

Front-End Design: Dog Walking

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Overview

Introduction

Front-end design focuses on the development of the primary stages of the design cycle. The thorough understanding of the target demographic gained through front-end design work enables the successful execution of later stages, such as prototyping and user testing. Without adequate customer discovery, the final product is significantly more likely to fail in the market due to a lack of fit between the product and its intended users. Although front-end design increases initial design costs and time, it results in lower total product development time and overall research and development costs. Many university-level design courses recognize the value in front-end design but fail to allocate sufficient time in their syllabi for students to commit resources working in this space. Thus, there is a lack of experience with the tools, methods, and frameworks associated with front-end design. This project aimed to remedy the situation by applying the aforementioned front-end design process to a specific example in order to bridge the perceived gap in knowledge.

Project Goals

The primary project goal was to thoroughly explore the front-end design space for a given domain. The secondary goal was learning how to apply design ethnography tools for effective customer validation. At the conclusion of the project, the solution space for the identified problem should have been thoroughly explored and initial concepts should have been generated.

Design Process

The design process began with a broad exploration of the problem space, then the conduction of design ethnography, before synthesis of the obtained data, and finally the generation of initial concepts.

1. Problem Space Exploration

Problem Definition

A key component of the project was identifying which problem was most critical to solve and would provide the largest learning outcomes in the application of front-end design tools. First, the problems facing many common demographics were researched to gain an initial understanding of potential project focus areas. It was noted that many individuals local to the project location in Paris, France were dog owners. Additionally, it became apparent that many of these individuals were struggling to have an entirely positive experience when walking their dogs. Research also related many community health issues to a lack of exercise.

Problem Scoping: Iteration One

Based on the problem definition research, the original problem scope was established, with the intent to be iterated upon at all stages of the design process, once further research was conducted:

Irregular dog walkers are much less likely to achieve the weekly health recommendation of 150 minutes of walking per week. Design a way to increase the time irregular dog walkers spend walking their dog per week.

Questioning

Questioning was used to encourage thought beyond the surface of the perceived problem. The first type of questioning was designed to explore the problem and its formation in more depth [6]. The second type, Socratic questioning, was used to establish what beliefs and ideas were held about the problem and identify where these assumptions and their interdependencies originated [1]. Appendix A.1 lists a sample of some of the questions from both types that were used. At this point, weather was identified as the main reason owners skipped dog walks. Further, it was evident that skipping a dog walk occasionally was preferable to paying for an alternative solution. A key distinction discovered was that the solution could only need to function in certain circumstances, such as poor weather conditions, rather than on every type of walk to have an impact.

Scoping Table

A scoping table was used to highlight previously unconsidered aspects of the problem space. The value of this tool was not in providing answers to the questions listed within it, but in the identification of overlooked factors which may contribute to the severity and nature of the problem. Appendix A.2 has a copy of the scoping table generated during this project. The table suggested consideration of the social context of dog walking, as many owners choose to walk with or near others, rather than designing for the isolated individual. Additionally, the table underscored the solution's potential to disrupt all dog walking products if the larger context is taken into account when creating a technical solution.

Problem Scoping: Iteration Two

Based on the results of applying the questioning and scoping table tools, the problem statement was iterated upon to better reflect the problem requiring solving:

Irregular dog walkers are much less likely to achieve the weekly health recommendation of 150 minutes of walking per week, with most dog walks skipped due to unsatisfactory weather conditions, work pressures, difficulties dealing with the dog, family responsibilities, fatigue and/or laziness. Design a way to improve the user experience of dog walking in nonideal conditions. The design should work for a large range of dog breeds and should be instantaneously implemented.

2. Design Ethnography

Design ethnography aimed to understand the specific, unique unmet needs which, in combination, created the identified problem for the target demographic. Three main methods of observations, interviews, and surveys were conducted in this sequence to filter and condense the information as design ethnography progressed.

Observations

Observations were conducted in order to begin narrowing the problem's scope. A total of 30 observations of a broad variety of dog breeds were conducted across various dog parks and dog-attended cafes in Paris, France. These observations served to correct initial assumptions about the problem, as it became evident whether or not these were experienced by a large proportion of the target demographic. Additionally, they identified key compensatory behaviors that had not been discovered through traditional research.

Observations have the advantage of providing information that can be deemed too obvious or unnoteworthy to share in other forms of design research, despite being a large contribution to the identified problem. Furthermore, observations enabled the analysis of dog-to-dog, dog-to-owner, and owner-to-owner interactions. Spradley's 9 Dimensions for observations were adapted and used as a framework of collecting and organizing information, as outlined in Appendix B.1 [12]. It was discovered that a retractable lead was used by many to compensate for pausing, sniffing, and differing paces between the dog and owner. Additionally, leads were repeatedly tied to heavy objects, such as benches or handbags, when owners wanted to pause, as the overwhelming preference was not to be holding the lead if not walking.

Interviews

A diverse set of behaviors associated with dog walking had been identified, but there was still a lack of perspective on why these habits and interactions were occurring. Three one-hour long interviews with irregular dog walkers were conducted to gain a better understanding of the choices informing decisions related to dog walking. The people interviewed were selected due to their representation of the broad range of demographics and dog breeds globally. These conversations helped validate the perceived set of challenges in great detail and re-prioritize the information obtained during observations. A list of the interview questions asked is detailed in Appendix B.2. A crucial takeaway was that weather had little impact on the interviewees' probability of going for a walk, unless there were extreme conditions in rare circumstances. It was also found that many owners are simply not in shape enough for longer walks or runs. Another piece of information was that a fluctuating daily schedule made it difficult to find time for a dog walk or plan ahead to implement an alternative solution.

Surveys

After an in-depth depiction of the desires, challenges, and experiences of a few irregular dog walkers was established, it was important to verify whether this was an accurate depiction of the beliefs and values of the entire population of irregular dog walkers. A survey of 15 individuals was conducted to gain this larger insight of preferences and collate a database on the "typical" dog walker. This survey mitigated the implicit bias present in the project, as it expanded beyond a few opinions to a more inclusive understanding of the domain. A list of the survey questions and results is detailed in Appendix B.3 and photos belonging to some of those surveyed are shown in Figure 1. The results showed that price and dog comfort were the main factors used in selecting paid products, services, and/or solutions. Also, it was found that half of dog owners surveyed walked their dogs less than seven times per week and most walked their dogs in the late afternoon, from 6-8pm. Finally, it was identified that high prices were the main reason people choose not to use a paid dog walker.



Figure 1. Some of the observed & surveyed dogs.

Problem Scoping: Iteration Three

After the bulk of design ethnography was conducted, the problem statement was once again iterated upon to better reflect the expressed and validated challenges facing the target demographic:

Irregular dog walkers are much less likely to achieve the weekly health recommendation of 150 minutes of walking per week, with most dog walks skipped due to issues with available time and motivation. Design a way to improve the user experience of dog walking. The design should work for a large range of dog breeds and should be both convenient and accessible.

3. Synthesis

Raw Data Analysis

Patterns and differences were identified between the data collected from all aforementioned methods, tools, and design ethnography processes. These groupings and distinctions between information served to support or reject earlier claims about the domain, transitioning to evidence-based insights. As a result, a list of 15 unmet needs facing irregular dog walkers was developed and corroborated by prior research.

Needs Prioritization

The created list of needs encompassed issues facing irregular dog walkers. Screening criteria were used to effectively reduce the quantity of potential needs to solve for, independent of bias. The first evaluation was based on scientific research foundation, favoring topics that had evidence readily available to support design decisions given the short time-frame of the project. Next, the existing design landscape for each idea was evaluated to objectively judge the level of competitiveness in the related space. Then, stakeholder impact was examined to quantify both the degree and breadth of influence on potential consumers. Afterwards, market size and competition were considered to ensure that the final solution provided value to a large enough proportion of the target demographic. Finally, a mechanical engineering scope was applied to filter ideas out that were beyond the project lead's expertise. Each individual unmet need was scored against these evaluation criteria, as detailed in Appendix C.1, and the ones with the

highest total scores were considered. The top three needs were: a way to stop dogs eating food off of tables when dining out, a way to stop holding the lead when paused, and a way for dog leads to stop getting tangled with each other. The first idea was not pursued due to the extensive research required to understand and distinguish between the wide variety of dietary rules, dog obedience levels, and owner preferences. The second idea was selected as it was an issue that had been seen repeatedly across both the observations and surveys conducted. The inability to pause on a dog walk provided a clear limitation to the time spent outdoors and thus, frequently led to a reduction in total walk distance. The third need was excluded from consideration due to the vast quantity of dog lead styles and lengths making it difficult to predict which lead types would be interacting and require designing for in order to disentangle them.

Problem Scoping: Iteration Four

After a primary need was selected, the problem statement was iterated upon a final time to narrow the scope:

Irregular dog walkers are much less likely to achieve the weekly health recommendation of 150 minutes of walking per week. Often, dog walkers are unable to comfortably pause on a walk, with their pet pulling to continue exploring, reducing the chance of a longer walk. Design a way to improve the user experience of stopping while dog walking. The design should work for a large range of dog breeds and should be both convenient and accessible.

Personas

Design work often aims to satisfy a large population, such as all irregular dog walkers. However, the specific lifestyles and preferences of those within this group can vary dramatically, despite being united in one aspect, in this case the ownership of a dog and the infrequency of walking it. Personas can be leveraged to mitigate the apathy associated with designing for a mass of people. Thus, primary and secondary personas which represented specific examples of those within the larger target demographic were developed. These personas are outlined in Appendix C.2.

4. Concept Generation

Design Requirements and Specifications

Based on the conducted research, it was evident that the selected design must satisfy certain attributes and qualities to be considered an effective and desirable solution. Thus, validated stakeholder requirements were defined to encompass all the ideal characteristics. Then, these were converted to engineering specifications, as detailed in Table 1. The purpose of these specifications was to create measurable quantities which, when verified they were met, would ensure that the related stakeholder requirements were satisfied. Additionally, these requirements and specifications defined the constraints of the solution space and helped inform the ideation process.

Table 1. Stakeholder requirements and engineering specifications.

<u>Stakeholder Requirements</u>	<u>Engineering Specifications</u>
Portable	<ul style="list-style-type: none">- Total product mass must not exceed 113 grams.- Average adult should be able to transport the product greater than 10 miles.
Durable & reliable	<ul style="list-style-type: none">- Product must be able to last one year (353 uses).- Product should function for 120 minutes per use.- Product must support 80 pounds.
Affordable	<ul style="list-style-type: none">- Product price should not exceed \$16.
Accessible	<ul style="list-style-type: none">- Product should work in combination with all current products.- Product should be easy to remember when leaving for a walk.- Product should be adjustable to fit all dog breeds.- No additional tools should be required to set up the product.- Product should require less than 1 minute of setup time.- Product require no user hands when operating.
Comfortable & Safe	<ul style="list-style-type: none">- Product must never harm either the dog or owner.- Product must never let the dog loose.
Easy to clean	<ul style="list-style-type: none">- 100% non-absorbent.- Product should be cleaned in under 10 seconds.

Ideation Strategies

Various ideation strategies, such as brainstorming, morphological charts, analogical thinking, design heuristics cards, and combining ideas, were applied to the identified problem statement and 30+ potential solutions were conceived, as shown in Figure 2.

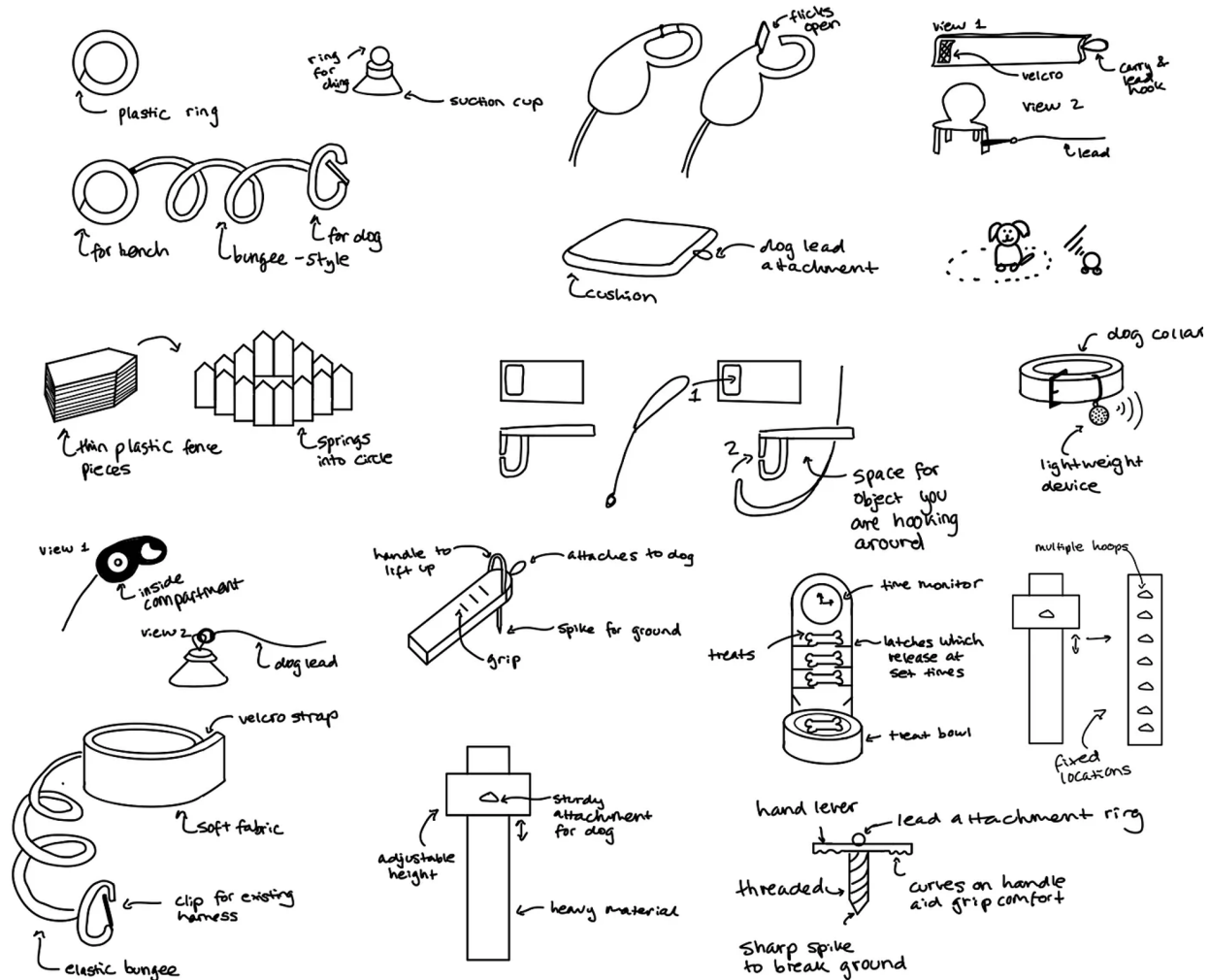


Figure 2. A selection of the potential solutions ideated.

Brainstorming

Brainstorming was used to outline all initial ideas before applying other strategies. It served as an opportunity to document concepts that had been generated alongside the research phase. Brainstorming involved a brief sketch of an idea with labeled captions and explanatory text. It was useful to collate all obvious ideas at this stage so that future ideation strategies could be leveraged to encourage and explore entirely new ideas. Although brainstorming occurred in isolation at the beginning of ideation, aspects of this approach were integrated into all ideation strategies. For example, the key principles of avoiding fixation on one idea and thinking free of self-judgment were applicable throughout. Some ideas generated at this stage were: a portable and expandable fence for a dog, a cushion with a dog lead attachment, and a device that wraps a lead around stationary objects.

Morphological Chart

Morphological charts inspire novel ways of conceptualizing solutions through the use of a matrix. This matrix has a column of parameters the design should achieve and a corresponding row of diverse ways to achieve each parameter. Combining one cell from each row in the body of the matrix can produce vastly

different results, depending on which cells are suggested. Morphological charts aim to break down the solution space and amalgamate different forms in an objective manner. The morphological chart generated for this project appears in Appendix D.1. Some ideas generated at this stage were: a device that produces a signal to provide a virtual fence, a suction cup attachment to the retractable dog lead handle, and a fabric securing mechanism for objects such as benches.

Analogical Thinking

Analogical thinking reduces an idea down to the minimum form so that related ideas can be examined for inspiration. In this case, the idea of “comfortably pausing a dog in place” was converted to pausing in order to stop, wait, or rest which enables holding and recharging. This reduction removes all problem-specific information which encourages extension beyond looking to purely apparent, related domains. The first analogy was the yellow line which clearly indicates where commuters should stand and wait before boarding transportation. This led to the concept of a collapsible hoop with a bright border that, with simple training, could outline the limits of a dog’s range of motion when paused. The second analogy was the car brakes that are used to stop vehicles. This led to the concept of a device that is stepped on to fix it to the ground with a spike, before the dog lead is attached. The third analogy was the incentive-based mechanism that eels use to stay hidden from predators. This led to the concept of a treat timer, designed to dispense treats periodically and encourage the dog to remain in close proximity.

Design Heuristics

Design Heuristics cards provide brief statements which each represent a common way in which new products are different from the other solutions to the same problem. Applying a card to the problem identifies the leading characteristic of the design. Some of the cards applied were: attach product to user, elevate or lower, and incorporate environment. These generated the respective ideas: a bungee cord clip between the dog and user, a dog securement pillar to be installed in high-traffic dog areas, and a device that screws into the ground to secure the dog lead. Applying a card to previously generated ideas helps develop the idea further or in a novel way. Some examples of changes made to prior ideas after the application of a card were to reduce a device down to the size of a dog collar attachment for portability, to increase the number of dogs that can be secured with a device, and to increase the range of objects a device can wrap around.

Final Design Selection

The final design was selected based on its ability to best meet the needs of the target demographic. The selected concepts were compared to the stakeholder requirements and engineering specifications listed in Table 1 to ensure that they adequately solved the problem. Then, they were narrowed down further based on the same screening factors applied earlier to refine the problem scope, as in Appendix C.1. Finally, irregular dog walkers were shown the reduced list of ideas and asked about their opinions. It became apparent that one solution achieved many of the desired stakeholder requirements to a larger degree than any other generated concept. Thus, this concept was selected for further development, as shown in Figure 3.

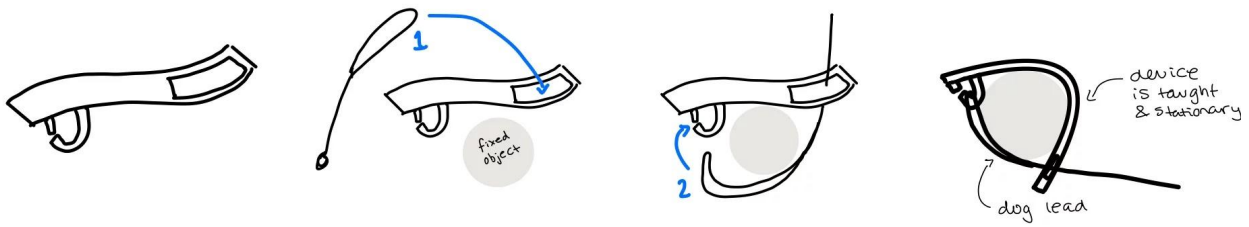


Figure 3. The selected design concept.

The chosen solution is a small fabric device that enables wrapping and securing of the lead around stationary objects. The idea is that owners will be able to pause in a multitude of locations, such as next to benches, poles, and trees, and have the option to secure the dog there. Oftentimes owners were observed to lift up a chair leg and trap the lead under the weight of the person sitting down. However, this strategy does not work once the object in question is fixed to the ground like in many parks. Also, not all lead handle types allow for this form of securement. Selecting a high strength woven material would ensure the durability and reliability of the design while still providing an affordable option that is easy to clean. In terms of accessibility, the simple two-step securement method minimizes setup time and the wide lead opening designs for adjustability. As the solution is attached to the dog lead, not the dog itself, there are no additional safety risks expected from introducing this design on a walk. The solution is highly portable due to its lightweight nature and means of attaching to the lead or owner when not in use via the clip.

Prototyping

Low-fidelity prototyping was conducted to provide proof of concept. A rudimentary paper model was used to test whether the lead threading sequence was logical and achievable. It was confirmed that the design functioned as expected, as shown in Figure 4.

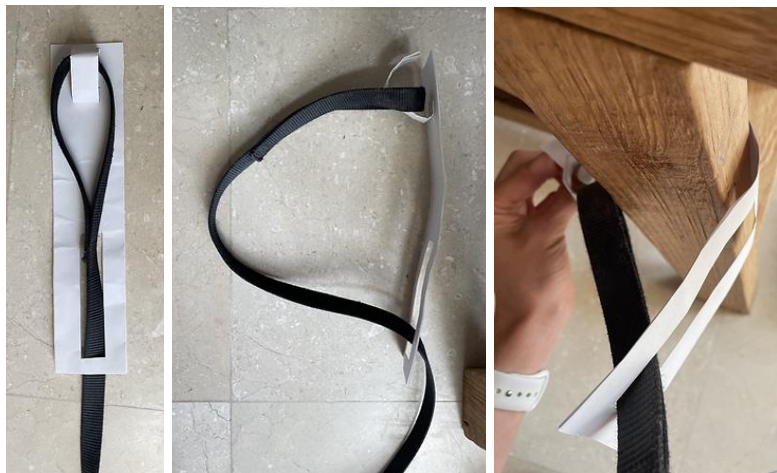


Figure 4. Low-fidelity prototyping of the selected design concept.

Discussion

Challenges

Throughout the project many different challenges were encountered which inhibited its progress. A key challenge to the entire project was the sheer number of dog breeds and sizes. It was difficult to fully represent the diversity of breeds when conducting design ethnography and generate solutions which were compatible with anything from a Yorkshire terrier to a Great Dane. On another note, this project was conducted in Paris, France which had the value of a high density of dog owners but the tradeoff of limited access to English-speaking users for design ethnography and testing. Additionally, it was challenging to get a high response rate on the survey.

Results

The project successfully achieved both of its key goals. An in-depth understanding of the domain and specific needs and challenges associated with it was developed. Over thirty concepts were created and developed to solve the identified problem. The problem statement and scope were iterated upon to transition from an excess of divergent information to a specific, convergent issue. A final idea was selected using evidence-based decision making and prototyped at the low-fidelity level.

Conclusions

There was an immense learning opportunity provided by this project. The value of qualitative research became evident, as findings derived from qualitative data collection were previously undiscovered using traditional research methods. Further, the different design ethnography techniques themselves provided radically unique value and informed the design process in a distinct way. Finally, a new mindset and comfort with divergence was developed which is applicable to all future design projects.

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Appendix

A: Problem Space Exploration

A.1: Questioning

Questions to explore problems

What factors contribute to this problem?
How did the problem come about?
What keeps the problem from resolving itself?
What will happen if the problem continues?
What has been tried before? By you and by others?

Socratic Questions

What do you mean by ...?
What are you assuming?
What would be an example?
Why is the problem important?
What are important distinctions we should make regarding this problem?

A.2: Scoping Table

	<u>Immediate Area</u>	<u>Larger Context</u>
<u>Social</u>	How will dog walkers stay safe in extreme conditions? How can local dog walkers connect with each other?	What infrastructure can cities implement to encourage walking in all weathers? What emergency services are available in the area for dog walkers?
<u>Natural</u>	Does the solution pollute? Is the solution eco-friendly?	Does mass manufacturing the solution create negative externalities for the environment?
<u>Logistical</u>	Will the solution be affordable to the average dog walker? Will the solution be repairable or single-use?	Where will the solution be produced? How will the solution be distributed?
<u>Technical</u>	How will the solution work for different dog breeds? How will the solution operate in different temperature, visibility or condition levels? What will make the solution portable? What are the engineering performance factors of the material? How will the solution be adaptable for different conditions?	How will the solution disrupt current dog walking products?

B: Design Ethnography

B.1: Observations

- Time
 - What time is it?
- Activities:
 - Goal directed sets of action-things which people want to accomplish, built by interactions.
- Environments:
 - Entire arena where activities take place, built by objects.
- Interactions:
 - Between a person and someone or something else.
- Objects:
 - Key elements sometimes put to complex or unintended uses, changing their function meaning and context.
- Users:
 - Consumers, people providing the behaviors, preferences, and needs.
- Other:
 - What's missing? Interesting to you? Compensatory behaviors? Questions?

B.2: Interviews

- Tell me about yourself. (*age, gender, activity levels*)
- Tell me about your dog. (*age, gender, breed, size of dog*)
- Tell me about how you get ready for a walk with your dog. (*how easy it is, if you have a certain routine or set of essential equipment, do you forget anything*)
 - How and when do you pick where to walk your dog?
 - Thoughts on walking dogs in all weather conditions?
- Tell me about what a walk with your dog is like. (*how many times, which day(s) of the week, what time(s), how long for on average, where they typically walk*)
 - Tell me about your experience interacting with your dog(s) while dog walking. (*do they listen to or look at you, are you on the same page, do you enjoy it*)
 - How do you manage your dog(s) behavior while walking?
 - Tell me about your experience interacting with other dogs while dog walking. (*positive or negative, do you feel in control of your dog, does it benefit you*)
 - Tell me about your experience interacting with other dog walkers while dog walking. (*positive or negative, do you feel in control of your dog, does it benefit you*)
- What paid services, solutions and/or support are you currently using for dog walking?
 - What works well for and why?
 - What doesn't work well for you and why?
 - Where do you find your information on dog services, solutions and/or support?
 - Do you use retractable leashes? Why or why not?
 - Do you walk your dogs off leash? Why or why not?
 - Does anyone else walk your dog for you? Why or why not? (*how many times, which day(s) of the week, what time(s), how long for on average, where they typically walk*)
- What factors influence your choices related to dog walking? (*time, exercise, mental health, other dogs, safety, etc.*)
- What are the biggest challenges you face related to dog walking? (*communication, time management, motivation, dog behavior, external influences and interactions, safety, etc.*)
 - Do you ever skip dog walks? Why or why not? (*how often, which days/times*)
 - What would make you more or less likely to?
- Is there anything else you would like to discuss today or anything else you feel I should have asked?

B.3: Surveys

- What size is your dog?
- What age is your dog (in human years)?
- How often do you typically walk your dog per week?
- What days of the week do you typically walk your dog?
- What time(s) of day do you typically walk your dog?
- How long do you walk your dog for on average?
- Where do you typically walk your dog?
[Garden/backyard, park/field, dog park, suburban neighborhood, inner city, other]
- What do you like about dog walking?
[Fresh air, silence, mental health, exercise for you, exercise for your dog, bonding with the dog, social interactions with other dogs/dog walkers, routine, other]
- Why are these reasons enjoyable for you?
- How often do you typically skip a dog walk per week?
- What are the main challenges you face related to dog walking?
[Time commitment, inconvenient hours, managing dog behavior, social interactions with other dogs/ dog walkers, repeating walking routes, taking lead & accessories on/off, fitness levels, motivation, other]
- Why are these reasons challenging for you?
- Do you feel better after dog walking?
- What do you value when selecting a product, service, or solution for dog walking?
- Optional: Upload a picture of your dog.

Appendix C: Synthesis

C.1: Needs Prioritization

- Scientific Research Foundation
 1. No research available.
 2. Some relevant research in similar fields.
 3. Some relevant research in the specified field.
 4. Various relevant research in the specified field.
 5. Thorough relevant research in the specified field
- Existing Designs Landscape
 1. Completely saturated market.
 2. Many competitors addressing the same need.
 3. A few competitors address the same need.
 4. A few competitors addressing related needs.
 5. No direct competitors.
- Stakeholder Impact
 1. No impact on dog owners.
 2. Small impact on some dog owners.
 3. Small impact on all dog owners.
 4. Large impact on some dog owners.
 5. Large impact on all dog owners.
- Market Size and Competition
 1. No market available.
 2. A niche sector of the dog walking market.
 3. Multiple niche sectors of the dog walking market.
 4. Majority of the dog walking market.
 5. Entire dog walking market.
- Mechanical Engineering Scope
 1. Need certainly will not have a tangible/physical solution.
 2. Need unlikely to have a tangible/physical solution.
 3. Need could have a tangible/physical solution.
 4. Need likely to have a tangible/physical solution.
 5. Need certainly will have a tangible/physical solution.

Appendix C.2: Personas

Primary Persona: Emma Grande

Profile: Restaurant goer

Gender: Female

Age: 42

Location: London, England

Occupation: Chef, €60,000

Dog: Barker, Labrador, 5 years old



Background: Emma is passionate about cooking and often goes to cafes or restaurants with friends during the day before beginning her evening shift. More and more restaurants are allowing dogs to join their owners, but the hassle of settling Barker in one place ruins the experience for Emma. Emma often leaves Barker at home and takes public transport instead of walking to lunch.

Goals: For Emma to meet friends for food without Barker disrupting her experience. To not be constantly maneuvering Barker out of the way of waiters and disentangling the lead from chairs. To feel that Barker is safe and happy when they stop. Increased motivation to bring Barker out to restaurants and thus walk more.

Frustrations: Barker pulling on the lead and thus jerking Emma's hand randomly. The dog / lead getting tangled or tripping other patrons. Barker eating food off of the table. Managing Barker's big size with ease when out.

Ideal Experience: Hands-free dining experience where Barker is restricted close to Emma's table. Feeling confident that Barker is comfortable and safe. No disruption to others by the addition of a dog under the table. Walking to and from the restaurant.

Quote: "So many people ask me how my dog is so chilled when I'm out with friends and it's all down to this product! Now it's just as easy to go out with Barker to restaurants as it was to leave him behind, and I'm even walking there. I cannot recommend this enough as it gives control and confidence whenever I want to stop on a walk surrounded by distractions - 10/10 from me."

Secondary Persona: Daphne Soleil

Profile: Bench pauser

Gender: Female

Age: 28

Location: Paris, France

Occupation: Journalist, €47,000

Dog: Daisy, Pomeranian, 2 years old



Background: Coming out of lockdown Daphne is now allowed to sit on benches at parks and reflect on her day or sunbathe if the weather is nice. However, whenever she stops Daisy pulls at her lead constantly and keeps moving around, even barking at passing dogs. This constant tugging isn't relaxing so Daphne often heads home from the park, reducing her time outdoors and any chance at walking further.

Goals: For Daphne and Daisy to pause comfortably on a walk together. To not have to be constantly looking at Daisy and/or the lead when they stop so she can close her eyes. To feel that Daisy is safe and happy when they stop.

Frustrations: Daisy being hard to control on a walk. Retractable lead handle being too big to thread through the bench. Sore wrist from Daisy pulling on it.













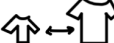


Ideal Experience: Stopping anywhere on a walk and being able to let go of the lead. Being able to close her eyes as she sunbathes on a bench without overthinking Daisy's comfort and safety. Not having to carry anything too bulky. Not negatively affecting the experience of others using the park. Both Daphne

and Daisy are able to walk longer after the break.

Quote: “This has completely changed my mindset when going out for a walk! No longer restricted to walking continuously, I feel free to easily pause before continuing to walk my puppy longer than ever before. Daisy loves our little breaks so she can rest her legs and have a good sniff too! Recommending this to everyone I know in the park.”

Appendix D: Ideation Strategies

D.1: Morphological Chart

PARAMETERS	MEANS A	MEANS B	MEANS C	MEANS D	MEANS E	MEANS F	MEANS G
easy to carry	on wheels 	shoulder strap 	clips on 	folds out 	follows you 		
secure dog in place	heavy weight 	suction cup 	wraps around 	encloses dog 	entertains dog in place 	invisible barrier 	attaches to objects 
works for all dog breeds	stretchy material 	adjustable buckles 	attaches to existing collars/harnesses 	dog understands it 