Dementia Organisation Care (Coventry University)

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Abstract

"*It seems that when you have cancer you are a brave battler against the disease, but when you have Alzheimer's you are an old fart. That's how people see you. It makes you feel quite alone." [1] Terry Pratchet.*

Many Dementia patients are seen to have little or no independence including our client Doris. The main problem Doris seems to have is when she can't find items she has misplaced like her purse. This is a common problem for people with dementia. When they realise they have forgotten a simple task or a loved ones name this can cause a lot of distress. It's not easy for the caregiver either, most the time it will be a friend or family member providing care. Many of us would never want to see a loved one in this situation.

"The main focus of dementia care must be on the person living with the illness, alongside an awareness of the needs of carers." [2]

During this project we aim to create a product, which will aid the patients with dementia by helping them to organise items essential for day-to-day life. The benefit we hope they will gain from this is the elimination of distress caused from confusion in term making the lives of the caregiver and receiver easier.

Background

Dementia is a significant problem in the healthcare system all over the world, especially in the UK and the US. In 2006 503,874 women and 318,010 men had dementia in the UK [3] and this number is rising almost uncontrollably. By 2021 it is estimated that 1 million people will be affected and by 2051 it could reach 1.7 million.

In the US Alzheimer's is the 6th leading cause of death with more than 5million Americans living with dementia. During 2012 15.4million caregivers provided 17.5billion hours of unpaid work which would have totalled $216.4 billion hours of work [4].In 2013 Alzheimer's will cost the US £203billion, in 2051 it will reach to $1.2trillion. We wanted to make a product that would help not just the patient with dementia but also the caregivers as they face as much of a challenge as the

ones they are caring for. If we are able to help people care for family members at home it will reduce the cost for the government.
Most caregivers are wives, husbands or family members of the person they are caring for. Seeing with a loved one suffering from the disease is difficult and on top of this many families face the decision of whether to place them into care. This can be an expensive option, costing up to $4000 a month. Many cannot afford this so struggle at home. We want to make it less of a struggle with our product.

Patients with dementia experience different emotions that can be triggered by frustration, forgetting names, being unable to perform simple tasks and confusing items for other ones.

Research

To start off the design process we met with two occupational therapists to gain as much information as possible. Focusing on dementia we were told that products designed for dementia don't help. Products such as pill reminder boxes, talking clocks and diaries are logical, however those suffering with dementia may still forget to take medication, what the time is etc. Many are complex and require a caregiver to provide assistance whilst a patient is using it. This process can be stressful for both the caregiver and patient we feel that if we removed distress from the patient it will also help the caregiver by reducing the amount of assistance the patient needs.

An OT mentioned that a problem in care homes is that all the bedrooms are the same, the same layout colours, etc. This repetition and lack of definition it leads to patients becoming confused as to which room is theirs. However some care homes are using some initiative and using colours and memory boxes by the doors to help patients recognise which room is theirs. This is an area that we need to play on in our product, colours, textures and the senses to make it as eye catching as possible. "*There needs to be a more personal approach take to dementia care." [5].*
Q: "what area do you think there's a lack of help from products in?"

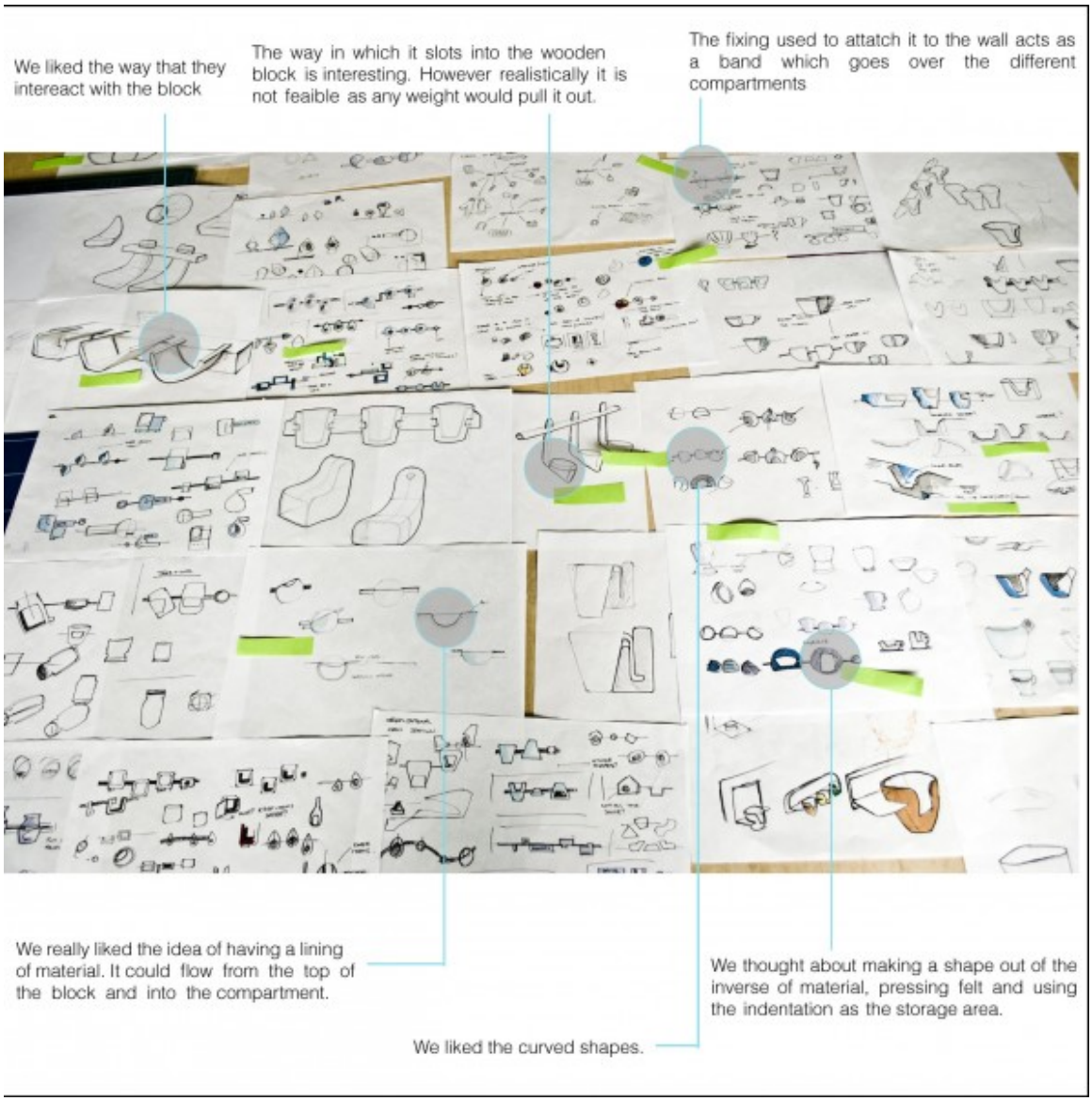
A: "organisational systems"

Self-Brief

From our research and discussion with professionals we decided to write ourselves a brief to give us a better idea of what we were designing. To design a product that organises day-to-day items, so that the sufferer can identify items and remember them. It should help both the caregiver and the patient.

Methods Of Design

From the research we went into concept sketching, creating a range of design ideas together whilst brain storming potential problems we had faced. Taking our sketches to a professional health care design team (HDTI). We discussed our ideas selecting those, which are most suitable for market and the client.



Concept Sketch Pages we developed together.

Having created a range of sketch models we decided upon a final design. Which is a crafted wooden block that allows three different compartments to be slotted into it. We selected this as our final idea due to its inherent simplicity. Clean cut lines and use of material. As those affected with dementia are usually amongst the elderly population we decided that making the product overly technical with the use of electronics would not be necessary. As this could make understanding the product more difficult, having to learn something completely new. We considered a range of ideas that included the use of sensors, and speech.

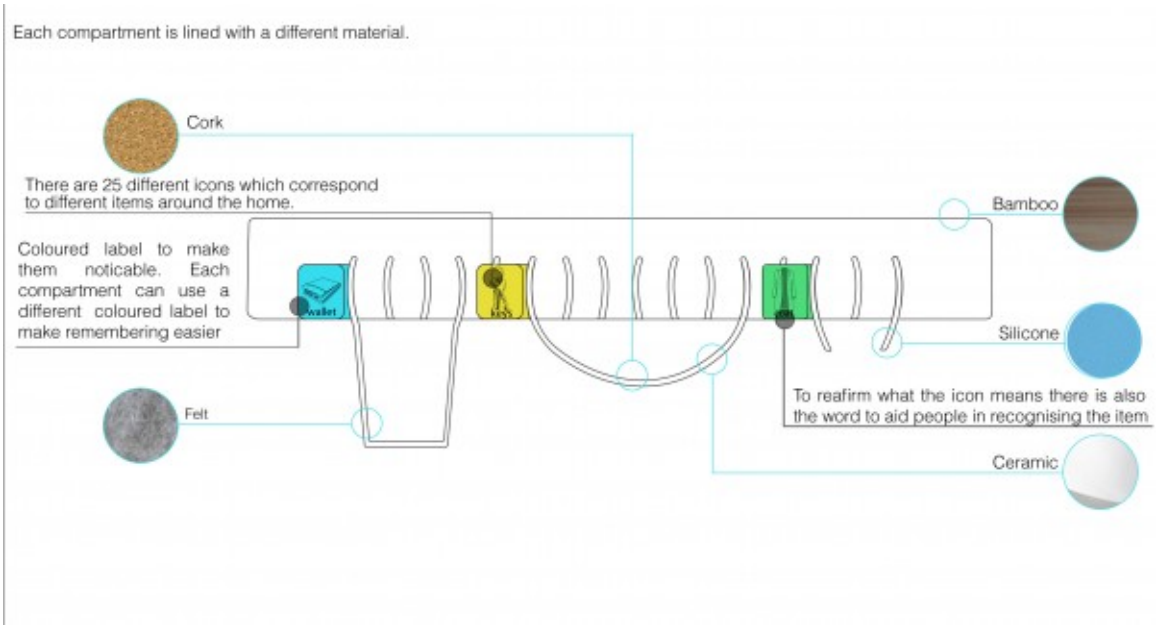
Sketch model.

Scenario: Doris has opened the front door to go out, but has left her keys in the 'keys' compartment, a sensor on the door recognises it has been opened and senses that the keys are still in the compartment. This would trigger a voice " Don't Forget your keys" ensuring that Doris was not leaving the house without her keys.

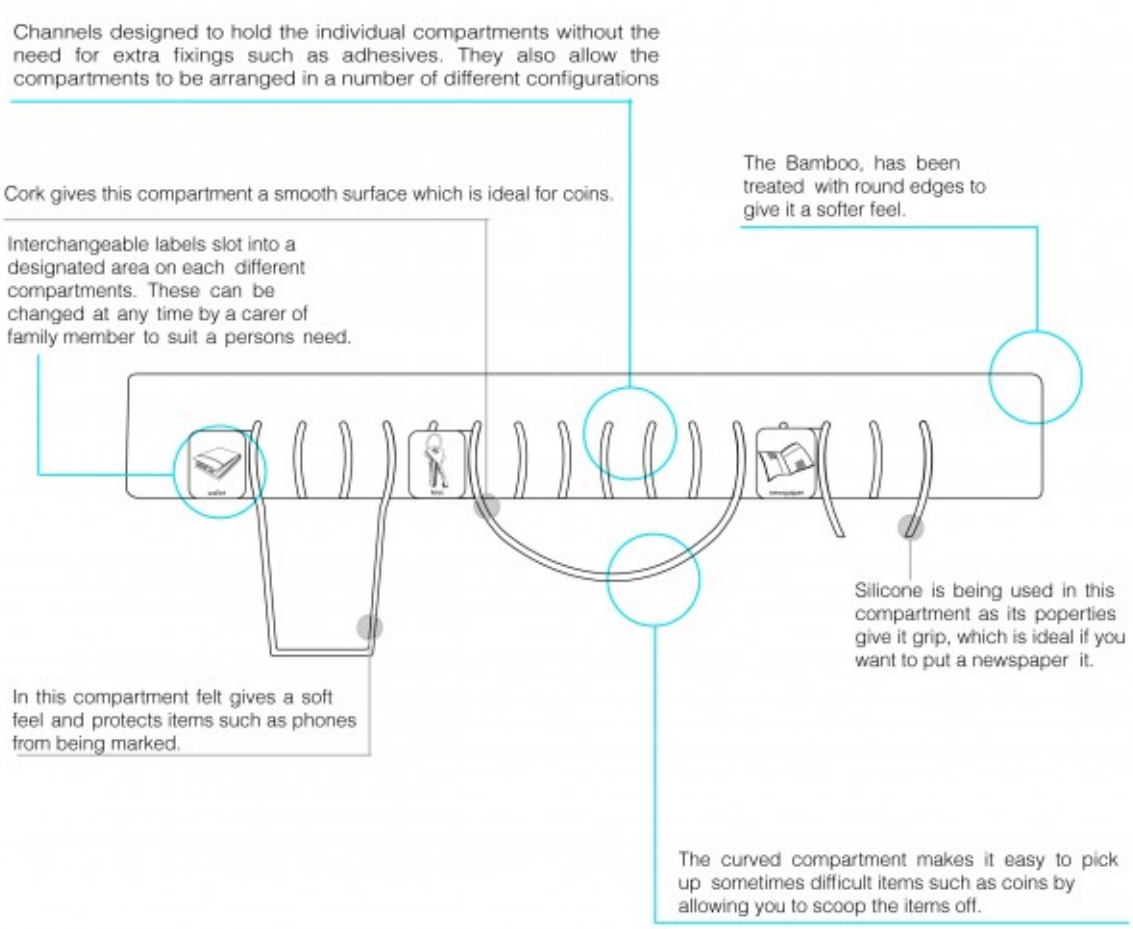
We had also thought about adding a noise that would set off if the user forgot their house keys as they left the house. So a sensor would notice they had opened the front door, make a slight reminder noise suggesting that Doris had forgotten her keys. The main issue with this is the confusion that could occur. If it was just

a beep instead of a voice, people could become confused not knowing what the beep was for, and becoming more frustrated if it continued.

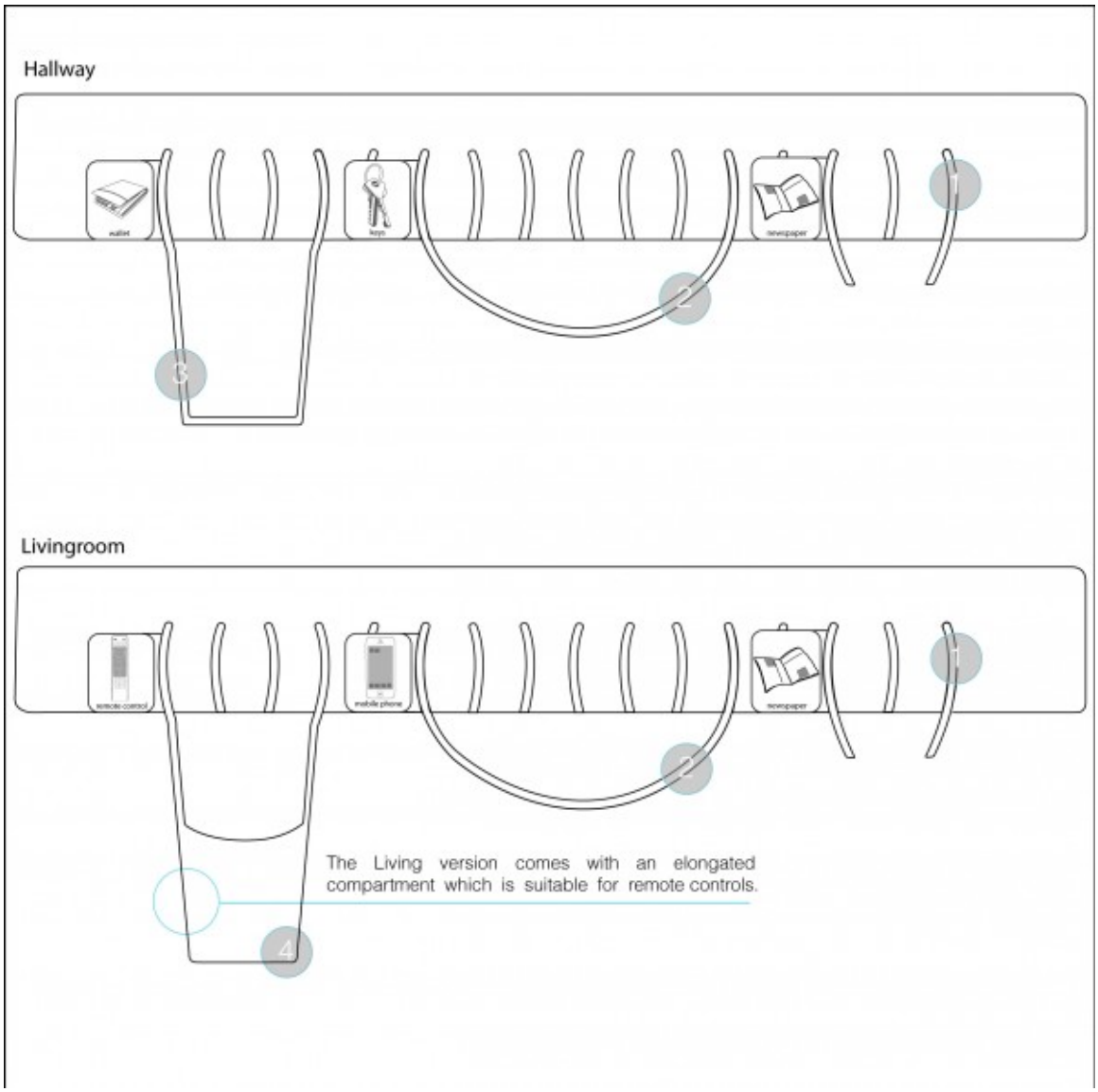
We have designed compartments to slot into the main body. There are 16-arked channels that chosen compartments slot into using no fixings. There are 4 different versions each specifically designed for around the home. Once a compartment gets slotted in it becomes secure due to the arc. Each channel is CNC milled to ensure they are identical. There are enough channels so compartments can be arranged in different orders.



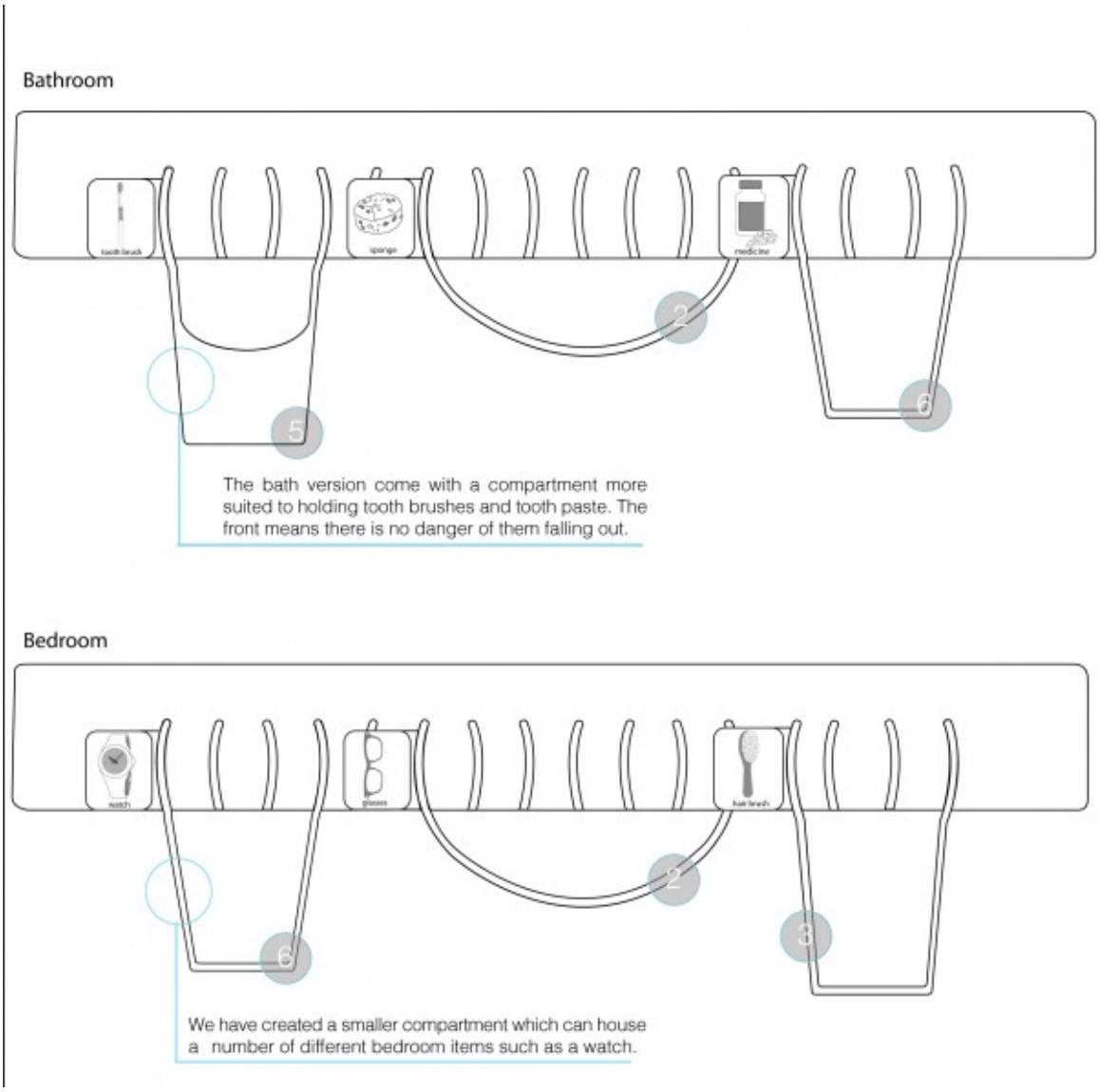
Images Explaining the Materials Chosen.



Explanation of product.



Images show Compartment variations for different parts of the house.



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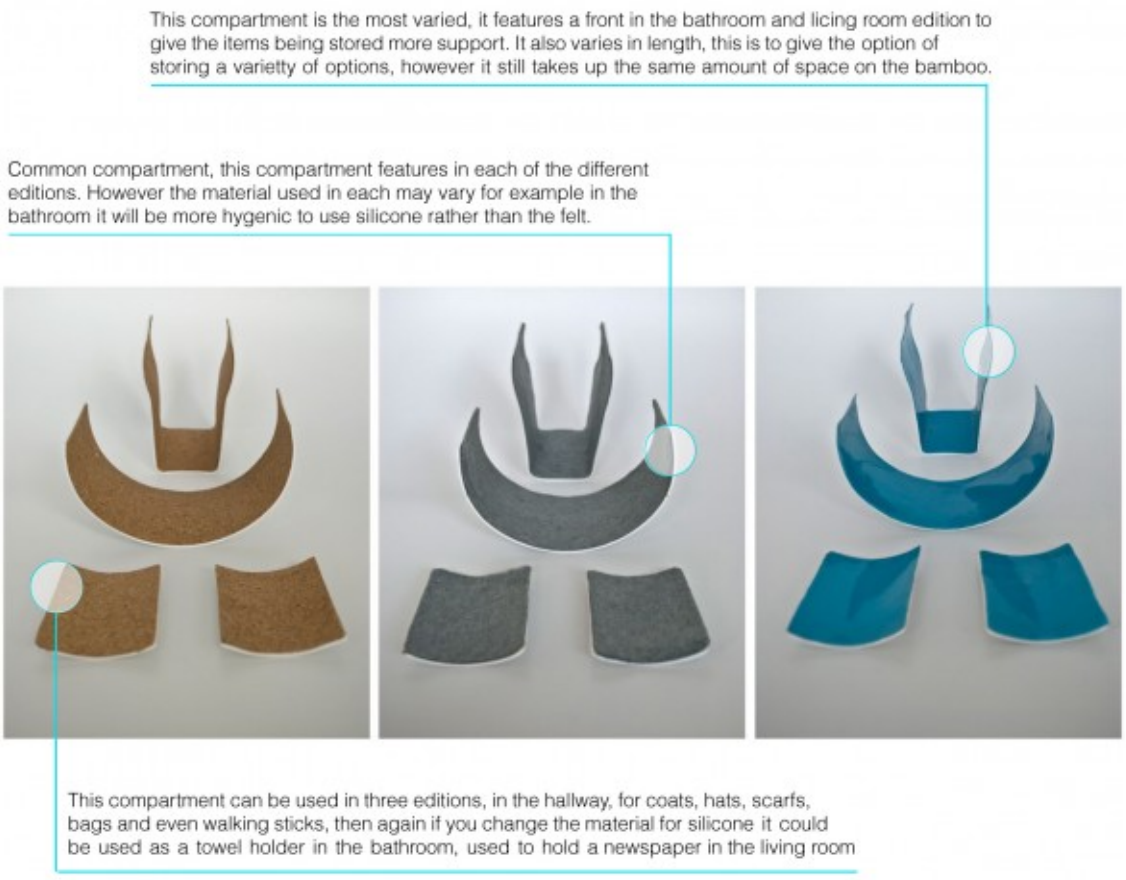


Explaining the shapes for the compartments.

Each product comes with a range of 25 illustrations with text that display a range of household items. These icons slot into the side of each compartment making it clear what item belongs where. Allowing the user to go to the product, look at the icons and pick up the correct item without becoming distressed.

The Icon's which will be placed on the compartments.

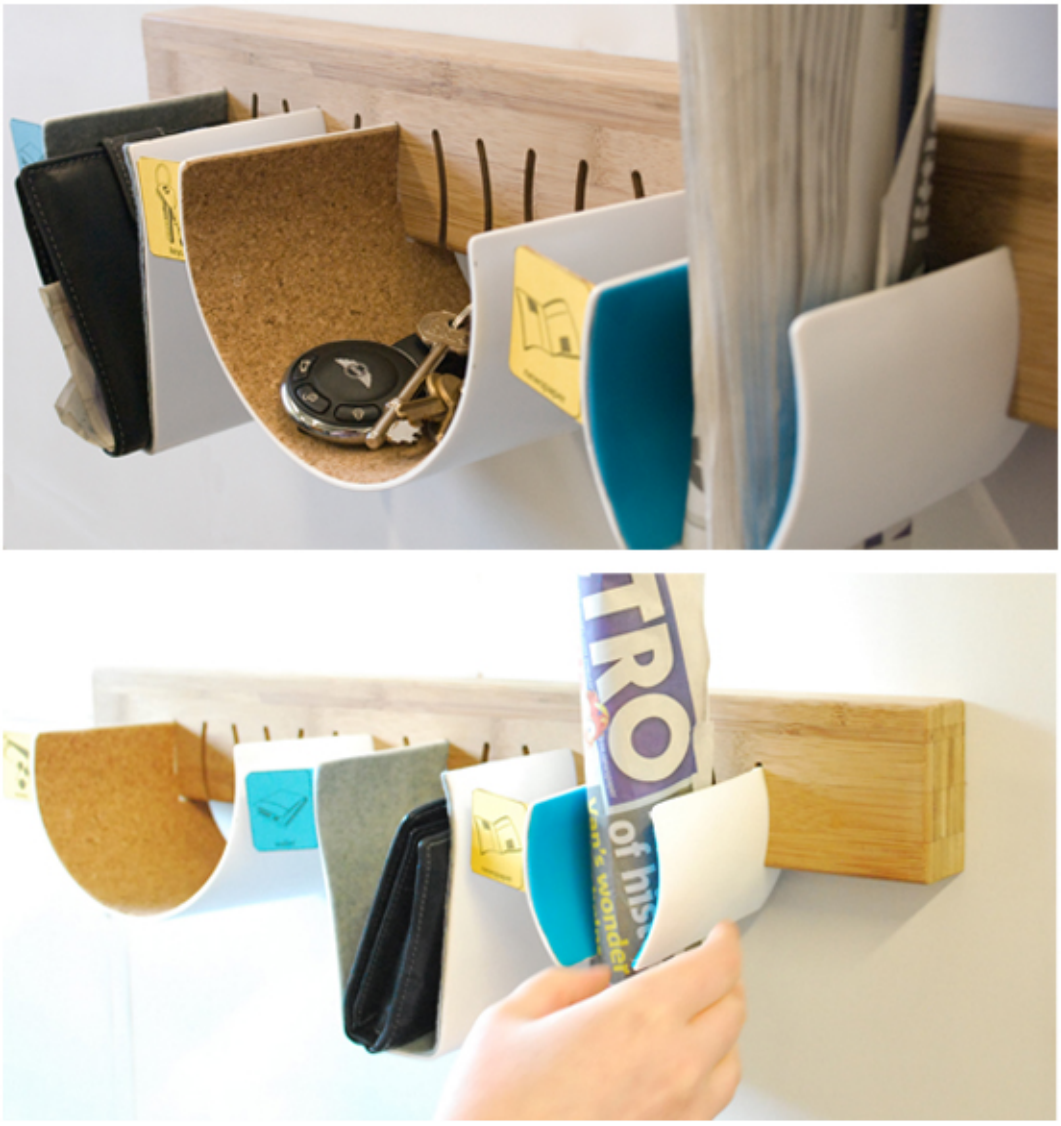
Results

The final model is aesthetically pleasing, practical and unique. Even though we designed the product for those suffering with dementia it is by no means restricted to this one area. Due to its simplicity and use of materials it would not look out of place in the modern home. Overall we are both proud of the outcome we have achieved.

As we have progressed through the project we have decided that this product would be best suited to those who are in the earlier stages of the disease. This is so it will integrate into their lives more easily. We hope that if introduced early

enough it would remain in use for a longer amount of time. During the early stages of dementia many people may still be trying to come to terms with it, as well as becoming frustrated at themselves as they slowly become less able to remember. Even though our product solves a simple problem we believe that the impact to the user is far greater, from reducing the amount of stress, anxiety and frustration they face on a daily basis we can help people stay happier for longer.

Final Images.



Final Images showing product in use.

Feedback

"Looks really useful and I would love to try it with some of my patients. I think it is a brilliant concept and should be a good product that has not been done before."

Sandie – Occupational Therapy Team Leader.

"The product has been executed very well in all areas of its design. The consideration given to the visual design, the choice of materials and the user experience is of particular note, and this is all underpinned with thorough

research and real life user insights. It is a simple product and could be used by anyone, not just those experiencing memory issues. I would certainly buy one!"
Keir Haines – Health Care Designer.

"A super concept to bring contemporary design into the homes of assistive technology users. Anyone can benefit from good design like this."
Paul Magee- Senior Health Care Designer.

Cost & Implication

From researching 'dementia aids' we found that many are expensive despite being made from poor quality materials. We want to ensure that our product uses good quality materials to show off its simplicity. Giving people a product they would be willing to spend the money on, it's not just another piece of throwaway plastic.

During our prototyping process we purchased a 70x70x1500 piece of bamboo for £30 from this we could make 4 models. Giving us a rough cost of £7.50 for the bamboo. If these were to be produced on a larger scale this cost should reduce, as material would be ordered in bulk. The other costs are generated from the lining material, such as the cork, silicone, and felt, this is a very minimal cost and we would aim to spend £2 – £5 per unit on this material. The other main cost to the product is the ceramic compartment we would aim to make this for £10. Considering all of these costs we look to sell the product for under £40 – $61

The product will be packaged as the bamboo block and wall fixings and the compartments for each version. Packaging these separately means that more than one compartment version can be purchased at a time without having to purchase another bamboo piece. This reduces the size of packaging needed, thus reducing the transportation costs.

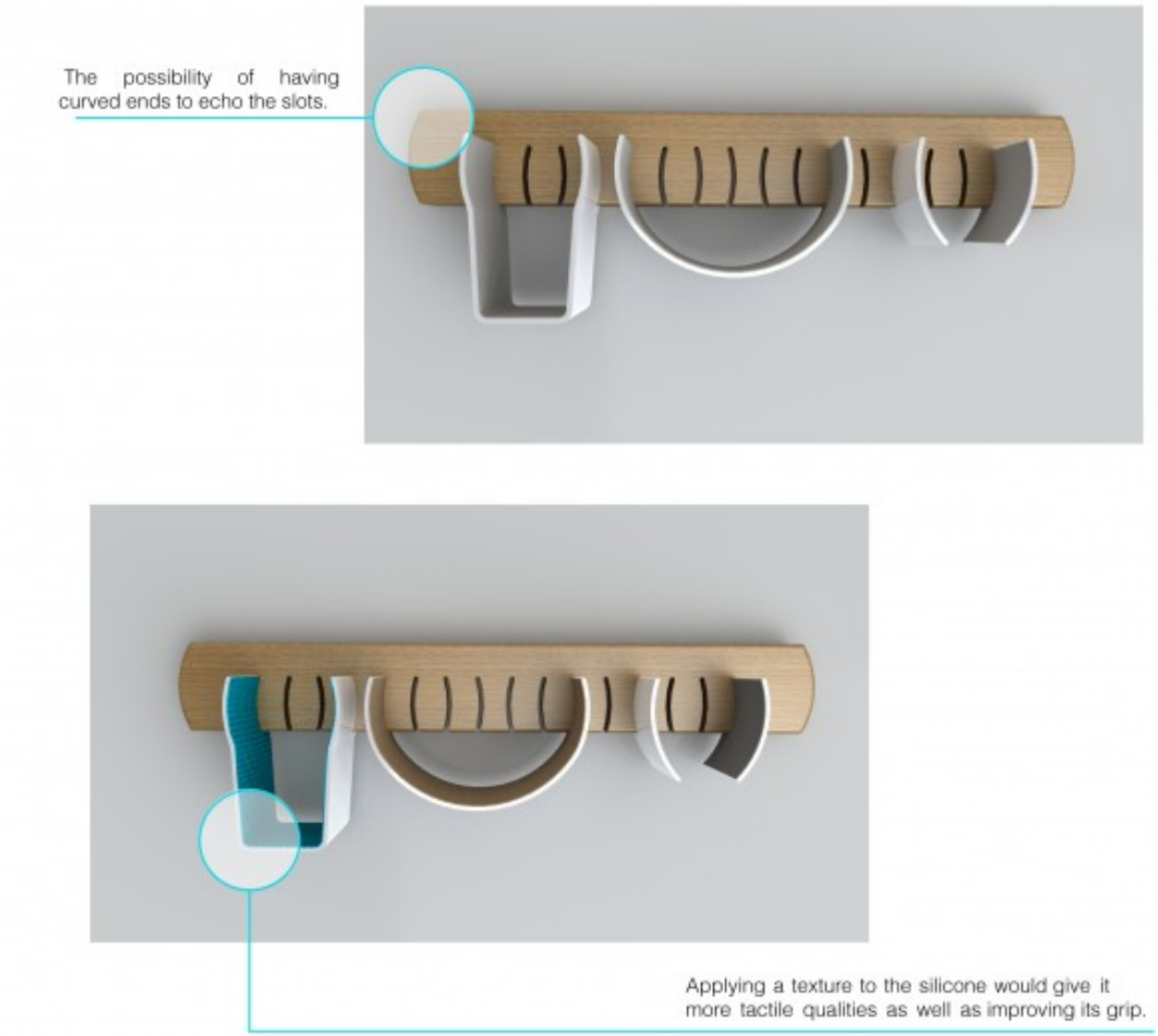
The product fixes to a wall by using a fixing that narrows at the top. You put two screws into the wall then place the product on top of them and it creates a secure fix with no screws on show.

Future

Although we are happy with our product as it is, we still feel there is room for improvement. We would like to give the compartments a sloped bottom so when items are placed inside they fall back, making them less likely to fall out. Despite

our earlier rejection of electronics we feel that is a solution that involves them in some way. This might be to address a different type of issue perhaps one of security more so than organisation and memory.

We also feel that the icons could be increased in size, making them easier to read and understand. “The icons are so good they should be bigger,” Keir Haines – Health Care Designer.



Solid Works Renders.

References:

[1] Sue Barker, Michele Board – Dementia Care In Nursing.

[2] Understanding Dementia The man with the worried eyes- Richard Cheston and Michael Bender page 122.

[3] Alzheimer's research UK – http://www.alzheimersresearchuk.org/dementia-statistics/.

[4] Alzheimer's Association – http://www.alz.org/alzheimers_disease_facts_and_figures.asp

[5] Understanding Dementia The man with the worried eyes- Richard Cheston and Michael Bender page 122

Acknowledgements :

Sandie, Gill Ward – Occupational Therapists, Keir Haines- Health care Designer, Paul Magee- Senior Health care Designer.

This project can be viewed at http://aac-rerc.psu.edu/wordpressmu/RESNA-SDC/