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Design a new indoor, herb gardening system that offers *fresh & dry* herbs on demand with zero hassle...

With the uprise of people living in urban environments, finding time and space to take care of an indoor garden has become increasingly difficult. Our goal is to design a new indoor herb gardening system that offers fresh and dried herbs on demand with zero hassle, while retaining and celebrating the traditional horticulture methods. There are certainly current smart herb growing systems on the market such as click and grow and aerogarden, but the issue with these products is they only allow for fresh herbs and also have a very sterile white plastic and emotionally disconnected look to them. We hope to promote mental well-being by bringing back that emotional connection with gardening while providing an effortless growing experience. Spices and herbs play a key role in the cooking process, whether it may be a

professional chef's work or that of an amateur cook. The main issue here is that herbs are hard to maintain. They also grow quickly and people often cannot use them fast enough and end up having to throw them away. In addition to growing herbs, trimming, drying and crushing the excess leaves is an important part of the growing process. Furthermore, fresh and dry herbs all have their own value and are sometimes needed at different times for

different dishes. We see a need for addressing the urban home and living, amateur culinary market with a new line of indoor herb garden pods that offer fresh and dried herbs on demand with zero hassle while retaining and celebrating the traditional horticulture methods. We hope to promote mental wellbeing through a streamlined indoor herb gardening experience. Our aim is for this line of products to fit seamlessly into the kitchen environment as a standalone and a collection while maintaining a certain aesthetic to brighten up the room, and while evoking a feeling of comfort through form and materiality.

...while retaining and celebrating the traditional *horticulture* methods.



#### "connection"

We also investigated the psychology of gardening and horticulture therapy in which we found out that gardening has numerous benefits has on mental health, one of them being a way to cope with anxiety and stress.

### "modularity"

We understood that people have very different kitchens with different layouts and space issues to we considered modularity and customization. We took this further by thinking of connect lego products that are the epitome of customization. And since we also have two very different kind of user groups, we wanted our product to be versatile and provide users the opportunity to customize their purchase based on their needs. Our product line includes 5 basic products – a customizable frame, a smart pot for fresh and dry herb storage, a grinder, a smart helper, and a storage piece for the grinder and other kitchen or plant care items.







## "maintenance"

We also understood that there are many other similar products on the market such as Click and Grow that are very good at keeping plants alive. We did not want to compete with systems that exist just to keep platns alive, potentially for cooking purposes. Instead, we wanted our system to be a garden that gets cared for. As a result, we had to be very careful about the kind and level of maintenance we were willing to offer.



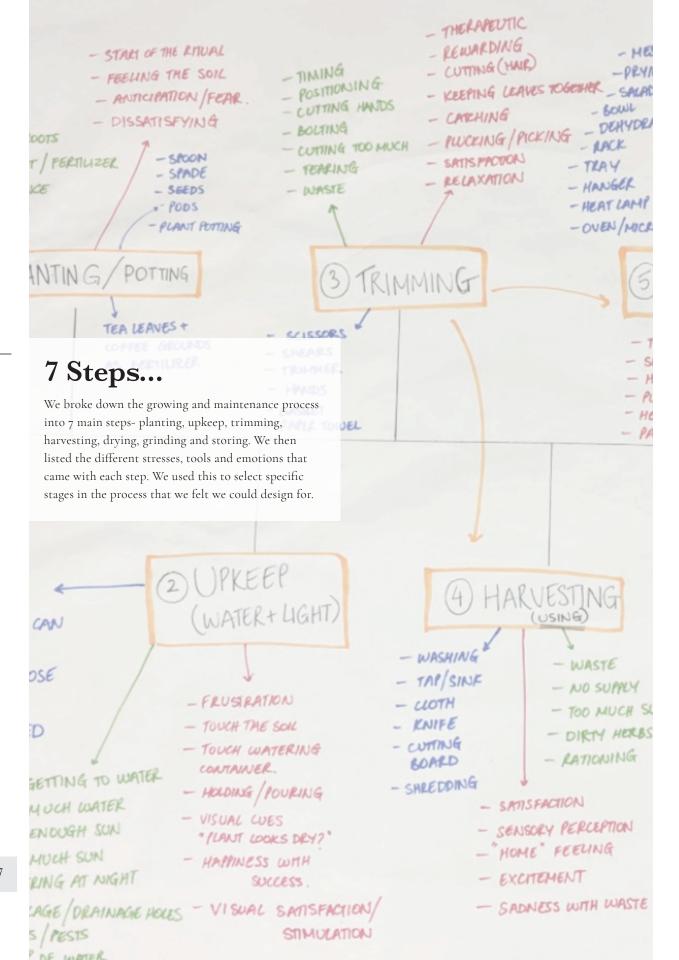
# 1. Development

## **Growing Process**

We began by developing the project ideation further. This included conducting research to understand whether we had a big enough market to cater to, and if this was a feasible enough concept to move forward with.

We conducted interviews and sent out a sruvey to receive user feedback on the kinds of difficulties they have with growing herbs and what they do to alleviate these difficulties. We were very interested in the kinds of herbs people grew and how that related to the kind of setting they lived in.







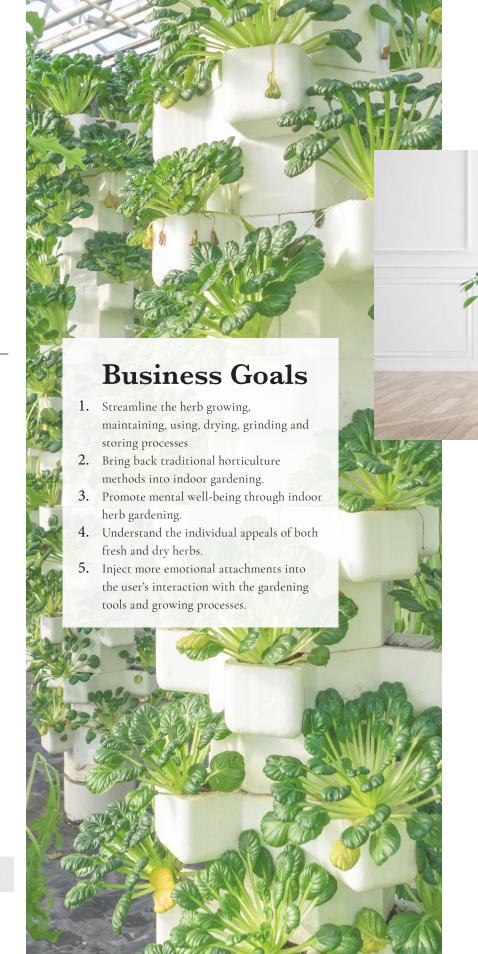
### **Step by Step**

We selected four steps to focus on- upkeep, drying, grinding and storing. We decided to not focus on the rest because we wanted to celebrate the traditional horticultural methods and retain the emotional connection between the plants and the users. We felt that the remaining stages also had enough of an emotive connection about them and we did not want to interfere. Instead, we decided to focus on the fresh and dry aspect of herb growing and a seamless combination of the two.



Urthy garden in a kitchen setting. We wanted the stages we picked to make it easy to make a product that fits seamlessly in the kitchen.

Image displays the upkeep process, which includes watering and lighting. Urthy needed to offer both forms of maintenance.



Once we had a strong

needs, we were able to

understanding of our user

focus group along with their

develop a list of business goals we wanted to achieve with our product. The main focus was to streamline the herb growing, maintaining, drying, grinding and storing processes with zero hassle. The User

We conducted a survey and did interviews to understand people that grow herbs and based on our responses we developed two user groups. We decided to split our users into two segments- experienced herb planters who face pain points such as ease of growing, and amateur herb planters who face pain points such as guidance and reminders for upkeep.

#### Experienced Planters:

People who are experienced with the tradition methods of growing herbs but suffer from multiple pain points throughout the horticultural process.

#### Amateur Planters:

People who have never planted before but wish to do so without relying on smart herb growing technologies.



#### Meet Rose Mary

#### **Experienced Planter**

For our experienced planter we have Rose Mary who is a 40 years old mom with two kids living in Queens. She started growing herbs after her son was diagnosed with down syndrome. She hopes that gardening with her son will comfort him and help him learn to interact with other living things. We

created a journey map for Rose to understand more pain points- we identified issues like forgetting to trim herbs, dead bits of plants, and difficulty finding enough space to dry herbs and ways to grind them. Most of her problems included issues that arise despite of routine care. Some of which include drying herbs at the right time and storing them the right way. We wanted to find a minimally intrusive way to solve this.



## **Meet Percy Lee**

#### Amateur Planter

For our amateur growers we have Percy Lee who is a 24 years old newly graduate living in Korea who suffers from anxiety. He is a newly graduate and works as a full time accountant in Seoul. He lives alone in a studio apartment and suffers from anxiety. He has been advised by his therapist to start taking care of plants to help reduce stress and improve his mental well-being. We also created a journey map for Percy to come up with pain points-some of which included issues repotting plants, appropriate drainage, and issues with adequate watering and sunlight.

We understood that amateur and experienced herb planters made up a very large target audience, so we came up with these personas to create specific ages to target. This meant that we were targetting expereinced planters in their 40s as well as amateur planters in their early to late 20s. We wanted our product to stand out from existing products on the market by providing a helpful growing experience without interfering too much in the process. We did not want to take away the emotional connection that plant growers have been known to develop with their gardens. Aside from the user, we decided to focus on urban settings where people tend to have small indoor gardens.

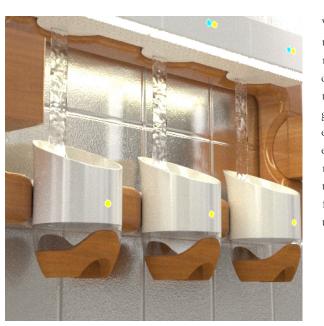


#### **Sucess Factors**

Our aim is for this line of products is to fit seamlessly into the kitchen environment as a standalone and a collection while maintaining a certain aesthetic to brighten up the room, and while evoking a feeling of comfort through form and materiality. We define and measure product success through multiple factors. Some of which include people finding it easier to grow and maintain herbs, people understanding the value of dry and fresh herbs, people no longer wasting extra herbs, people finding that the product evokes a feeling of "home" and comfort, a healthier lifestyle where people are excited to cook for themselves, and if people have a platform to reduce stress and improve mental well-being over the long term.







We wanted to create independent familiarity through sensory perception. We realized that many people associate home with specific comforting smells and we wanted to hold onto that. We aim to streamline the urban gardening process through various marketing elements that our product will have. These elements will ensure efficient growing and easy maintenance for our user. Our aim is to add to a healthy, culinarily independent lifestyle for people who are busy but still want to make time to eat healthy and live a balanced life.

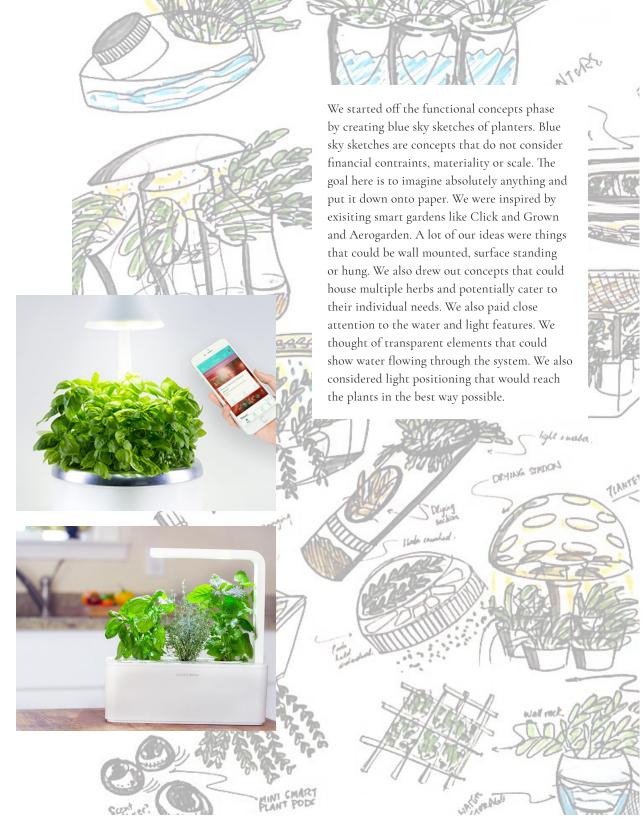


## 2. Function

#### **Blue Sky Ideation**

The functional concepts stage was all about looking at how we wanted the product to feel and the different mechanisms we could include. This was where we researched existing

products to see if there were specific elements we could incorporate into our own product. This stage included sketching and sketch modeling. We focused less on refined ideas, and more on cranking out as many concepts as possibilities that we could later look at and pick apart. This is a very important stage.















## **Functional Concepts**

We made some basic models based on actions we were interested by such as twisting, turning, lifting and pulling. We wanted this to be a hands on process. We worked on siz main actions- turning, lifting, twisting, pulling, turning and sliding. We made quick carboard models to illustrate these actions and presented them to users to find out

which ones were the most satisfying. The goal here was not to create full scale models or even think about what our final product would look like.

Instead we only focused on what it felt like.

#### **Mechanisms + Tools**

We looked at different tools and mechanisms that already existed to figure out the feasibility of our ideas. We looked at regular garden tools such as shovels, trays, scissors and knives. We also looked at grinding mechanisms on Amazon. There were mini grinders available that are usually used for grinding up weed or tobacco. Regardless, these grinders gave us a very good idea of how to create a handheld grinder for herbs. We also looked at tools such as trays that would make it easier to dry herbs as quickly as possible.



## 3. Form

#### Earthy / Urban / Modern

We then went into form concepts to decide on the kind of aesthetic we wanted our product to have. As mentioned earlier, we wanted to move away from the white

sterile aesthetic that current products on the market have. So we decided on three potential aesthetic categories and sketched concepts based on them. These categories were modern and techy, earthy and organic, and urban and green living. Urthy is a combination of earthy + organic and urban + green living.















## Earthy + Organic

#### "from the earth"

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## Modern + Techy

#### "smart"

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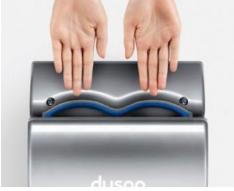






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## **Urban + Green Living**

#### "sustainable design"

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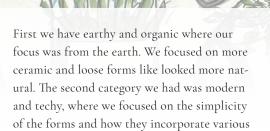
## **Concepts**

We drew concepts for each of the three aesthetics we were considering. We produced a page of sketches each, which resulted in two per category. We then brough these ideas together and compared them.









smart components into them. The third category was urban and green living where our focus was space optimization. We definitely wanted to think about how our product would seamlessly fit into the kitchen environment without taking too much space. This aesthetic was all about natural looks with a sustainable approach. Our sketches made sure to take these aesthetics very closely into account. It was sometimes challenging to incorporate certain unrelated terms into a smart planter conept.



Close up of some of the sketches. These sketches were for the urban and green living category. We looked at asymetry and stacking.

Lighting concepts that we looked at when conductign research and sketching out ideas. We were interested in light positioning.



## **Material Study**

We conducted a material study to understand materials that we were more interested in. We looked at combinations of wood, metal, glass, ceramics, and light. It was interesting to see how materials fit together. After some peer feedback and our own brainstorming, we decided to focus on an aesthetic that was a cross between earthy and urban.

#### Earthy

We definitely wanted to maintain the earthy aeshetic so our product fit well into the kitchen. We did not want it to look sterile and this was the best way to do this.

#### Urban

Urban was all about space optimization, so this was the best aesthetic for us to focus on when it came to modularity.







# 4. Breakthrough

#### Build for your Kitchen

After countless discussions, sketches and models, we had a big breakthrough that really gave us the clarity on what we wanted our product line to be. Our breakthough was all about understanding different types of kitchens and how these differences often dictate product design contraints. We understood that people have very different kitchens with different layouts and space issues so we considered modularity and customization. We wanted people to be able to build their solution.



### **Clear Concepts**

We then came up with refined concept sketches. These were sketches that we did once we had a better idea of the different products in our product lines. These were alos made to take our breakthrough with kitchen design very closely into account. It was very important for us to redesign

our concept based on what our different users' kitchens might look like. Some of our refined concepts were very simple toothpick and clay models that quickly illustrated different assemblies. We were inspired by connect toys that make it easy to switch around elements without disturbing the main components. We also sketched our different pot ideas. We were unsure of what the general shape should be. Therefore, we considered many.



## **Models Phase 3**

Our final model making stage before the final model was to make full scale models that people would be able to interact with. We made all of the product components, including the frame, pot, grinder, smart helper and storage. We were still unsure about the pot and smart helper designs, so we made multiple options and combined them onto frames to see which ones looked the best. We designed the smart helper models to have tin clippers on their side so we would be able to clip them onto the frame easily and move them around. We found ourselves more drawn towards smart helpers that could be placed next to each other to form a longer element. We used fake plants to make the models look realistic.

Our frame was made out of scrap PVC pipes. This was to be able to communicate the playful, building aesthetic we liked. Testers were able to take the models apart and build it back together to their liking. We made the pots by carving into blue foam and sticking the pieces onto the frame. One of the biggest issues that emerged was that added weight to the pots caused them to sink lower rather than remain upright. Therefore, we realized that we would need to incorporate indents into the frame to provide more surface area to attach the pots. We also considered a magnetic feature so components could be easily attached and removed. We looked at mainline power tracks.



#### User Feedback

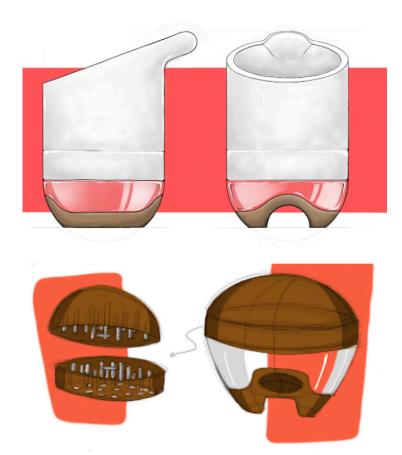
We then turned to user feedback to take our concept further. Some things that were mentioned included the need for a flat bottom pot so it could sit on a surface, issues with water spillage and obstruction of plant growth. Other things that were mentioned included the need ofr an extra section of the pot to collect water, the need for misting as a good addition to the water feature, concerns with plant growth height, and that a transparent hydroponic section would look to mucky. We took our user feedback very seriously and made sure to ask our users to elaborate on as many concerns as possible. We urged our testers to interact with our models so they could talk about feeling and any other "hands-on" issues.

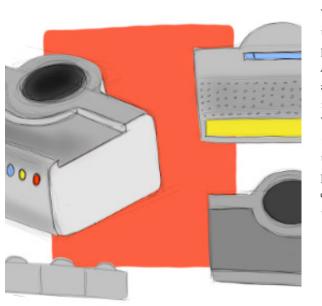
When selecting testers, we made sure to talk to people of different age groups and occupations that would view the product differently. Our most useful feedback came from fellow students who

were familiar with the design process. They gave us very valuable feedback that was very easy to incorporate into our current designs. We brought people to our work station and made them pretent to use the model as if they were actually tending to their own plants. The result was in depth feedback.

#### Refined Idea

These are the digital sketches that we did to visualize our final concept. Here we refined our products to make them feel more like a family of products. We first started by changing the design of the main pot. The concern was with spillage when watering, so we included an extended lip that would be able to collect water and channel it into the soil. This would prevent spillage especially when the plants grew larger and leaves could interfere. Another aspect we worked on was incorporating a well sized grinder. We designed this grinder to have a transparent container so users would be able to see the dried herbs inside. We left the design to be very similar to a traditional grinder that has to be turned to be used.





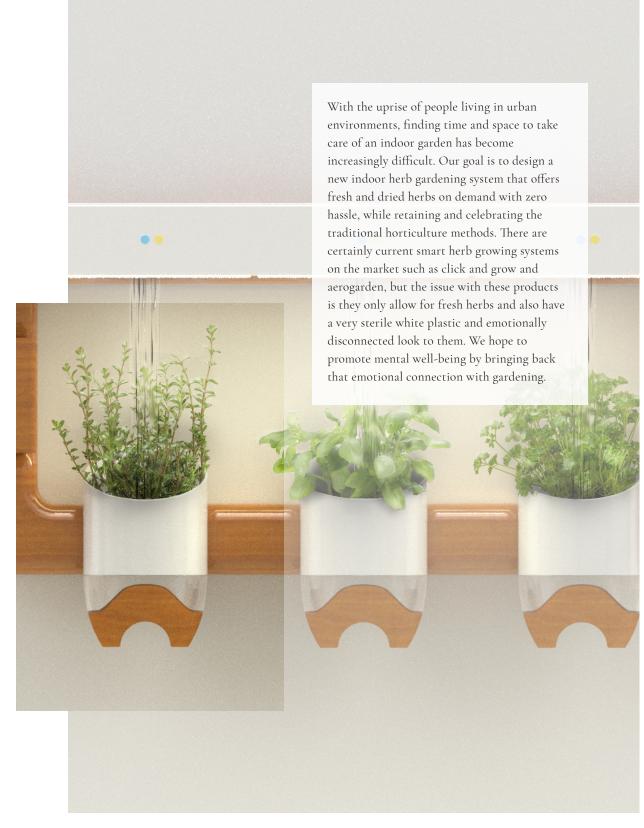
We made sure the grinder maintained its traditional mechanism because we wanted people to have that hands on turning experience. An automatic mechanism would hide the actually crushing that is happening. We then moved on to work on a maintenance device. We liked to call it the smart helper, because it would be something that could give users that little nudge of help when necessary. The product was designed to have a tray on top for easy herb drying and a lighting system to alert users about misting, lighting or errors.

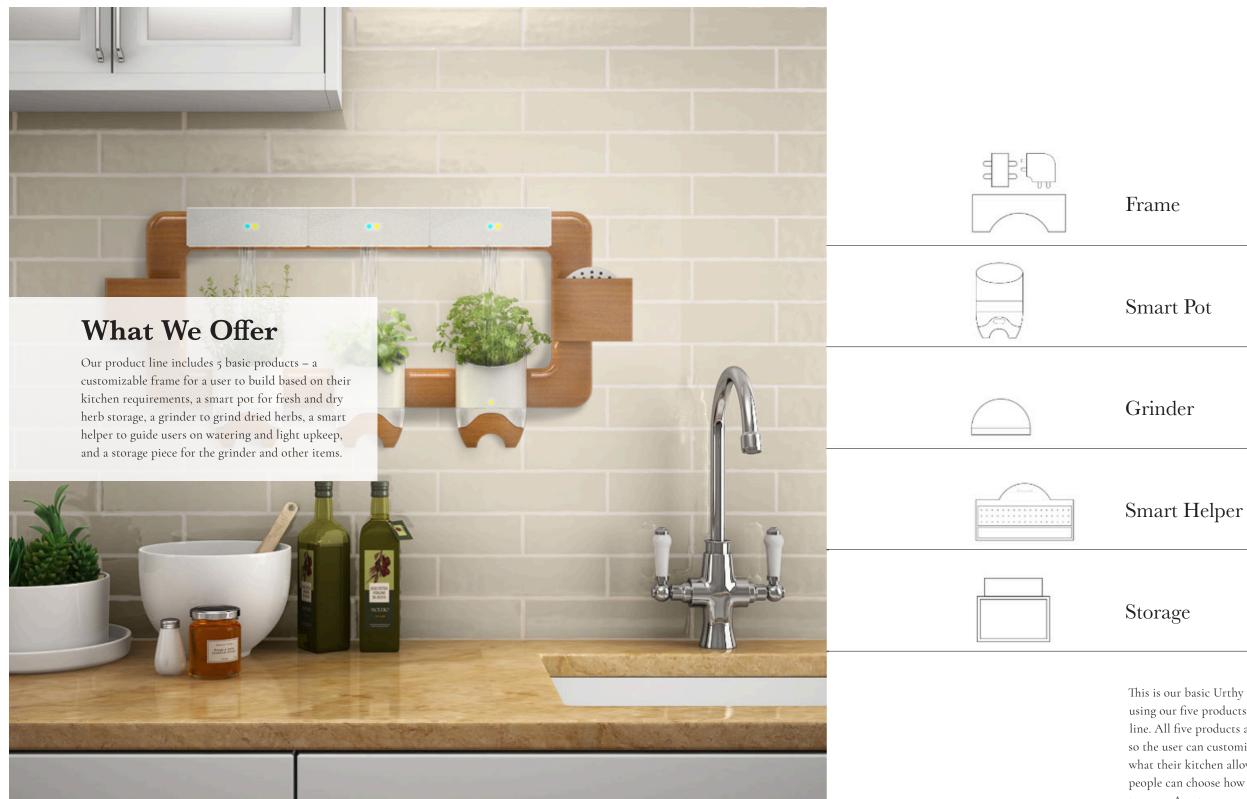


# 5. Urthy

#### 5 Product Line

Our product line includes five basic products – a customizable frame for a user to build based on their kitchen requirements, a smart pot for fresh and dry herb storage, a grinder to grind dried herbs, a smart helper to guide users on watering and light upkeep, and a storage piece for the grinder and other items. Design a new indoor herb gardening system that offers fresh and dried herbs on demand with zero hassle while retaining and celebrating traditional horticulture.





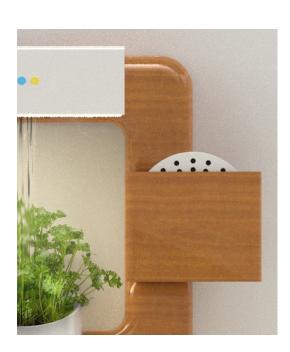
This is our basic Urthy Garden assembled using our five products from our product line. All five products are offered seperately so the user can customize the layout based on what their kitchen allows. This also mena that people can choose how many herbs they wish to grow. Amateur users could start with one while experienced users could start with five.



## Storage

The next product is the storage piece that connects to the side of the frame to store the grinder, but also other items to allow our product to fit more seamlessly into the kitchen and participate in all the hustle and bustle. The storage piece is very simply made of wood and does not have any technical elements included in it. Its main pupose is to

act as a storage container for the grinder on one side, and a container for kitchen utensils and other items on the other side. As shown in the images below, the stoage container is fairly narrow with a deep bottom, so as to be able to store items with no worry of them accidentally falling out. The storage container fits onto the frame exactly like the other components of the Urthy system. Instead of a horizontal dome shape however, the curve is arranged vertically so the piece fits on the siead on the frame rather then on the bottom or top planter bars.





#### **Smart Pot**

The second product in our line is the Smart Pot. Besides being a beautiful stand alone object for the home, the main feature of the pot is its ability to detect and monitor soil moisture and temperature for users to better take care of their herbs. It flashes between blue and yellow to alert the user about watering and light issues. In addition to that, the pot is also bluetooth enabled and sends the same data to the Urthy App for better accessibility and monitoring on the go. The pot is constructed with four different components, the top part for growing herbs and drainage system underneath that also functions as a hydroponic base. The bottom half of the pot is a dry herb dispenser that releases dry herbs at a push of a button. The dispenser can also be easily detached from the pot and

attached to the grinder. This pot contains herbs and is designed for perfect home herb growing. The Urthy Garden is designed for the user to purchase more than one pot and grow difference herbs with different requirements. The lighting feature is meant to give the user that push of maintenance help without taking over the entire process. Different plant have different water and light needs, so each pot would be programmed to cater to the needs of that individual herb.



If Pot is Flashing Blue Light

Too Dry. Water now!

If Pot is Pulsing Blue Light

Too Wet. Stop Watering!

If Pot is Flashing Yellow Light • • • • •

Too Warm.
Needs shade!

If Pot is Pulsing Yellow Light

Too Cold. Needs sun!



## **Smart Helper**

The smart helper is an optional available product for users that need a little more upkeep guidance. It comes with a watering feature, misting feature and a plant light. The red light represents a need to refill the helper once it runs out of water, the blue light indicates a misting or watering action taking place, and the yellow light means that the plant light is on. The smart helper receives data from the smart pot and regulates this process based on herb type. The smart helpers fit seamlessly together and the top of the smart helper is used for flat herb drying. Multiple helpers side by side form a longer drying tray.

We had a dilemma about whether we wanted to include the smart helper in our product line. This was primarily because our aim was to stay away from the sterile, self sustaining planters that are already being sold on the market. We wanted our product to encourage users to interact with their herbs. However, we realized that our amateur herb planters would need that extra push with maintenance. We went back to Percy Lee and realized that this component was essential.





#### Grinder

The grinder is held together by magnets that allows the user to turn the product and manually feel the herbs grinding at their fingertips. The crushed dry herbs are then stored in the transparent section of the smart pot and can be dispensed as shown earlier. The grinder can be manufactured either through 3D printed plastic or coated metal. Either way, the detail within the dome crushes any dry leaves that are placed inside. We wanted the grinder to be able to fit onto the pot to increase interactivity, so the grinder is actually available only as the top dome element. This makes it easier to store and to clean. The grinder details were modelled to look like traditional canabis grinders for a hands on experience.





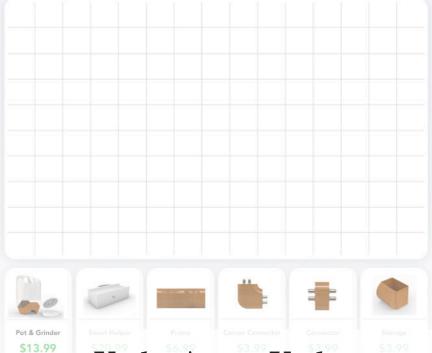


We built the dispenser at the bottom of the pot of grinder to be able to dispense a teaspoon of crushed herbs at a time. The grinding mechanism works exactly like the grinder shown in the image on the left. The blade like protrusions crush the herbs and the small pieces fall into the holes. The dried and crushed herbs are then stored in a bottom container. In our case, that bottom container became the transparent bottom of the pot. We also created a draft angle the base so dried herbs atomatically move to the center.



## Interface Design

Urthy Garden definitely needed an interface to function seamlessly. This interface would connect to the smart pot and smart helper depending on user preference. Therefore, we built a companion app for people to be able to monitor their herbs on the go and keep track of plant needs.



#### Your Garden

Pot & Grinder	3	\$41.97
Smart Helper	3	\$62.97
Frame	10	\$69.90
Straight Connector	6	\$24.00
Corner Connector	4	\$16.00
Storage	2	\$8.00

Urthy App + Urthy.com

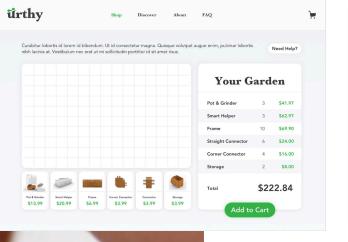
Add to Cart

\$222.84

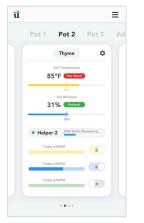
In addition to our physical product, we also designed a companion app that enhances the users experience with our product. The main function of the app is to monitor soil moisture

and temperature and keep track of smart helper activity. Users also have the ability to select the type of herb their growing and the app will provide information on optimal temperature and moisture levels. We also designed a webstore interface that allows users to drag and drop our products to customize their own urthy garden!

Total







Close up image of the checkout page on the urthy website. This page would be where users assemble their order.

Detail images of the urthy app and website. App displays unique settings for each herb and conected features.

