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MDes / BA Product Design

User Experience Design (M5X01239)

“Meal preparation”

Task 1, Research

Task 2, Design Development

Meal preparation is extremely important to most people's lives, as it's a task that they have to complete everyday. The term "Meal preparation" covers a variety of tasks that are preformed as part of the everyday job of preparing meals. Some of these are:

- Shopping (for food and ingredients),
- Preparing,
- Cooking,
- Serving,
- Cleaning.



Character Profiles;

The following list shows some of the people who have allowed me to record and monitor their daily “Meal Preparation”

I will use these people to convey the findings of my research and will justify my decisions based off of my observations of these people and their daily struggles.

Each profile is broken down into 6 defining categories that I believe are important factors to consider when comparing people’s struggles.

These are :

- Name,
- Gender,
- Occupation,
- Physical impairment,
- Mental impairment.

I have included 6 profiles with varying factors to more easily show my targeted analysis of different people’s limits during food preparation.

1. Name: Guy
Age: 56
Gender: Male
Occupation: Fulltime Electrician
Physical impairment: Weakened leg
Mental impairment: Dyslexia

5. Name: Steven
Age: 39
Gender: Male
Occupation: Fulltime Software Engineer
Physical impairment: N/A
Mental impairment: N/A

2. Name: Maureen
Age: 79
Gender: Female
Occupation: Retired
Physical impairment: Arthritis, Vision
Mental impairment: N/A

6. Name: Liese
Age: 50
Gender: Female
Occupation: Fulltime Cleaner
Physical impairment: Vision
Mental impairment: PTSD

3. Name: Gary
Age: 20
Gender: Male
Occupation: Student
Physical impairment: N/A
Mental impairment: N/A

4. Name: Rhianedd
Age: 15
Gender: Female
Occupation: Student
Physical impairment: Hypermobility
Mental impairment: N/A

Research method 1;

Activity Analysis.

“Activity Analysis” is research through an in detail list or representation of all tasks, actions, objects, performers and interactions involved in a process.

This is a useful way to identify and prioritize which actions cause the most issue with people I monitor.

Following is an extract from my “Activity Analysis” of “**Rhianedd’s**” meal preparations. It shows the processes, actions and interactions she undertakes when she is “Preparing” to cook.

I have chosen to show “**Rhianedd’s**” “Preparing” task as it demonstrates well a problem that was common among the people I monitored completing their morning routine.



1. Retrieves knife from knife block.
2. Takes chopping board from draw.
3. Lay both knife and chopping board on counter.
4. Takes bread from bread bin.
5. Using knife and chopping board, slices bread. (Struggles to cut straight slices. Changes her grip on bread regularly. Uncomfortable?)
6. Places remaining loaf back in bread bin.
7. Lifts hotplate cover on AGA oven.
8. Places slices of bread on hotplate.
9. Walks to dining room.
10. Gets butter knife out of draw.
11. Walks back to kitchen.
12. Takes butter out of fridge.
13. Places butter and knife next to chopping board.
14. Flips bread slices on AGA.
15. Opens cupboard above her and takes jam out.
16. Places jam next to butter.
17. Takes plate from plate rack above AGA. (Nearly drops)
18. Removes toast from AGA and places on her plate.
19. Places plate on top of chopping board.
20. Uses butter knife and butter to butter toast.
21. Removes lid from jam. (Can't grip. Has to get help opening)
22. Takes both knives to the sink and washes then.
23. Leaving the bread knife in the sink she takes the butter knife back to her toast.
24. Using butter knife applies jam to toast.
25. Takes plate with toast on through to the dining room to eat.

Recognised problems during “Rhianedd’s” breakfast routine:

5. Using knife and chopping board, slices bread.
(Struggles to cut straight slices. Changes her grip on bread regularly. Uncomfortable?)
17. Takes plate from plate rack above AGA. (Nearly drops)
21. Removes lid from jam. (Can’t grip. Has to get help opening)

These problems have been seen in other people I monitored. (The people who struggled most with lifting and gripping were “Rhianedd” and “Maureen”. This may be because of their physical impairments.) Most notably the removal of lids. Through this research method I noticed that both “Maureen” and “Gary” struggled with jar or bottle lids (“Maureen” struggled with safety lids on bottles or bleach during her cleaning routine. “Gary” struggled with opening a new jar of mayonnaise)

Not being able to open the packaging of a item is a inherent flaw of the designs and could cause the user to resort to potentially dangerous methods of opening them. (I watched “Maureen” trying to open a bottle of bleach with a pair of plyers)

Research method 2;

Empathy Tools.

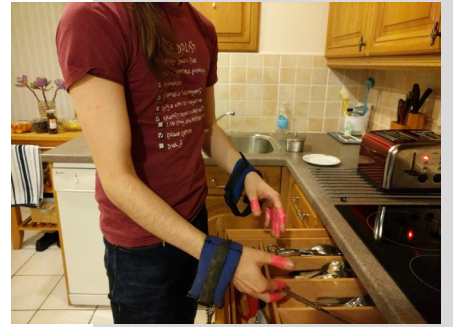
Research through “Empathy tools” is where tools like clouded glasses and weighted gloves are used to help the researcher gain an understanding of the abilities of different users.

This is an easy way to prompt an empathic understanding for users with disabilities or special conditions.

As I consider myself as without physical or mental impairment. (Like “Gary” and “Steven”) I didn’t use any tools when recreating their “Meal preparation” and instead mirrored their methods of preparation that I recorded while doing my “Activity Analysis” research.

This is a difficult type of research to quantify with words. Instead I will explain my process through a series of photos showing my attempt to gain a deeper knowledge of the people I’m monitoring’s struggles while preparing food.

The following pictures are from my research into “Maureen’s” “Meal preparation”. I have chosen to show these pictures as they clearly show some of the problems I encountered.



For my “Empathy Tools” research of “Maureen’s” way of preparing a meal, I used:

- High strength glasses to emulate her reduced vision, due to age.
- Wrist weights to show her reduced level of movement and strength
- The use of tape to restrict my movements to emulate the lack of grip strength caused by arthritis.

I encountered many problem areas in this research. The level of impairment was much higher than I had expected and caused me a lot of trouble with many tasks. The most notable of these are:

- Lifting and refilling the kettle. The extra weights made it quite difficult to comfortably carry the kettle to and from the sink without 2 hands.
- I struggled to recognise which cleaning fluids to use when it came to “Cleaning” I ended up relying more on the shape and basic colour of the bottles to indicate what they were.
- It took several attempts to manipulate with even the most basic of equipment. It took me several attempts to turn the kettle or toaster on and I was unable to open any of the safety bottles used when cleaning up.

Research method 3;

A Day In The Life .

“A Day In The Life” a research method that catalogues the activities and contexts that users experience throughout an entire day.

This is a useful way to reveal unanticipated issues inherent in the routines and circumstances people experience daily.

For this research I spent as much of a day as possible with the people I was monitoring (I did consider only shadowing them during times that pertain to meal preparation but I found most of the people I was monitoring snack or make drinks during the day. Which need to be taken into account). Cataloguing what they were doing and noting any problems they encountered. This method of research uncovered the largest variety of problems among the people I was monitoring (partly due to the large timescale I was monitoring them for)

I'll explain what I found out by showing some of the information I gathered about “Gary” as most of the problems he encountered were not unique to him and could be found in the other people's data.

The day I chose to monitor “Gary” was a Saturday. As he is a student and doesn’t work I found it much easier to shadow him when he doesn’t have to go to school.

During his breakfast routine “Gary” struggled to open a jar of jam and eventually gave up. He also spilt hot water from the kettle onto his hand as he poured himself a drink. (This may have been caused by drowsiness due to it being first thing in the morning)

After breakfast “Gary” went to the local shop to get a small amount of groceries. He didn’t seem to have any major problems carrying the goods as he used a rucksack. He picked up mostly perishables, and things that he regularly used. i.e. Milk, eggs, bread, etc.. He did also note that he usually just buys canned goods and UHT milk as it’s less hassle for him and he doesn’t like using the oven as he often burns himself by mistake.

When he got home he stored the groceries in the kitchen (He used a stool to store the sugar he bought on a high shelf after refilling a small jar he keeps with by his kettle.) and made himself a cup of tea.

He didn’t have lunch that day instead snacking on sweets throughout the day.

For his tea he got a microwave meal from the freezer and microwaved it. Once it had cooked he went to pick up the plastic container it had come in and nearly dropped it because of the temperature. He tried again with a tea towel and put it onto a plate.

After I finished monitoring the subjects of my research I could clearly see several common problems, most of them have been noted through the other research methods, for example:

- Weight of tools and utensils
- Bottle and jar lids
- Burns and scolding due to user mistake

However “A Day In The Life” revealed some problems that were outside the scope of my other research methods. Using “Gary as an example I noticed that while shopping he carried the groceries on one shoulder so he could use his phone with his other hand. In the long run this could cause major back and mobility problems. Liese also showed problems that I hadn’t seen in anyone else. She kept losing track of what she was doing whilst unpacking her bag. She kept checking to see if she had put her groceries away correctly. At one point she put a can of baked beans on the wrong shelf and knocked it off of the shelf while trying to move it.

Conclusion of research (Task 1);

I used 3 different methodologies to research how people cope with “Meal Preparation” from these methodologies I have learnt many different things about individual’s problems when preparing meals. Some struggle with the weight of their shopping . Others are to stubborn to use utensils correctly (or at all) and end up hurting themselves. I have noticed that people will attempt to complete a task the way they want to sometimes ignoring instructions all together. (In the case of “Maureen” opening a bottle with plyers and “Gary” not using a oven glove to pick up his meal) Because of this my design solution will have to imply a safe way of use—without need for instructions.

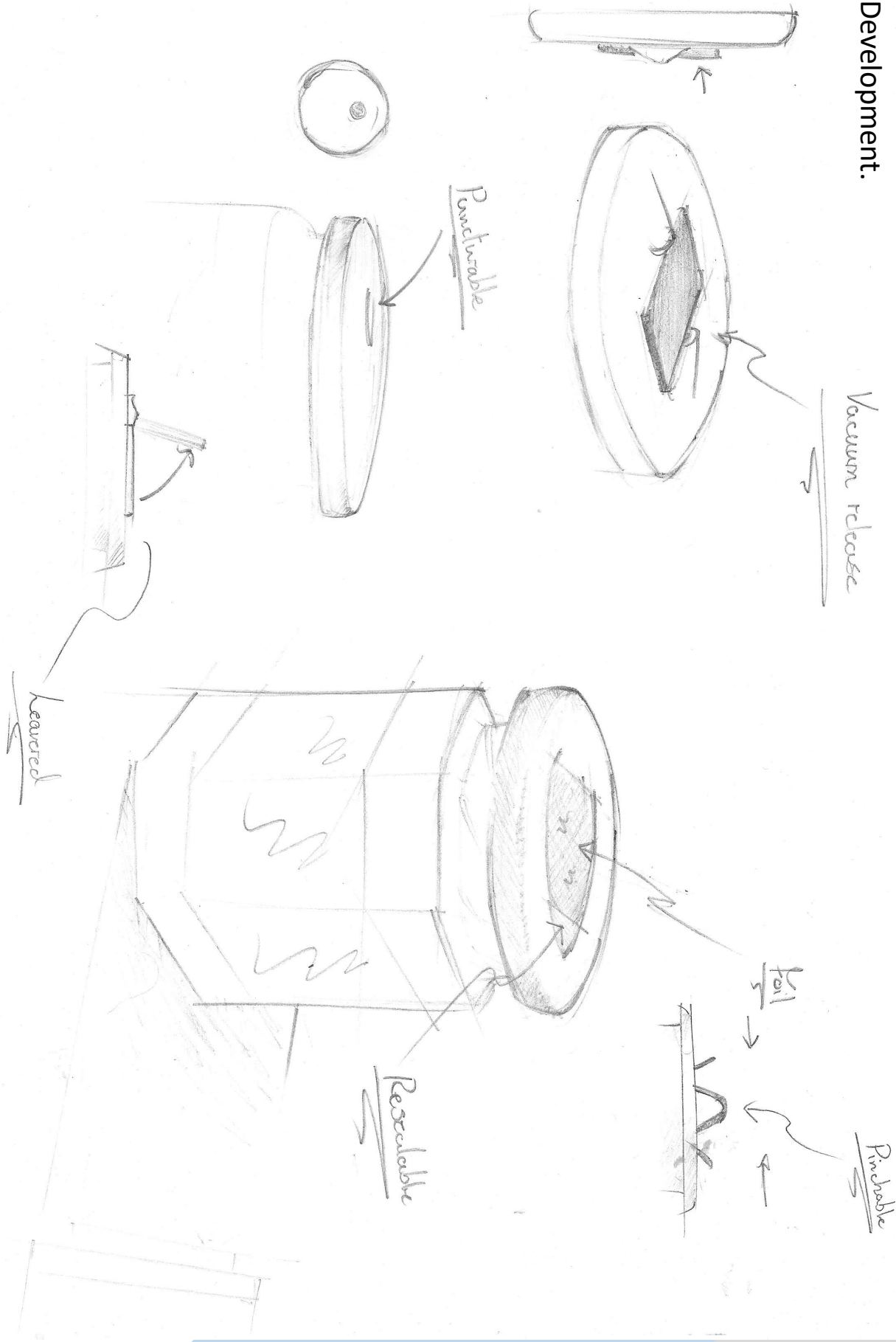
The problems I saw recur the most among the largest amount of people were:

- Bottles and jar lids requiring a large amount of grip strength to open (Especially when vacuum sealed when new)
- The weight of filled kettles being unwieldy by most users. Risking injury if the user boils a large amount of water then struggles to pour.

For my design solution, I aim to reduce to level of grip strength required to open bottle or jars. I intend my design to be useable by people with limiting factors like arthritis or hypermobility.

Task 2;

Design Development.

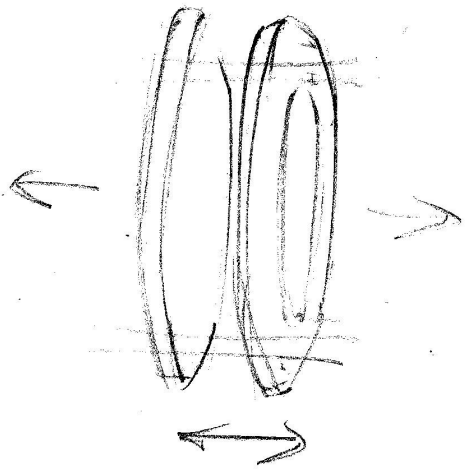
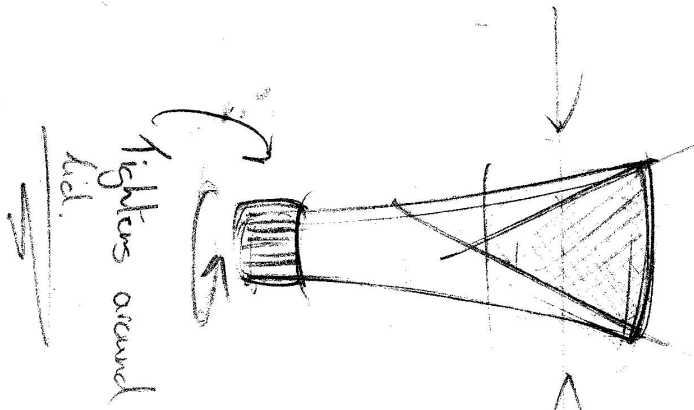


Prototype 1;

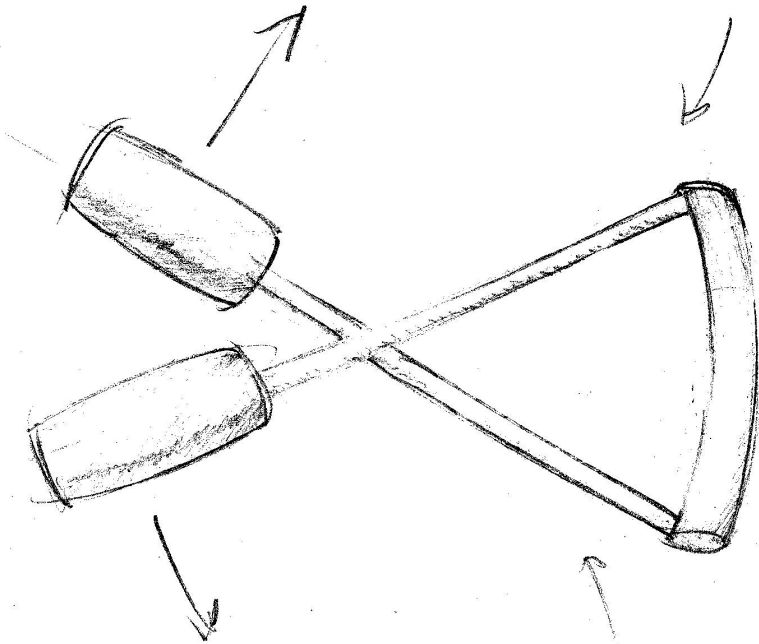


- Pulling tab removes vacuum in jar. Making lid easier to remove.
- Tab resealable to prevent food from going off.
- Allows for the lid to maintain it's rounded shape so it's comfortable for the user.





Push fit



Tension around jar lid.

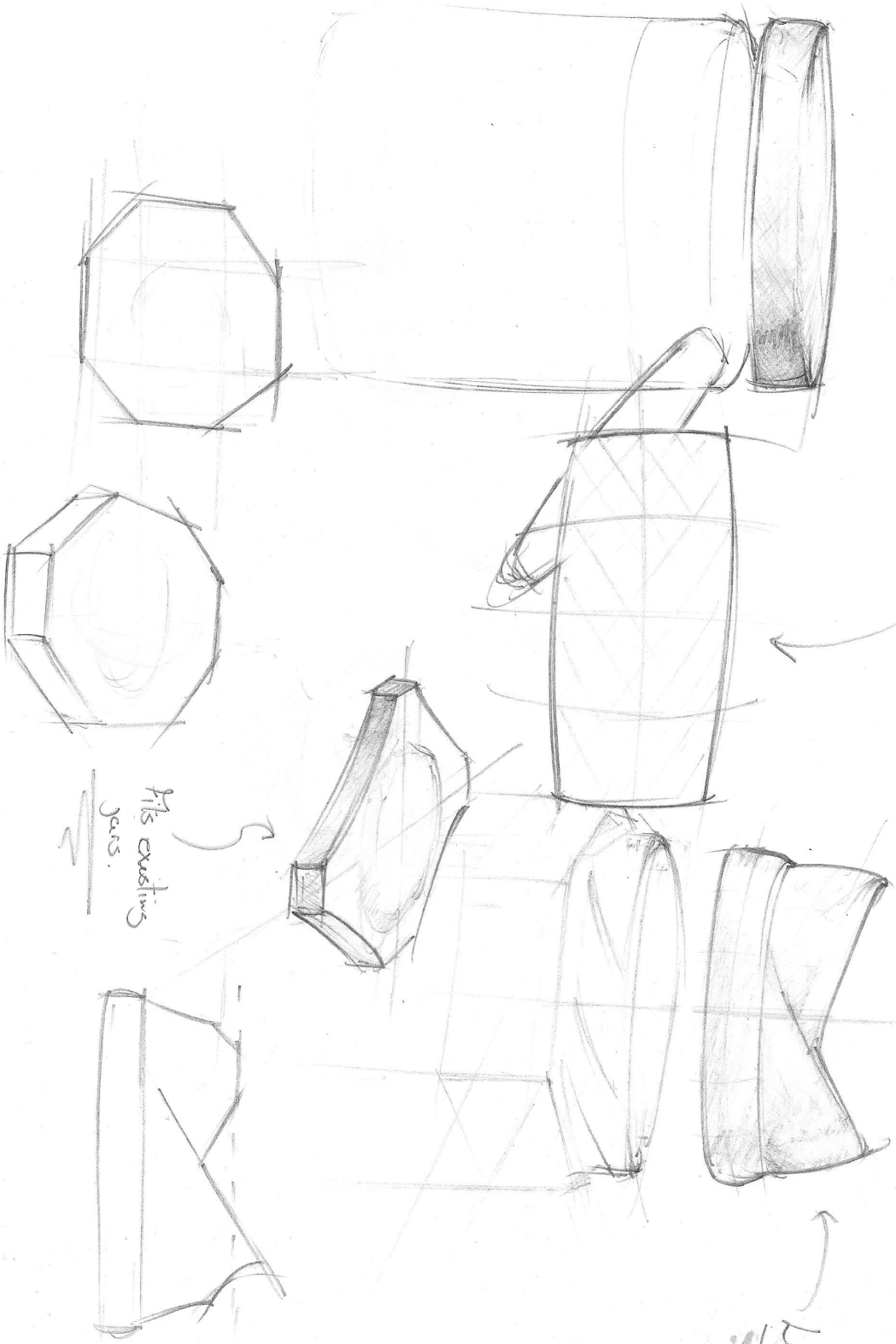
Prototype 2;



- Tool fits around the neck of the jar with the bar resting against the lid. The tool can be locked in place once installed and used as a lever for the lid. Allowing for much less force to be needed when opening jars.
- Lightweight.
- Difficult to use incorrectly.



Create the fit palm.



Fits existing
year.

leather
points

Prototype 3;



- Reshape of existing jar lids.
- Allows for better grip and control when opening.
- Could be integrated into existing manufacturing method.
- Clearly implies use.

