made with electronics and I really liked the simpleness of the packaging and that is a little bit broken with the electronics behind it.



5. Insignia technologies ltd 'be informed'

The After Opening Label is an intelligent label which starts to change colour once your food packaging is opened. It lets you know how long the packet has been open so you can eat the food while it is still fresh and safe.

The After Opening Label uses a smart plastic which detects changes in atmosphere and temperature. Opening the packet changes the atmosphere around the label, triggering the colour changing process. The centre dot on the label will change colour gradually from yellow to purple over three days, after which it is considered 'past best'.

[Link](#)

Why is this interesting for my product:

This product is really interesting for me because I am going to use this exact technology for my packaging. I will use this technology for my layer who detect when there are too much bacteria in the packaging. In this way, you can see if it is still good or you cant eat it anymore. I will use different colors because of color blindness people. I will show more about the subject of color blindness.

CASE STUDIES

NEW PACKAGING



Bread

Bread Making:

This is a product where you can make bread but also take it with you and you can make put this in the oven.

Why is this interesting for my product:

This is interesting for my product because it is an unusual product. This product is typically

made for making bread and then putting in the oven. The product is nice because it is made of a different material what I can use for my product.



Heating

Heating something:

This is a product where you can make heat your food without making it soapy. You can put herbs underneath it and it will go into your food during heating it.

Why is this interesting for my product:

This is interesting for my product because

it is made with different layers who are made for one product. I also think it is interesting because the taste of the herb is going into the food above the herbs. This is a new technology that is not that much used.



Ice making sticks

Ice making sticks who you can fold.

This is a product where you can make ice creams. This ice creams you can create by your own and fold the packaging down to put it away in your drawer easily.

Why is this interesting for my product:

This is interesting for my product because you can fold the product to make it smaller. I think nowadays there are so many products for in the kitchen that you have to make it smaller or with different uses.



Sushi sticks

Eating two different things:

This is a product where you can eat with sticks but also can use the same product for eating a salad with a fork and knife. There are two different uses without changing the product.

Why is this interesting for my product:

This is interesting for my product because it is made for the kitchen from now. You can use it as eating sticks for sushi or as a knife and a fork. Like I said here above with the ice cream example. I think it is important to make a product with different uses or with the smallest space needed for in the kitchen.



Holding food

Cup to hold food:

This is a product where you can take your food fresh with you. You can take it easy because of the holding possibility. Also, there is a little bucket inside it for a different sauce or other products.

Why is this interesting for my product:

This is interesting for my product because I think the holding possibility looks really nice and made in a good way with the different bucket in the middle. I don't know if I can use the handle because of the storage of the product in the freeze but it will be nice to try it.



Colander

Foldable and movable:

This is a colander. It is different than normal colanders because it is foldable and you can move it to put your food easier on your plate after getting the water separated from your food.

Why is this interesting for my product:

This is interesting for my product because it is movable and foldable. This is interesting because maybe it is smart to make my product also movable to get it easier on the plate.

MY IDEA

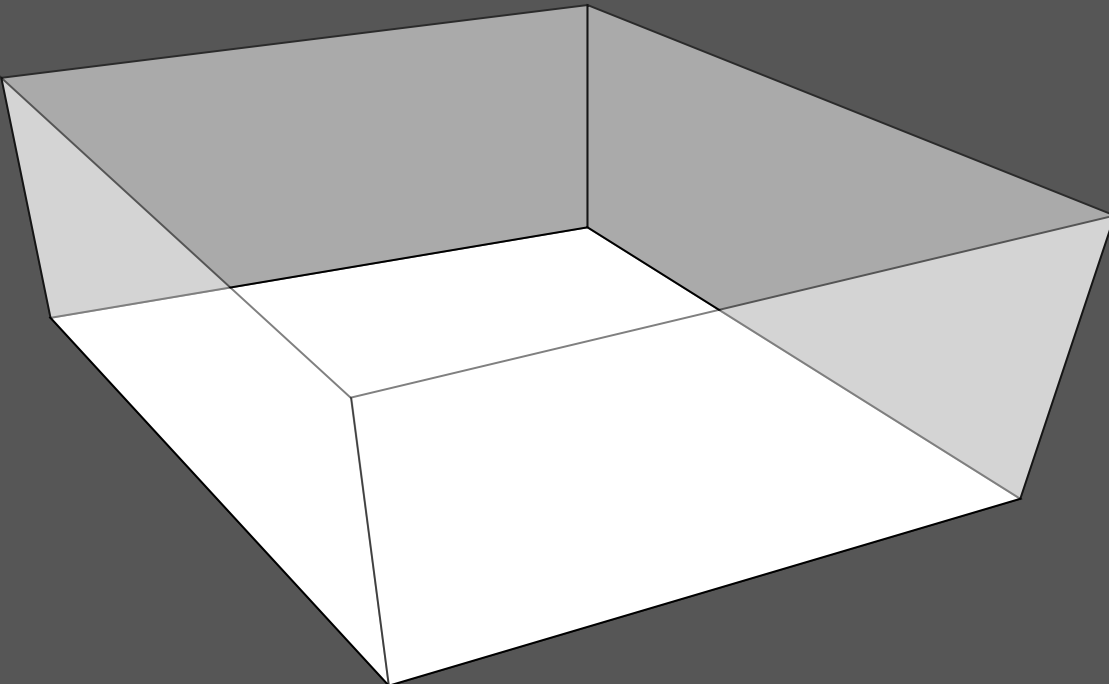
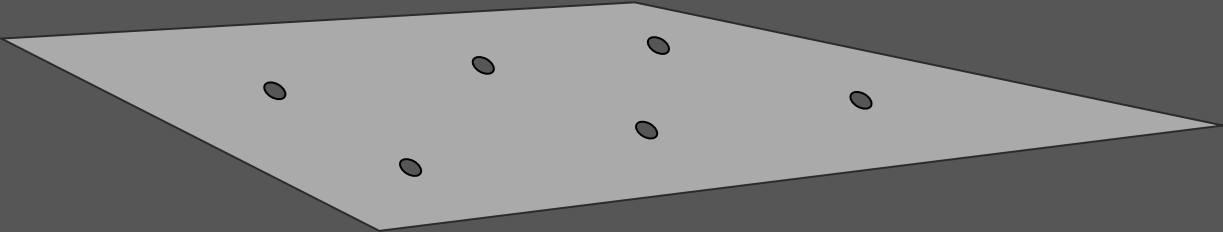
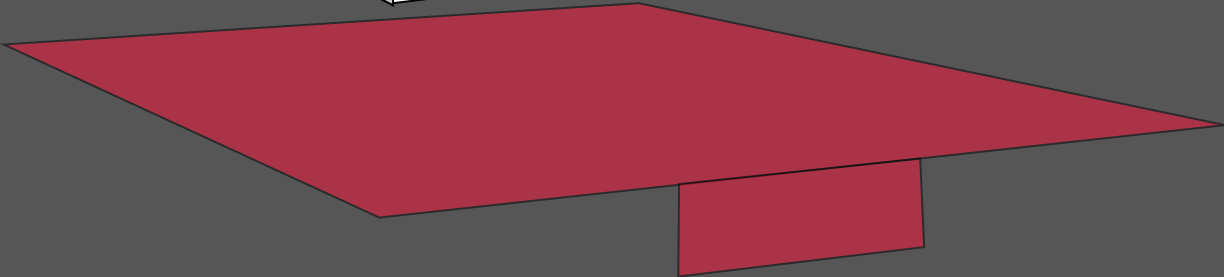
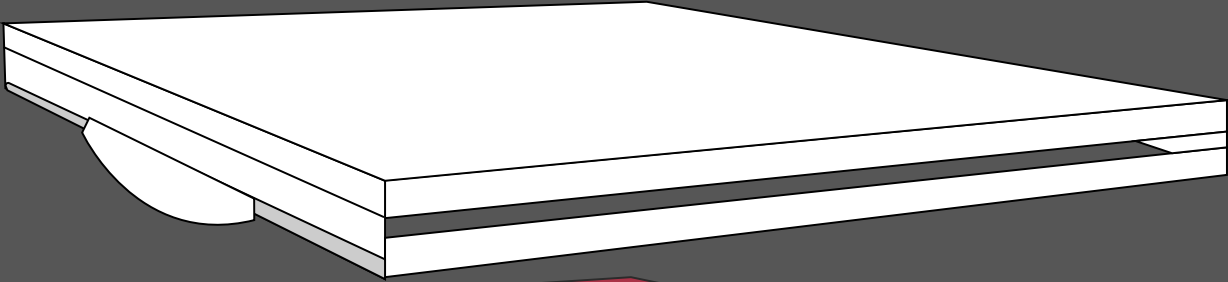
The idea behind Freshness.

Freshness is a box made for preventing food waste and use of less plastic. As I already told. There is a lot of food waste and a lot of plastic waste. I think that is smart to think about the further but also for your own wallet. Because why using more packaging when it is not needed? When I was looking at a normal day and looking how much plastic I used I recognized the packaging of the supermarket in my plastic box. This when I noticed how much plastic I got there and how much I throw away for the plastic total of plastic I got. This you can also see after example 2 in my documentation above.

I wanted to make a packaging what you can use in the house but also already in the supermarket. This is preventing to get your plastic at the fresh area's and you will already get your box for freezing and warming your product at home.

After the research from food waste, I saw that a big amount of food got to throw away because they think it is not eatable anymore. They are too afraid of eating something that is not healthy for them and makes them sick. That is why I wanted to make something to prevent throwing away food what is still good. I found a solution to make a packaging who change for color when the food is with too much bacteria.

I made Freshness with a normal box but the top is different. In the next page you will see the different in this box.



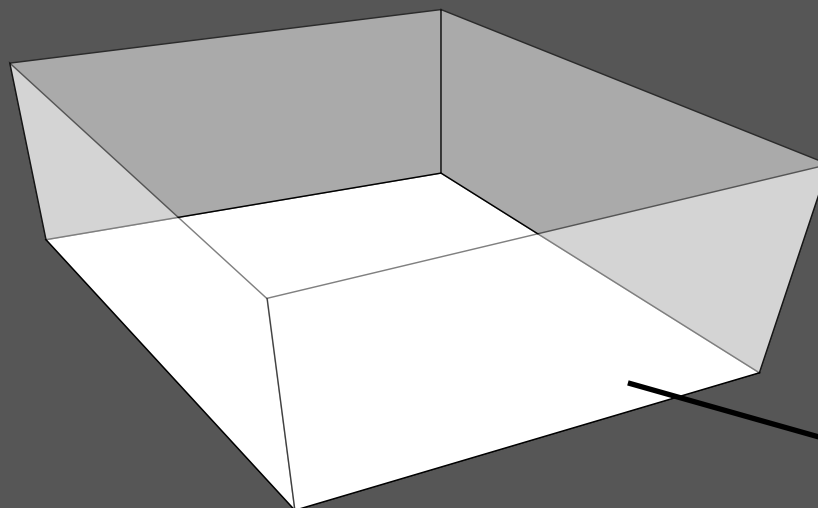
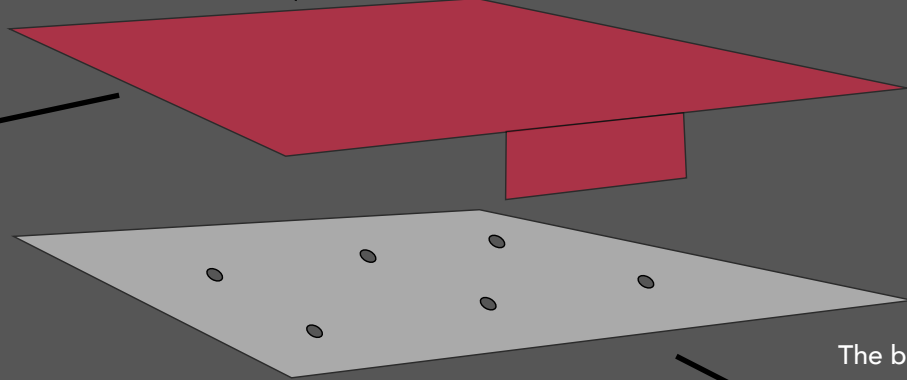
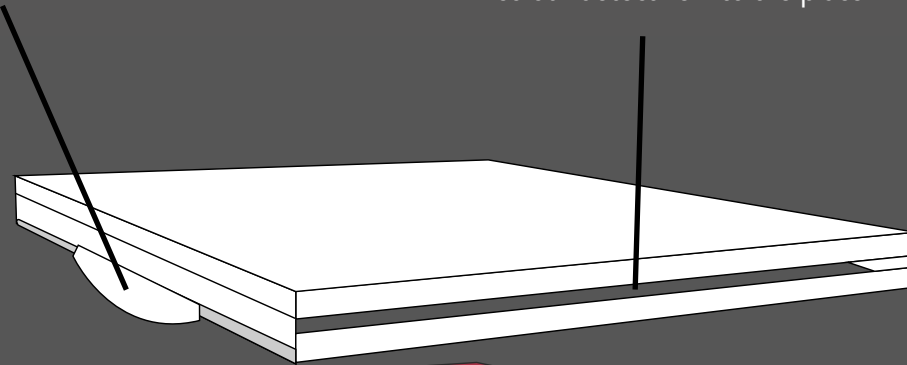
A protection to have the top really stable on the box

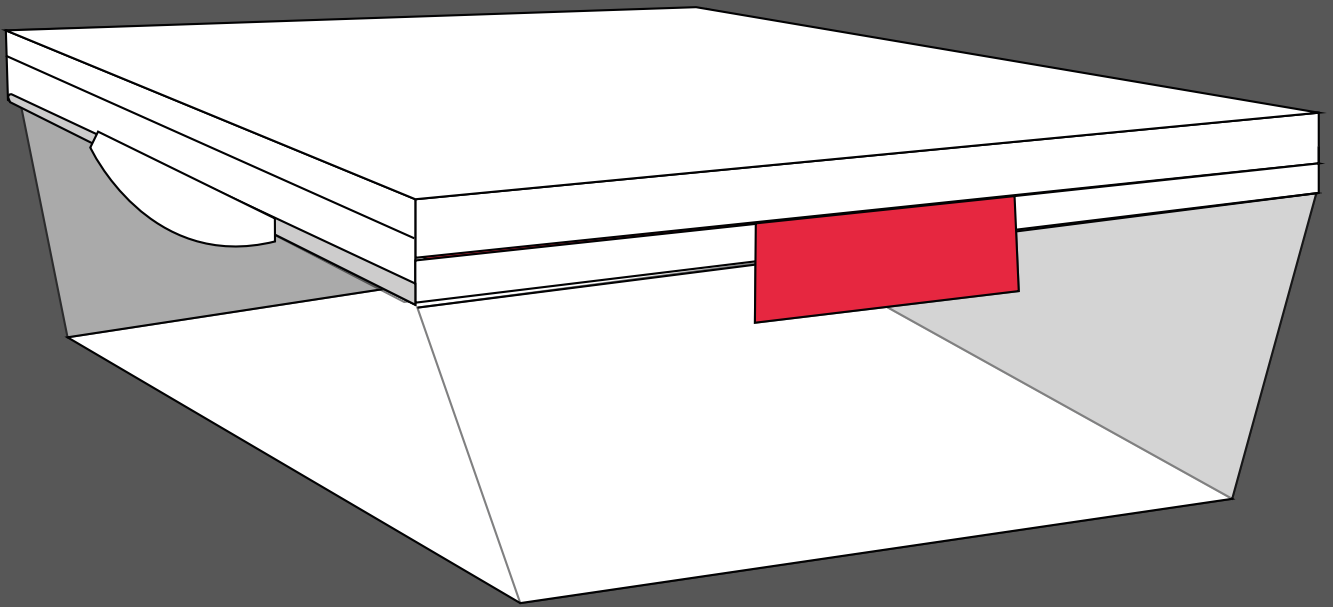
The top with different with a place to put the colour detective into the place.

Bacteria detect paper who change from color when it is good or not.
Green = good
Orange = still good but eat the food soon.
Red = don't eat the food anymore

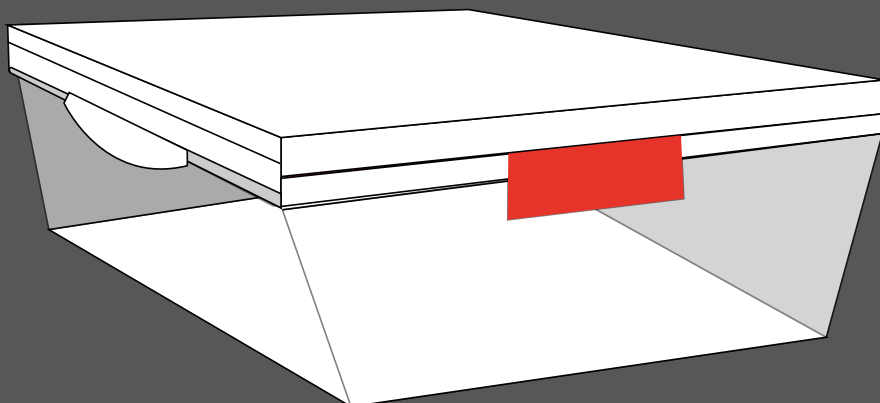
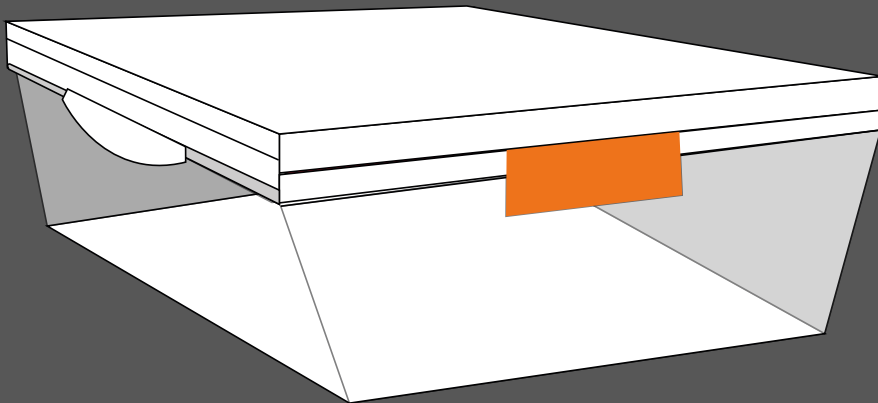
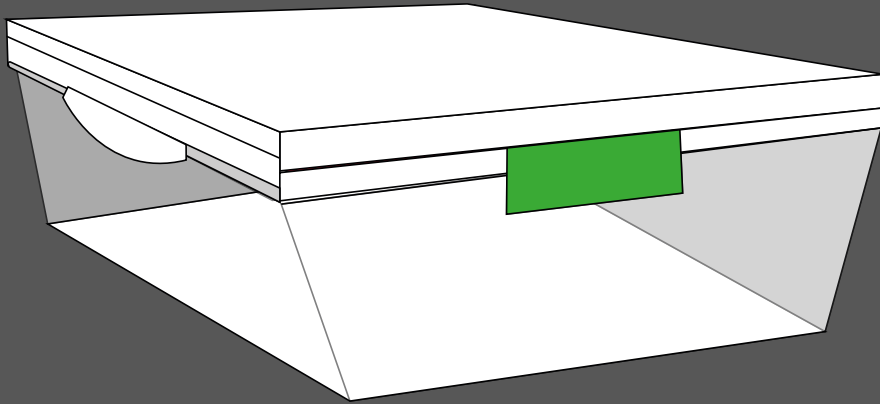
The bottom of the top. There are little holes in it to get the bacteria to the bacteria detect layer.

The box





The tree different stages of the colours of the stages of the freshness of the product.



COLOR BLIND

Colour blindness and design.

During this project, I saw a few things I have to get my attention to. I saw this design from Joseph Joseph. This is a really nice you would say at the first sight but that is not completely true. The colors are really difficult to see as a person who is color blind. That is why I made my freshness box completely with the



perfect colors for a person who is color blind. Because people who are color blind also have to know if their food is good or not. That is why I tested the three different colors in my design.

At first I wanted to use more colors. but definitely, I didn't do that anymore because how

more colors you use how less the colorblind people will see the difference. It is perfect to only use 3 different colors but when you go to more then 3 colors it is not easy to see the difference.

The 3 colors I used are the 3 typical colors everyone knows from the traffic light. Green, Orange and Red. This are the 3 colors who you can see the big difference and what is already known as Go, Better not and stop.



MY LOGO

My logo is made with the 3 different color to get the colors back in my design. This that people will recognize my product. The 3 parts are separated so the color blind people can see good the difference between the three colors. When the colors are to close it is much more difficult. The three-part is standing for the 3 leaves for freshness.

The green leaf is bigger than the other because I want to lay the focus on the good food. So the green part. The name of the product is called Freshness because of the focus on the freshness of the product. And the 3 sss are on purpose for the 3 different stages.





Black background behind my logo



Seeing the fruit who is in the package



With a theme behind my logo



Seeing the fruit who is in the package

Ways to use my logo on papers or different ads



Grey background behind my logo

The 3 different colors from my logo.



R: 58
G: 170
B: 53
#: 3aa935

C: 75
M: 0
Y: 100
K: 0



R: 238
G: 114
B: 28
#: ed721b

C: 0
M: 65
Y: 94
K: 0



R: 220
G: 19
B: 21
#: dc1314

C: 4
M: 99
Y: 100
K: 1

Source List:

Elizabeth Royte, Robert Clark -

Article from National geographic - 13 Octobre 2014

<https://www.nationalgeographic.nl/milieu/een-derde-van-al-het-voedsel-gaat-verloren-wordt-weggegooid-wat-kunnen-we-eraan-doen>

Article from Milieu centraal en voedingscentrum- 17 april 2012

Feiten en cijfers over verspillen van voedsel door consumenten in 2010 (Facts and grades about food waste.- dutch)

<https://www.voedingscentrum.nl/Assets/Uploads/Documents/Voedingscentrum/Perskamer/2012/Factsheet%20Verspilling%20april%202012%20def.pdf>

Traffic lights and colourblindness

<https://www.dekennisvannu.nl/site/media/Kleurenblindheid-en-stoplichten/3138>

Plastic waste

http://ec.europa.eu/environment/waste/plastic_waste.htm

Facts about recycling plastic and plastic

<https://news.nationalgeographic.com/2017/07/plastic-produced-recycling-waste-ocean-trash-debris-environment/>

Pinterest challenge, 28 days plastic purge.

<https://nl.pinterest.com/pin/528680443738783577/>

Quote for the plastic waste.

https://ec.europa.eu/environment/efe/themes/economics-strategy-and-information/ambitious-new-strategy-make-plastic-fantastic_en

Waste each person

<https://www.weforum.org/agenda/2018/04/european-countries-most-plastic-waste-per-person/>

The wrap recycling action program

<https://www.plasticfilmrecycling.org/recycling-bags-and-wraps/wrap-consumer-content/>

Testing person for colour blindness:

Maaike Schaafsma