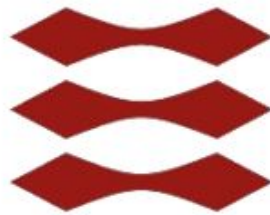


Technical University of Denmark

DTU Diplom

62990 Innovation Pilot (Summer edition)

DTU



Loop 2: Reflection and learning report



MILJØPUNKT

21 August 2020

Infracore

Preface

This project was devised as part of the course Innovation Pilot 62990 (Summer Edition), which weights 10 ECTS points and lasted from June 29 to August 21. We want to thank our instructors and co-instructors for being ready to answer our questions during the entirety of the course. We also want to thank Miljøpunkt for helping us both with practical information and for inspiration. Lastly, we want to thank all the shops, plant schools, restaurants, and people for letting us interview them and get the relevant information that we needed to devise our solution and make it grounded.

Executive summary

In a world where the topic of climate change and a greener lifestyle fills so much of the political, scientific and day to day sphere of our lives, Copenhagen is fast at following the rest of the world in finding creative and new ways of becoming ever greener and ever more conscious of the environment.

A small but vital subset of this topic is plants – at homes, in stores, in restaurants, in the streets and everywhere else you can imagine them. Us from Infraware have developed our own solution to increase the green city life in Copenhagen in accordance with the challenges laid out by Miljøpunkt and DTU.

Our product, which we have tentatively named Smartpot, is a self-watering and self-adjusting pot for plants, meant to make it more convenient for people to keep their plants healthy instead. The hope is that this prevents plants from dying through improper or a lack of watering and can maybe replace fake plants in places where people don't have the time or know-how to take care of normal plants. By making the watering process automated, and by giving people an overview of their plants through an app connected to each of their pots. We are making it simpler to create a greener city life.

It might seem counterproductive at first to have to use your phone to track a plant, but in today's world people are using their phones almost as naturally as their own limbs, keeping track of all sorts of aspects of their daily lives with it. Businesses' especially are using phones to make heads and tails of everything. As it stands now, making it as easy to take care of your plants as simply fetching your phone out of your pocket and checking how everything looks – well, that's almost as simple as it can get.

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[A brief introduction to the innovation report](#)

This innovation report describes how the group Infracore has worked on the case given by Miljøpunkt and DTU. To make Copenhagen greener is the core problem that the students had to find a solution to. This report will elaborate on how the whole process went, from starting out with a wide-ranging problem to narrowing down to a more specific subset of problems based on our empirical evidence, and then finding out how to develop a solution to solve those problems.

[Introduction to the problem](#)

Miljøpunkt is an organization that supports and develops local environmental projects. The problem given to DTU in the course Innovation Pilot is as follows: how can we help greenify the city i.e. planting more trees, making greener backyards, creating green areas, increasing the amount of plants in businesses and homes in general and so on.

This challenge is relevant for us engineers at DTU because several problems occur when trying to create a greener city – ranging from underground pipes prohibiting plant growth, communal rules for where and how to plant plants outdoors, and people not having the time or required knowledge needed to care for plants – and so we've been given the task of trying to find an innovative way of getting around some of these problems.

This is a relevant task not only because it challenges us as engineers, but because creating a greener city leads to less noise, cleaner air, better use of resources and is a topic often discussed in the world today. There is a reason DTU has a "Grøn Dyst" every semester in an effort to promote innovative ways of creating a more environmentally friendly life for people, both here in Denmark and in the rest of the world.

A global effort to create a greener earth is a world focus right now. Copenhagen, as the capital of an esteemed nation known for wind energy and progressive approaches to many of the world's problems, needs to do its part in leading this worldwide movement – and we from DTU and from Miljøpunkt can be a small part of that whole big process.

Miljøpunkt

Miljøpunkt Indre by & Christianshavn is an NGO (non-governmental organization) that seeks to find solutions to help enrich Copenhagen's green development through local environmental projects. These projects, whether they are small scale or city spanning, are done together with citizens, volunteers, institutions, businesses, universities and other associations and organizations – and they are supported by the City of Copenhagen. Their main work focuses on four different aspects of a more environmentally friendly city – clean air, less noise, a green city and more recycling.

Miljøpunkt already has several projects ongoing, which are listed on their website, and their website and social media pages serve not only to promote these, but they also provide information about how to create a greener city in general – ranging from information about which plants to put on your building facade, what communal laws you need to know about, and much more. They have contacts with other businesses, private people and the city of Copenhagen.

Miljøpunkt is here to get more creative ideas through the innovation process, a task which our group has tried to take on so that we can develop a way of enriching Copenhagen's green city life.

Work process

In this section our group Infraware will describe the problem at hand, and the decisions that helped further evolve our group's solution. Furthermore, this section will contain a representation of the analysis and research that our group Infraware attained throughout the progress of the course.

The overall problem set up by Miljøpunkt is the lack of a green environment in Central Copenhagen. There could be several different reasons as to why Copenhagen isn't sufficiently green enough.

However, the question is how do we find the root behind this problem? What is the cause behind lack of plants in Copenhagen? Why don't enough people invest in plants, when plants themselves grant so many benefits. Some of the environmental benefits include heat isolation, sound absorption, reduction of pollution, improvement of air quality and improved humidity levels.

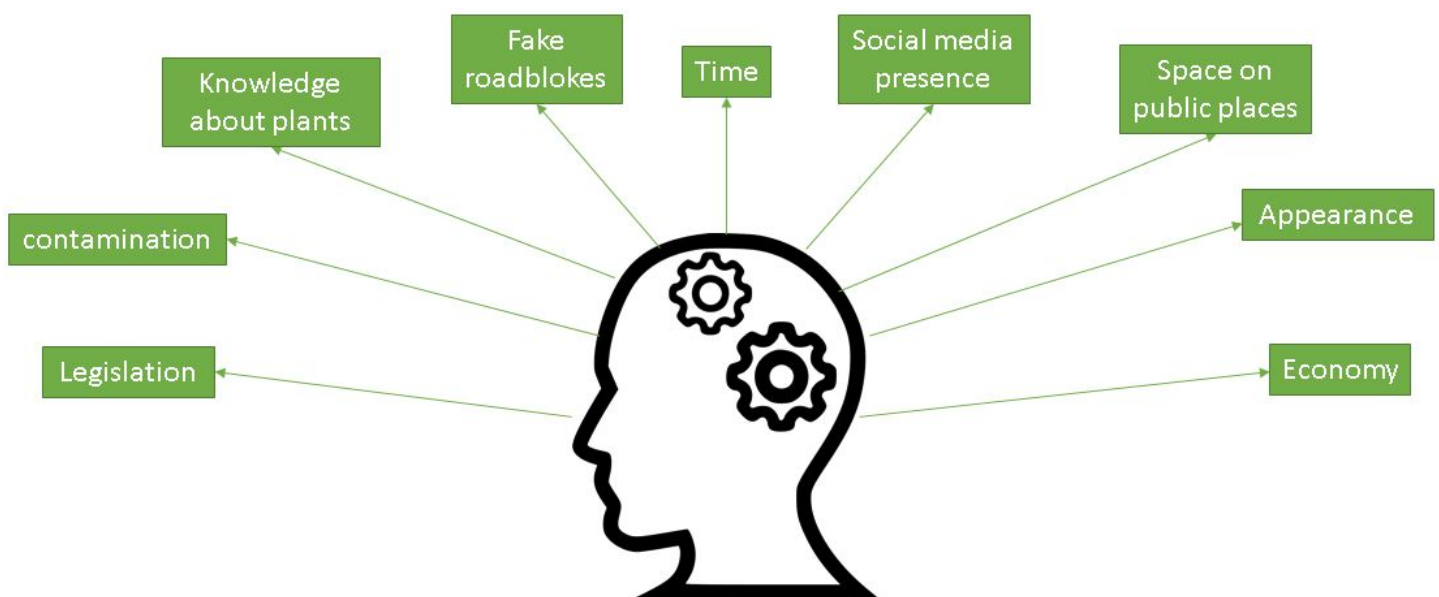
Plants also have an abstract effect on the human mind and body that could improve the overall physical - and mental health. With global warming and climate change becoming ever more important subjects, the plants become more necessary than ever.

We had a hard time finding the core behind the lack of plants in Central Copenhagen. That is why several tools were used to help the project into the right direction. These theories and methods worked as a guide that helped define a problem. The theories and methods that were used include:

Brainstorming

The Group used brainstorming to define possible problems. These problems would work as the backbone of our project; however, further research was needed in order to validate that the brainstormed problems were relevant and significant. Each group member came with one or two problems that they thought were admissible.

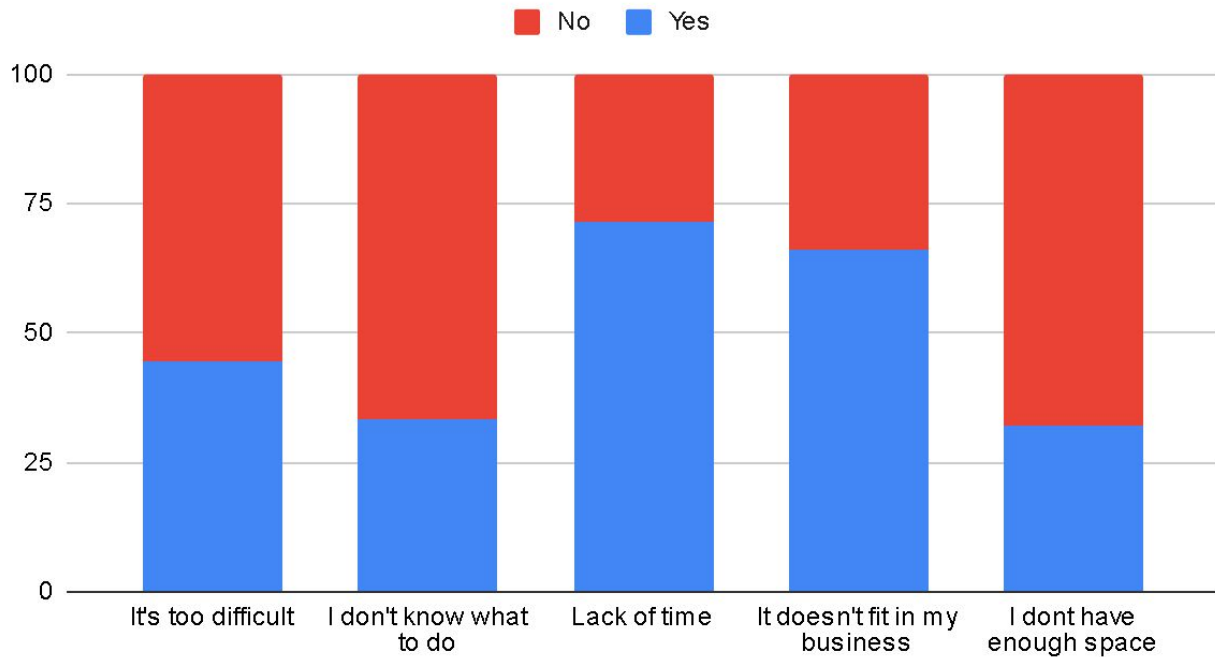
Our group Infraware's brainstorm can be seen in the picture below. There are several different problems that we came up with. We kept the most relevant and removed the rest. This brainstorm helped to pave the road towards our problem statement.



We went out and made 70+ interviews after and asked the residents of Central Copenhagen in order to gather data. We went after businesses (ranging from restaurants to clothing stores), regular

people on the street and caretakers of housing establishments. The best results were gotten from business owners, so we focused on the replies from them. This helped us realize which of the brainstormed problems occurred most frequently. We asked an array of different questions. A portion of the asked question can be seen in the diagram below:

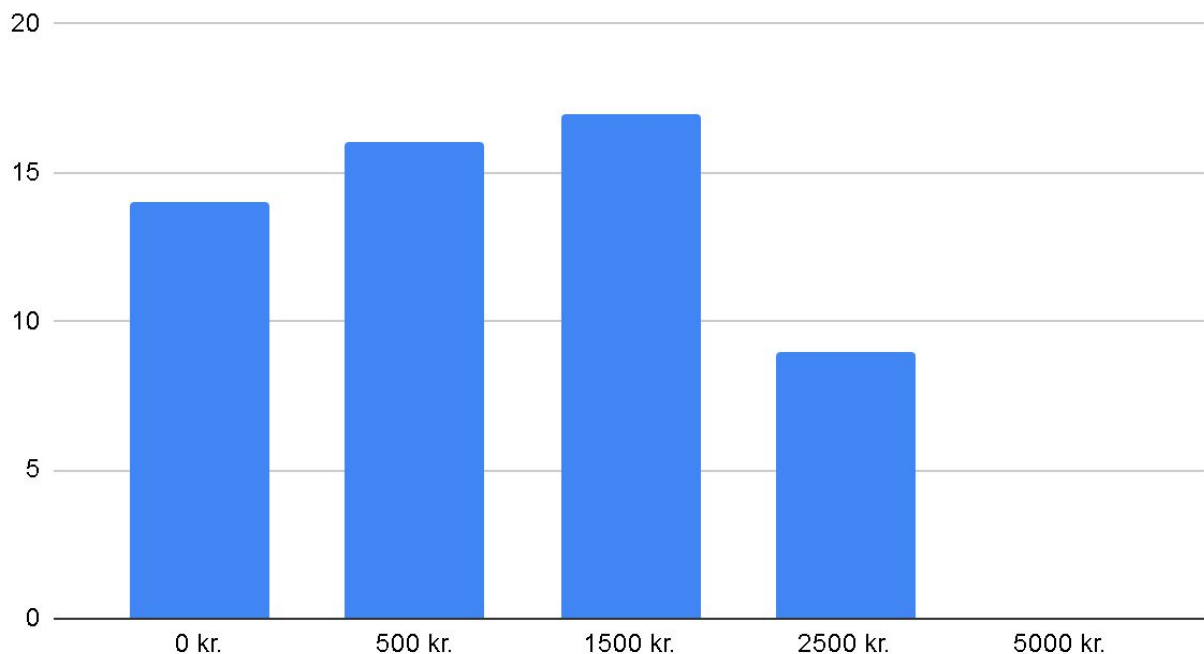
Central Copenhagen interviews



The diagram above is a representation of the business owners' replies. We specifically targeted the businesses that did not have any plants or had fake plants. The diagram shows that most people replied that they lacked the time. Furthermore, some people replied that plants did not fit into their business. The business owners that answered that plants did not fit in their businesses were typically retail stores. This gave us an idea of why many business owners in Central Copenhagen did not have plants. We also asked the business owners what their possible annual budget was if they were to invest in plants in the future.

The result of this question can be seen in the diagram below. This question was quite necessary since it gave us a capital limit. This helped us to stay within what is possible to accomplish whilst not exceeding that capital limit.

How much is your annual budget for plants?



Some of the quotes from the interviews:

Joe and Juice: *“We just follow some guidelines given to us from the head office”*. Joe and Juice used fake plants instead of real ones. However, they said that they didn’t have any influence on the decorative decisions of the store.

Retail store: *“It takes time to make plants look good and fresh”*. A retail store owner said that they lacked the time to make sure that the plants looked good. They were too busy to take care of any plants. This store also opted to use fake plants.

Café Ninetnine: *“We really want plants, but we just don’t have the time”*. Café Ninetnine had small fake plants hanging at the walls.

Strøget Shawarma: *“It doesn’t make sense for us to get plants when we don’t have enough time or space”*

We also realized that a lot of businesses in Central Copenhagen preferred to use fake plants, which led to the realization that a lack of time or knowledge is one of the biggest factors for business not

having plants - plants simply require too much time, knowledge and maintenance for many of the stores' employees' to tend to correctly.

We made several problem statements based on the interviews. Moreover, some of the replies were somewhat superfluous and the others were detailed. The interviews pointed us towards a direction. We had some evidence that helped us further define the problem statement.

The interviews were an important start to this project because they served as the first step of data towards the group finding a specific problem to tackle. Our problem statement needed further polishing. With the help of the theories and methods that have been taught in this course, we managed to narrow down the numbers of problem statements.

These theories and methods in combination with the interviews and further brainstorms made it easier to find out which problem statements were compelling to solve Miljøpunkt's problems.

The following problem statements can be seen below:

- 1. How do we make plants easier to maintain?**
- 2. How do we make plants fit in unusual businesses?**
- 3. How can we improve Miljøpunkt's social media presence?**
- 4. How can we make more businesses invest in plants?**
- 5. How do we lessen the time consumption of maintaining plants?**
- 6. How can we make plants more attractive?**
- 7. How do we make watering plants a natural part of daily life?**

We used the different theories and methods to achieve a problem statement that was relevant and critical. Each theory helped with the different things. For instance:

[Problem statement polished with theories](#)

The Double Diamond process, for example the 5 whys and 4 Hs, was a tool used to help the group define the problem statements. However, these problem statements were too ambiguous, and so they have to be further evaluated. This was by using other theories and methods that would help

narrow the problem statements down to be more specific and clearer. This led to the use of The Question Tree.

The Question Tree helped the group visualize the connections between the problem statements as well as their decisions and the consequences. The group determined the possibility of each problem statement and narrowed it down to a single few.

We then used Harris Profile to determine which of the problem statements remaining after The Question Tree weighed the most. Harris Profile pointed the group towards the problem statements of biggest significance. The rest of the problems that were written down in the brainstorming phase were not discarded, but rather used as supporting pillars. That way we could involve a lot of aspects of the problem.

Ultimately, after the careful use of the theories, methods and interviews we finalized our problem statement by using the dot-voting. Each group wrote down the problem statement they thought was preferable. We voted and we ended up with the problem statement:

How do we make watering plants a natural part of daily life?

Solution

The question was how to solve the problem statement efficiently based on the known factors that Miljøpunkt had presented. They wanted a greener Copenhagen; however, we were bound by different aspects of Miljøpunkt's project. These aspects included Time, economy, usability, Social Media presence, legislation and space. The solutions had to take these different aspects into consideration.

They could either prove to be a tool to further the development of the solution or be an obstacle that halts the progress. Therefore, these aspects were especially important when deciding the best possible solution to the problem that Miljøpunkt had presented.

Our problem statement was "How do we make watering plants a natural part of daily life?"

We knew that time, knowledge, maintenance and economy played a big part. This was showcased previously on the interview diagrams. We needed to make a solution that would reduce the time

consumption and make it easier for business owners to maintain their plants, so they don't die out because of water deficiency or water abundance.

In the start of the developing phase, we thought of an app. This would help users get to know their plants and the specific needs of those plants. This app would terminate any fake roadblocks about business owners not knowing how to maintain them. However, the idea itself wasn't ideal because we tried to change the behavior of the business owners by guiding through an app.

We needed something that would fit their behavior rather than change it. We discussed and we came up with a solution that would abolish the need to constantly water the plants.

The solution was a self-watering pot. This pot had a water container, so you had to refill the water container. This would reduce the time usage on maintaining the plants. We needed to make sure that pot itself wouldn't kill the plants by either not supplying enough water or overloading them with too much water. The electronic devices inside the plant made sure that it would water the plant to its individual needs. However, the electronics devices couldn't store data which is why we also created an app that would complement the pot.

The app contains a list of all the different types of plants that the user has and their individual needs. Furthermore, the app also contains a plant library if the user is interested in getting to know more about different plants.

We visualized the idea on a poster. There was a roadmap that visualized how the pot worked. The poster helped us present the product to the plants-schools and flower-shops. Most of the people were really intrigued by the idea, and thought it was great. They had some constructive feedback which we used to improve our product.

The flower-shops:



Quote: *“I really like your idea. However, you need to make sure that the moisture doesn’t damage the electronics. Otherwise, a fantastic idea that would save many plant lives”*

Quote: *“People who own restaurants typically buy olive trees, and they cost between 500kr and 700kr, and other shops little pot plants”*

The flower-shops:



Quote: *“It’s a really good idea. You guys should patent your idea, so other people can’t copy you. I’m constantly updated on what happens in the world of plants, but it’s my first time hearing about this idea. However, it would be great if you had a prototype you could show.”*

The plant schools:

Here are some of the quotes we got from the different plant schools we interviewed.

Quote: *“A pot that is self watering is a huge step”*

Quote: *“If you continue with this product, we really want you to contact us, because we think it is a really great and innovative idea”*

The plant service:

Quote: *“That solves the watering issue, but what about maintenance of the plant?”*

Quote: *“We really like the idea, because we have observed that a lot of people, especially the elders, forget to water the plants. However, it’s also great for young people because most of the time they carry a smartphone, so an app is also great for them.”*

The prototype

The final product differs a lot from the first design the group came up with. The group decided to make adjustments based on the feedback from flower shops, plant schools and business owners - and this resulted in us being able to deliver a prototype that adequately shows how our product should work.

The prototype can be divided into 3 phases: *design phase*, *poster phase* and *physical product*.

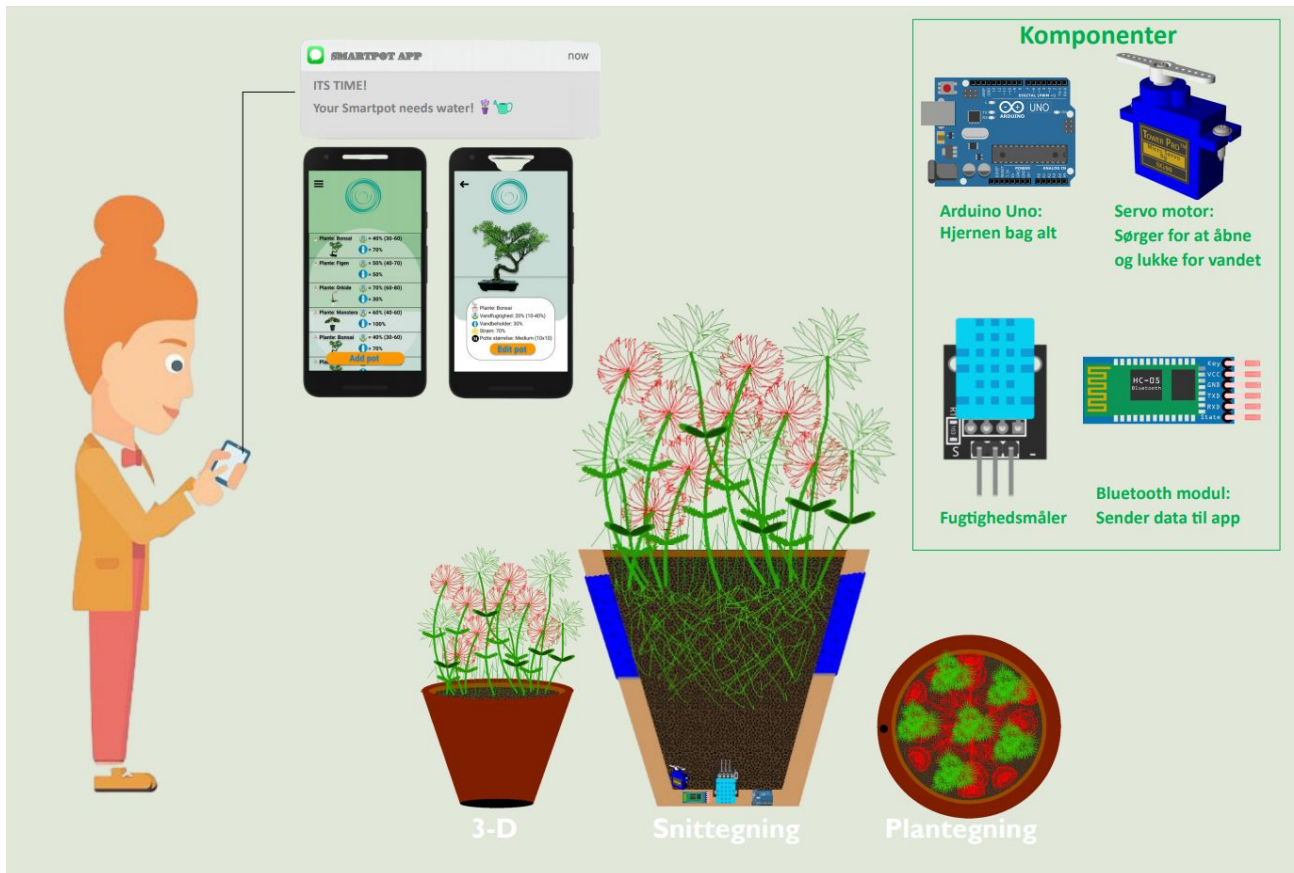
Design phase

Before deciding to work on making a self-sufficient pot, we had some ideas on the visuals of the product. There would be a need for a space in the pot where the water storage could be and a separate place for the electronics. The group split into 3 smaller groups based on our fields: the civil engineering students got the task of drawing the pot on a CAD software; the electro students worked on finding which electronics devices would be needed and plan where they would be to best remain hidden without ruining their functionality; and the software engineering students worked on designing the app that would connect to the pot. Working on the design phase like this made every student able to shine and share their knowledge with each other.

Poster phase

After finishing the basic design of the prototype, we wanted to get feedback on our product. This was done by asking experts with knowledge about plants and how to take care of them, i.e. plant schools and flower shops. We also asked businesses if the idea was something they'd be interested in.

With the help of a poster it was easier to present how the pot works as compared to just speaking about the idea. Basically, the electronic devices on the bottom of the pot will measure the humidity in the soil and send the data to the app. When planting the pot, the user will have to add the plant in the app by selecting it in the plant-catalogue. This will make the electronic devices know which humidity level is needed for the specific plant and adjust the water intake for that.



Physical product

The final step in the prototype was to make adjustments based on the extra information we got from flower shops and plant schools. For example, a flower shop worker proposed to make the device measure the humidity in intervals of 1-2 hours since it takes time for the plant-roots to absorb water, which means it can be deceiving if the humidity measure is always on and water is constantly released for long intervals. This should help prevent over-watering.

The pot

The physical prototype of the plant can be seen in the picture below.



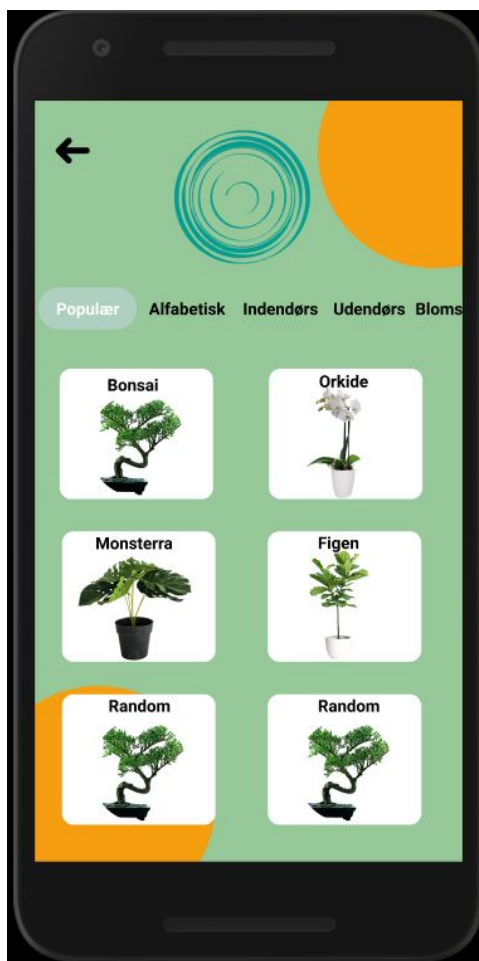
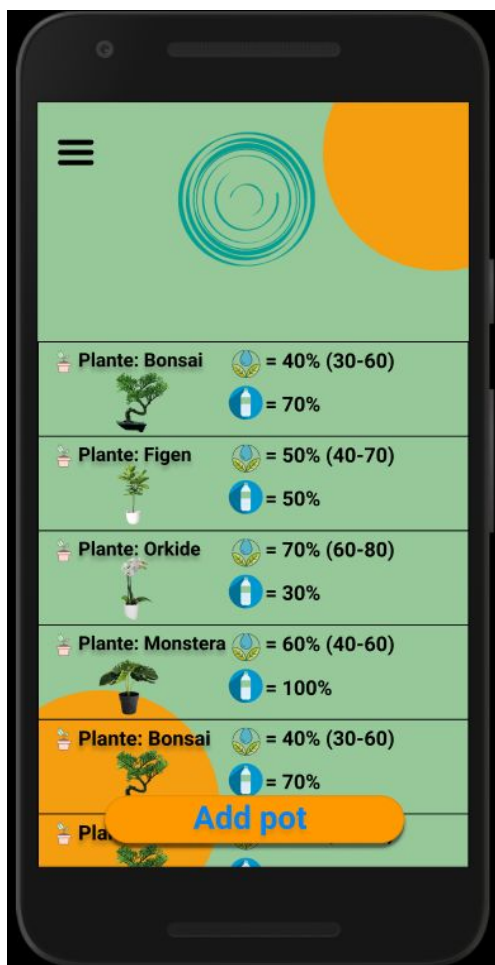
This was made with the following materials:

- 21 cm (top diameter) plastic pot
- 13 cm (top diameter) plastic pot
- Basil plant
- Arduino Uno
- Servomotor
- Humidity measuring device
- Bluetooth module
- Plexiglass (this was only needed for the prototype to have a view on what is inside the pot. Not necessary)

While it will look like a regular pot, the inside of the pot will not in any way be regular. The exact idea of how everything will fit together, and look has not been devised yet, but a prototype idea has been made. The insides of the pot will be hollow, and there will be water filling the sides of the pot, which can be filled through a gap in the top. There will be an electric valve on the inner side of the pot that can lead the water inside of the actual pot to the plant and its dirt. The pot will contain electronics that also keep track of the water humidity of the plant, the water inside of the tank, and a bluetooth receiver that connects with the phone.

[The app](#)

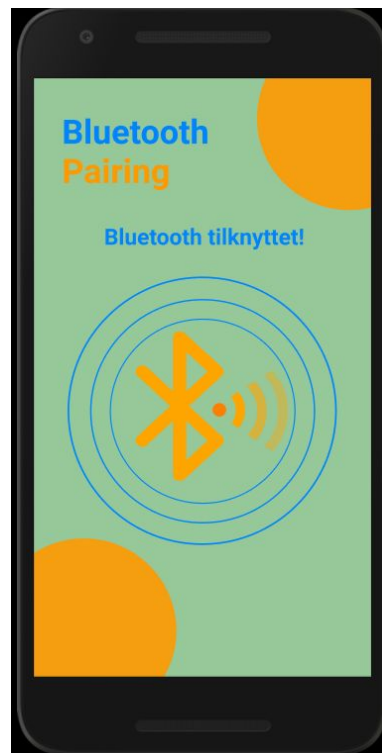
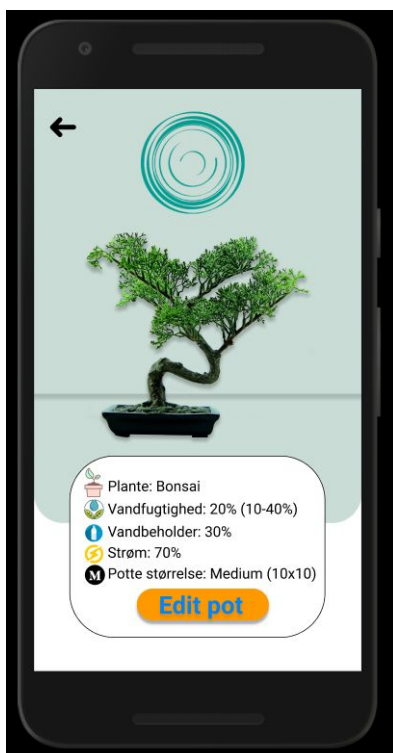
In addition to the physical pot and the electric components within, there will be an associated phone app, preferably both for IOS and Android. This app connects to the Bluetooth receiver and chip inside of the pot, matching the plant in the pot with the phone so that its owner can look up detailed information about it.



When a person first buys a smart pot, they will download the app and then connect the pot to their phone through the app, after which they will choose a plant from a plant library to put inside of that pot (matching the plant they have actually bought). There will also be the ability to input manual information if a special plant not found in the plant library is purchased (water levels and so on). The app then figures out how much hydration the dirt in such a plant needs in order to stay healthy, passing this information on to the electronics within the pot so that the water valve automatically opens up when dirt hydration is low, and automatically closes when hydration is up to a proper level. This ensures that the plants get the proper care they need based on actual hydration levels.

The plant library that the app contains is a database of plants, developed in cooperation with plant schools and/or flower shops so that a proper hydration level for each specific plant type is found and stored within. This way, the smart pot ensures proper water flow for each plant, making it so that no plant gets too much water or too little water.

The prototype images we have of the more useful information such as the water level of the actual pot, which will be measured in the pot when connecting with the Bluetooth, so that the owner only needs to water the actual pot when it is nearly depleted. The battery life of the electronics will also be shown here, and so will the size of the pot.



The actual appearance of the app, as shown in the pictures in this segment and in the pitch, are not final – neither the design, the icons or exact the layout of everything. But it has been made in a way that makes the information clear for the user, and this is a design goal that has to be kept in mind when/if a final App is developed. The colours used in the app are consistent with those of Miljøpunkt. It is also possible to read up on Miljøpunkt and about the individual plants in the App, either through a link to an external site or through an inbuilt knowledge base written in cooperation with professionals.

All of this results in a one-stop app that gives the user all the necessary information needed to take proper care of their plant with almost zero work. Perhaps most importantly to note about the app is that it is exceedingly simple and straightforward to use, so no person should feel confused about how to take care of their plants – they simply need to buy the plant and pot, find the plant in our easily searchable plant library, and then they only need to do water the pot itself when its self-contained water supply is running low

[Investment opportunity](#)

The group has briefly looked into the economic opportunities this product has. It has to be said right from the get go that this following section is based on the prototype, using the parts we used for it. Cheaper materials and methods of making this could probably be found if we went into further development. The material costs for each Smartpot prototype, if they are made roughly the same as the current prototype was made, has the following material list and associated cost:

1. 9G SG90 Micro servo motor for RC toys | Price: 1.7\$
2. USB Arduino UNO R3 (micro controller) | Price: 4.97\$
3. Bluetooth module | Price 1.4\$
4. Temperature and humidity sensor | Price: 1.7\$
5. Pots | Price: 8\$

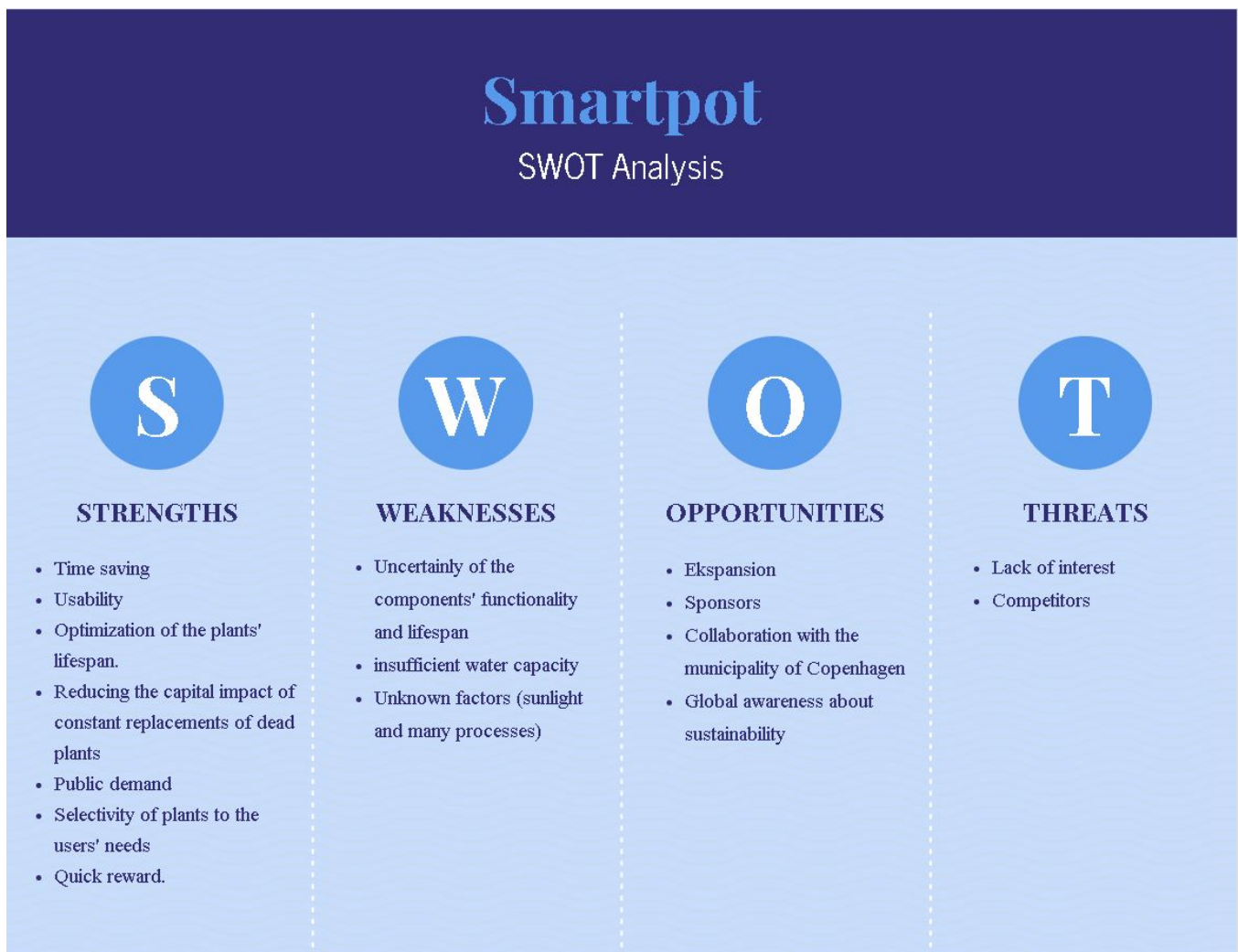
Total price of a pot:

- 17.86\$ or 111,70 Dkk. before taxes
- 22,33\$ or 139,63 Dkk after taxes.

Some of these materials will become cheaper as the production scale goes up, which will result in a bigger profit or a cheaper price for the consumer. We also found out that it makes a huge difference in price if the materials come from outside the EU rather than within due to taxation and such - but one can also find cheaper products outside the EU. We have not looked into this enough to make a certain statement as to where it would be cheapest to get materials from.

In the investment budget we need to go out and hear what it costs to rent a manufacturing plant to create the pot, which means that making a useful investment plan seems a bit ambitious at the current time. A business model canvas and SWOT analysis of the project has, however, been made.

[SWOT analysis](#)



One of the first points under strength is “Time saving”. Smartpot itself saves the user a lot of time by being a self-watering pot. This terminates the fact the user must water the plant daily. However, the user must refill the water storage when it’s running low. The second point is “Usability”. Smartpot and the app combined aren’t difficult to use. It’s easy to connect the pot with your smartphone through a Bluetooth connection. The user can navigate through the app easily and without any inconvenience. The third point is “optimization of the plants’ lifespan. Smartpot waters the plants to their individual needs. This function prevents the users from killing the plants by either watering it too much or too little. The fourth point is “Reducing the capital impact of constant replacement of dead plants. Smartpot gives the plants a bigger chance of surviving a longer time because it waters the plants with the right amount and at the right time. The fifth point is “Public demand”. We were met with a lot of enthusiasm when we presented the product. The users gave us positive feedback. The users wanted Smartpot because they had a lot of customers returning with dead plants that could have been prevented if they maintained them properly. In fact, most of the flower-shops and plant-schools were interested in the product, and they wanted to be part of it. The sixth point is “Selectivity of plants to the users’ needs”. Smartpot and the app allows users to choose any plants they want. The library allows the users to pick their desired plants, and Smartpot handles the rest. The last point under strength is “Quick reward”. Smartpot quickly shows quick results. It saves the users more time and handles the watering process. This is an instant effect when Smartpot is set up.

One of the first points under weaknesses is “Uncertainty of the components’ functionality and lifespan. Smartpot is made of several different electronic components. We don’t know the lifespan of these components. We don’t know how they would react to their environment. There is a possibility of moisture damage. We haven’t thought of a solution if the components get damaged by moisture. However, this is still an uncertainty that we don’t know of. Furthermore, the battery needs to be recharged. We haven’t tested its duration, and thus we don’t know how well it will perform. The second point is “insufficient water capacity”. We knew that the water capacity could prove to be a problem. The plants need different amounts of water and thus need different size water storages. The third point is “Unknown factors (sunlight and many processes)”. There could be unknown factors such as sunlight that damages the plant. We don’t know if sunlight could damage the electronic components in Smartpot. However, we doubt that this will happen if the pot is

properly isolated. Furthermore, there are many processes involved in making Smartpot. Smartpot needs to go through many processes before it can be sold. From production to testing.

One of the first points under opportunities ``Expansion''. Smartpot is an innovative idea that could be used by everybody. The user segment is limitless. Everybody can Smartpot in their homes, business and even in the public. The opportunity of expanding the product is a big reality considering Smartpot's reach. The second point is "sponsors". We got a lot of positive feedback when we presented the product to flower-shops and plant schools. They were interested, and some even offered that they would buy a large amount of the pot if it were available. The plant-school wanted to collaborate and make Smartpot a reality. There are rich opportunities when it comes to sponsorship. The third point is "Collaboration with the municipality of Copenhagen ". The municipality of Copenhagen is part of the green initiative of Central Copenhagen. Smartpot can possibly improve the quality of plants and led to an increased number of plants in Central Copenhagen. This could favor the municipality of Copenhagen in improving the green environment in Central Copenhagen. The fourth point is "Global awareness about sustainability". The increased awareness about the environment and climate creates opportunities for Smartpot. It's a global wave that has a big impact on our daily lives. Smartpot could be a part of the change that the world is going through.

One of the first points under threats is "Lack of interest". Lack of interest refers to the users' interest. It would be a big threat If the users lose interest in the product. Though, the feedback the group received shows that there is an interest among business owners. However, we don't know if this applies to everybody. The last point is "Competitors". The market is competitive, and we fear that other competitors may make it to the finish line before us. There have been several ideas that seem like Smartpot. However, Smartpot is unique and there currently is no product like Smartpot.

Business model canvas:

The business model canvas gives an insight in how the product "Smart pot" can be made profitable. For a non-profit organisation, the money that is earned from profit can be channelled into a cheaper product, or targeted to achieve some of the organisation's other goals.

Key partners	<p>Miljøpunkt.</p> <p>Chip manufacturers.</p> <p>Pot manufacturers</p>
Key Activities	<p>Producing Smart pot</p> <p>Marketing Smart pot</p>
Key Resources	<p>Geographic network inside inner CPH</p>
Value proposition	<p>Making gardening plants more simpel</p> <p>Saving money on renewing a plant</p>
Customer relationship	<p>Strong relations between miljøpunkt</p>
Channels	<p>Web as first</p> <p>Hopefully in small flower shops, or even bigger stores as coop or so</p>
Customer segments	<p>Shops with plant expanses</p> <p>Normal people with less success in planting plants on their own</p> <p>Tech nerds that want an easy solution</p>
Cost structure	<p>Development of the pot. (Free until revenue stream starts)</p> <p>Production of pots</p> <p>Marketing</p>

Revenue streams	Sale of pots
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Profitability

The profitability is hard to find right now based on our customer feedback and the price we found above. For this to be truly a profitable solution, a cheaper alternative to the electronics within the pot needs to be found, since a cheap set for almost 10 dollars is too much.

Furthermore we need to reduce the cost of the pots, this can be done with finding someone that might help with designing a pot that works well for our solution and a cheap manufacturer.

On top of this a distribution chain would add on the price, because they need to earn money for distributing the pot. According to information from Irma and an old employer at “Fætter BR” it is not uncommon for a shop to earn 50% of a sale - in other words, if they buy a pot for 20\$, they will sell it to customers for 40\$ or above. There is no doubt that for each \$ the price increase for the consumer, the interest for the product will decrease and as such the number of sales will be limited too.

If the price is in the higher end where a pot price is between 50-100\$, the main audience for our product would be a few shops where our aesthetic design will match the shops. While private users would not have any interest in paying more than 50\$ for a pot with plants (based on field test). This will result in a very narrow target group, though big corporations could still be a target group, with a very high payability, if we found a way to make the pots last long and develop them to fit the corporations' needs better.

The market to corporations is very lucrative since they are willing to pay a way higher price than regular consumers. The reason for this is they have to pay employees to take care of the plants. In big corporations it's not only one that has to water the plants, but even more. This is why if we can reduce the amount of work required to have a nice plant, then business could save money on the salary to those employed, and what that corporations save is more or less the value of this product to them.

If we can't get in on the corporation's market, we need to try and reduce the cost of producing the pot to around 10\$ (~62 DKK), so we can end up with a product that targets the regular consumer.

Furthermore this solution's real potential isn't in this first iteration of a product, but the line of product there following after. One of the first and most simple steps would be to make the smart pot in different sizes, and if possible make some one that can be used outside.

Conclusion

One of the main aspects of this project has been to develop a solution that will seamlessly help people take care of their plants' watering needs, and to do so in a way that does not carry a prohibitive price with it. By making a product that anyone using a phone can easily use, that requires very little handling from the actual user beyond buying it, and that can very easily be driven down cost wise, we feel that we have succeeded when it comes to these aspects.

Miljøpunkt, plant schools, restaurants and people on the streets have shown interest in this idea after being presented with the poster, physical product and the app design. For this product to be a success, more tests, more data and far more detailed development process needs to take place – but this product has the potential to help Miljøpunkt with their main goal – making a greener Copenhagen in a manner that people can and will make use of.

Smartport, the combination solution of using a self-watering pot in combination with a notifying APP, is based on the idea that everything has to be easy to use, serve an actual purpose in terms of making keeping plants easier, and be innovative.

Reference list

- Electronic to the pot.

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- Teaching materials

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Innovation methods in the define phase

Innovation methods in the develop phase

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