

Explanation project module 8: product service system; SlimBase Group 3

The product

Nowadays people are working for themselves. In that way expensive offices are not achievable for small companies. Therefore “flexible working spaces” are used a lot. People do not have their own office, but share a building with several rooms which you can book for a time slot the user wants. Our product will give a good overview of the whole building. Users will not have to walk through the building to find an empty room. In this way, the user can use their time efficiently. Next to booking rooms, single tables can be booked too. This product will make the use of the available space in a building as efficient as possible. It can be placed on every table and will not bother the user, because of the small design.

Key benefits

- Overview
- Direct feedback
- Efficiency
- Certainty
- Fully cared for office products
- Simple

Before we could design the product service system we had to analyse our target group and our market. The information we found, we used in the improvement of the product.

Market research

<https://www.deskbookers.com/nl-nl/enschede/lentferthouse/workplace/13379>

When you open the website, you go to the first screen where you can choose which location, type of room and whether you want the room for a couple of hours or a couple of days. After that you say on what day you want to start with renting the room.

After pressing search a few options pop up, it then states how expensive the room is and it shows a picture. After choosing one of the locations you go to the next screen which shows the facilities the location offers and it shows a timetable where you can clarify what time you want to rent the room. It directly creates an invoice with which you can immediately pay for the room. How you get the key or how they know you are the one renting the space is not clear on the website.

A downside to this website is that when you specify you want a training room they only show the rooms that they labelled as training room. In this way there might be a location which is more perfect but they do not show it, this location could also be cheaper but you do not get to see that.

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<https://www.themeetplant.nl/flexruimte/>

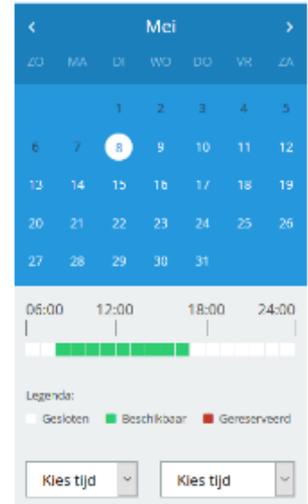
This site shows on the starting screen four options of different types of rooms. You immediately specify what location and room you want to use.

You get some options and when you have chosen one of the options you can make a reservation. A downside is that you cannot book rooms in advance, one can only pick today's date.

<https://www.flex4medics.nl/enschede-spreekruimte/>

This is a website for only (para) medical rooms. You pick a room type and location and after that you get to choose what times the room can be rented. Rooms are only shown if they are almost completely free that week.

After setting the time you can say if you want extra services. When that is done you only have to pay.



1. Ruimte 2. Extra's 3. Inloggen 4. Betaling 5. Deelnemers

Spreek-, coach- en behandelkamer

ADD :: Flex4you Enschede

Sleep je aanvraag klik en sleep je muis in de onderstaande kalender van de gewenste begin- tot eindtijd

← 7 - 13 Mei 2018 →

	maandag mei 7de	dinsdag mei 8ste	woensdag mei 9de	donderdag mei 10de	vrijdag mei 11de	zaterdag mei 12de	zondag mei 13de
09:00							
10:00							
11:00			✕				
12:00							
13:00							
14:00							
15:00							
16:00							

Reserveren

Naar de volgende stap →

09-05-2018 (11:00 - 17:00) ✕
Spreek-, coach- en behandelkamer € 60,00
 Herhaal deze afspraak

Subtotaal (excl. BTW) € 60,00

Prijzen

- per uur € 12,00 /ruimte
- per ochtend (09:00 - 13:00) € 40,00 /ruimte
- per middag (13:00 - 17:00) € 40,00 /ruimte
- per dag € 60,00 /ruimte

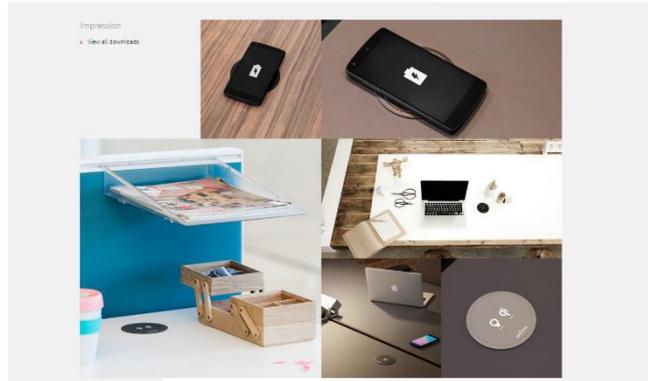
<http://www.huurflex.nl/>

This is a website where you can rent a room/location for longer periods (think of months). You have to give a location and a search radius. You need to fill in how large you want the room to be and what the minimum and maximum rent prices are for you. To rent the room you have to get in contact with the contact person of that specific place.

<https://www.ahrend.com/en/products/accessories/accessories-tables-and-desks/ahrend-puk/>

This is a product that is built in tables which charges your battery when your phone is placed on it. It has 7 coils which make sure that you do not have to put your telephone precisely in the middle to have it charged.

It is compatible with the app Smart Office, which tracks where people are.



User of the product and stakeholders

After our stakeholder analysis we had to determine our main user. At the beginning of the project we focused only on universities and therefore its students and employees. Our product can be used in public and private environments. A university is not the only target group we have to consider. Big companies, libraries, conference places are the kind of environments we should focus on too. In general, the needs of the users are the same, despite of the environment where the product will be used in. Both users have the same need to book a room for a meeting or to book a flex spot and are both struggling with finding a conference room. To understand the user, we interviewed different students at the university of Twente. Those interviews were not only to understand the user but also to find out what our product should do, what is necessary and what is an extra feature. After the analysis we found out that users miss the whole experience of an effective and efficient meeting. That is the reason why we want to design a product service system which provides everything for a good meeting. This includes all the needed materials, like pencils, paper, whiteboard, beamer and office supplies. In this way the whole meeting is taken care of.

Requirements

The requirements of the product became clearer after the interviews. When we determined the user group we could change our vision into real practical ideas. Thinking about the materials we need for the product and what the product can do in general. Which actions must be done by the product and which parts of the product make those actions possible and what is needed for that. This assignment gave us a clear vision. A start was made and in the next weeks we improved our design. The product must at least consist of a:

- Screen
- Card reader at the flex spot
- Physical product with NFC reader
- ID card for authorisation

First, we made the basics of our product clear. The product is placed in a serious environment. The user can book via the station but also a website and app are available to book a room. This gives the opportunity to book a room without being in the building. The station is in contact with the card readers in the working spots which can read a code on an organisation ID card. This was our first attempt to make the basis of our product service system clear. In the next overviews of the product we tried to implement more solutions for possible errors in the product and errors made by the users. Errors like students who are showing up late at the booked room, how do we prevent this or how are we responding to those problems. After 15 minutes, when nobody shows up, the reservation is

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cancelled. When people are having a break, they have 15 minutes to do so, otherwise the reservation is cancelled. All of this was our first idea of the product service system.

Flowcharts

We started the project with finding a proper problem which we can solve with a product service system. After we found our case we had to start thinking about what our product service system is, what it can do and how it will work. As you can read in the previous chapter, we first made a clear product idea of what our product must be. We had to understand our user well. Therefore, we asked a lot of students at the university of Twente which problems occur when booking a study room. Making flowcharts helped us finding problems and solve them directly. Flowcharts give you a good overview of the whole system of the product. We changed the flowcharts along the way. Our basis idea of the product stayed the same but as told above, errors occur. By making flowcharts as much as possible errors were found. The first flowchart concept was simple, small and incomplete. After doing different kind of analysis and research we could improve our flowcharts repeatedly and finally we have finalized it in a clear design. In the last flowchart we tried to think about every possible action of the product and the user. Next, we used the tool infographics to make all our considerations and choices for the product as easy as possible for our client. The infographic guides you through the whole process.

Design challenge

We made a design challenge with all the new information we received from the analysis and flowcharts. Design challenge:

The goal of the product is to give a user who wants to book a room in a professional building a clear overview of all the available rooms, selected by de users' needs to make it more efficient. The user can book a room in combination of an app, a website, physical product and digital keys. The physical products will be placed in the entrance halls of the buildings. The whole conference experience is provided by us, including the office supplies.

Efficiency

Efficiency is something we focused on. When rooms are not used for meetings, it must be possible to get an overview of the free rooms. This gives the user more efficiency, they do not have to search for a free room and hoping it is not already booked by somebody else. We considered the idea of adding a penalty for people who are too late or do not show up. Eventually we decided to add a time limit. After 15 minutes the reservation is being cancelled and when people have a break they must be back in 15 minutes. Otherwise the reservation is also being cancelled. This is a well-considered choice. We want the rooms to be used as much as possible and we achieve the highest efficiency when the rooms are used most of the time. A penalty will give a negative association with our product, we want to give the user a positive experience. A penalty will not solve the problem that people do not show up. That is why we have chosen for a more effective solution, to achieve more efficiency.

Business models

<p>Key partners</p> <p>Our partners are the producers where we buy our supplies. Next to that we can have a partnership with handymen to set up the system for us.</p>	<p>Key activities</p> <p>Key activities are:</p> <ol style="list-style-type: none"> 1. Advising on the kind of contract 2. Setting up contracts 3. Setting up the whole system 4. Repair the system when broken 5. Fill the lockers with supplies 6. Take the whole system out 	<p>Value proposition</p> <p>The goal of the product is to give a user who wants to book a room in a professional building a clear overview of all the available rooms, selected by de users needs to make it more efficient. The user can book a room in combination of an app, a website, physical products and digital keys. Those physical products will be placed in the entrance halls and next to the booked rooms, the digital keys are needed to authorize a person to use that room. All the extra needed materials, which are needed for a meeting are also available for rent.</p> <p>Benefits:</p> <ol style="list-style-type: none"> 1. Overview 2. Direct feedback 3. Efficient 4. Certainty 5. Fully cared for office products 6. Simple. 	<p>Customer relationship</p> <p>We get costumars by contacting businesses/institutes and offer the product. And after that to get more consumers we will rely on mouth to mouth advertisement, and consumer experiences. We keep the costumers by offering contracts for 1/2/5 years and keep innovating to the costumers needs.</p>	<p>Customer segments</p> <p>The customer segment are companies/institutes with rooms or flexible workspaces that can be rented. In this segment there can be made a few differences between these companies and institutes.</p> <p>Companies/institutes who offer flexible work spaces that have:</p> <ol style="list-style-type: none"> 1. Public acces 2. Non public acces <p>Company/institute:</p> <ol style="list-style-type: none"> 1. Offers the room booking service and wants money 2. Offers the room booking service for free.
	<p>Key recourses</p> <p>To start we need:</p> <ol style="list-style-type: none"> 1. Investment 2. Screens, cardholders, boxes, licenses for our product. 3. Software developer, handyman to set itW up, persons who fill/check the system. 4. Office with safe house 5. Verhicle to transfer our product 	<p>Channels</p> <p>There will be a website to sell the product/service system.</p>		
<p>Cost structure</p> <p>The costs:</p> <ol style="list-style-type: none"> 1. Buying the products/producing our product 2. Pay people for setting up the system/advising/checking the system/connect the (student)cards to the system 3. Pay for our building/safe house 4. Creating the software 5. Buy office supplies 		<p>Review structure</p> <p>We will make money by a subscription model with a contract.</p>		

Production of the card reader

The card reader consists of different components. A basis, a backside, screws, LCD-screen, NFC chip and power supply. The main material of the card reader is plastic, polypropylene (PP) and Polyester (PET). There are different ways to produce the design. Think about injection moulding or deep-drawing. The lifespan of this product is very high because we provide a good service, we repair all the broken products. Therefore, injection moulding may be too big and expensive for this product. For this product the best production method will be deep-drawing. Deep-drawing means shaping a board into rigid, hollow shapes, sometimes with several cavities, which is the case in this design. Deep-drawing operations perform mechanical deformation; therefore, the material is relatively strong. The material is first heated in a thermal oven, the material is formed into a plate/sheet. By air pressure the sheet is pulled over a mould. When the deep-drawing is done and the product is cooled down the material has taken the shape of the mould and retains this shape. Our design is very simple, minimalistic. Therefore, deep-drawing is a good solution. Of course, we have taken the needed drafts into account.

The design consists of two parts, the back side and the frontside (basis), which has different cavities. Those two parts are produced apart from each other. We tried to design the reader in such a way, that all the needed materials are simply placed in the product. This will give us, as a company, the ability to easily repair and replace broken components. Nothing is glued together to prevent bad waste separation. The screen and NFC scanner are secured by a click system. When it is broken, SlimBase can easily take the broken part out. The card reader is secured by 4 screws into the table. Those screw connect the backside and the frontside of the reader too. In this way less material is needed for the same strength. It is important to keep all the materials as separated as possible, therefore we combined the different components of the product by using very different materials and other, already existing, products.

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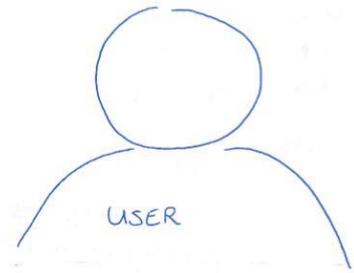
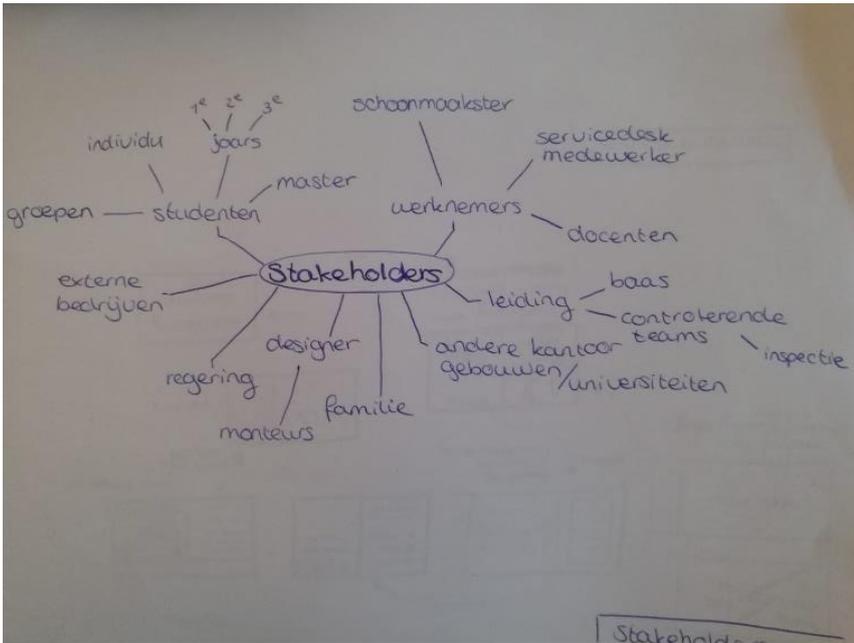
Connection between card reader, station and ID card

Our product service system consists of different products. There are stations in the entrance halls, card readers at the flex spots and ID cards which you must use as a 'key'. The first two products need a power supply. We considered two kinds of power supplies; main current and a battery. For the station, it was immediately clear that we will use main current. This is stable and will have less errors. This is the basis of the product service system and must work properly. Besides this, we also have a card reader, which only need more power than usual when he reads an ID card with the code on it. For this reason, we considered for this product two different options. There are batteries on the market which will last for 2 years, so, this was a serious consideration. A disadvantage will be that all those card readers will not be frequently used in the same way, the reader must be replaced at different moments and you must replace the whole battery. A positive point is that we, as a company, can provide a service during the contract with the client. Second option is to connect the card reader to the main current. This can provide more card readers in one time the perfect amount of power, especially when there are single flex spots. Main current is better for the environment, those batteries does not have to be replaced every time. But more importantly, main current provides an extra feature to our product. Nowadays, there is a lack of charging points in libraries, universities and companies. Everybody wants to charge their laptop, phone and tablet at the same time.

The products will 'communicate' with each other via wifi. At the station the card that is scanned will be given access to the specific workspace. The card readers will connect with a database, the reader will check if the card is registered to the code for the flexible workspace. If that is correct, the reader will communicate with the station that the person has arrived and will block the flexible workspace. After that, if the card is removed and thus not read, the reader will communicate this with the station after 15 minutes so that the flexible workspace can be made available again. If the person has not reserved the table, the reader will not communicate that the space is blocked. This way the place can still be reserved by another person and users are encouraged to reserve the places where they will work.

Trouble shooting guide

A part of our product service system is to provide office supplies. Over time, those products wear off due to the use and environmental influences. We provide the whole experience and therefore we also want to guide the user when products are broken. This because the users can borrow office supplies from our station, so it is our responsibility. We discussed a paper trouble shooting guide and a trouble shooting guide with a QR-code on the product. The paper version was not as effective as we thought. Users lose the paper explanation. Therefore, we made use of the app of our service. Instead of a QR code on the product we developed an augmented reality world. This is part of the app, where users also can book rooms in advance. This will give the office products a cleaner design, and the augmented reality can show exactly what is broken on the product.



- Booking a room
- Cancel reservation
- Overview of occupied rooms + time schedule
- Load key onto your card
- Put key in the holder to open the door
- Take your card out of the holder
- authorise other people to use/open the room

Figure 1: Stakeholders and User

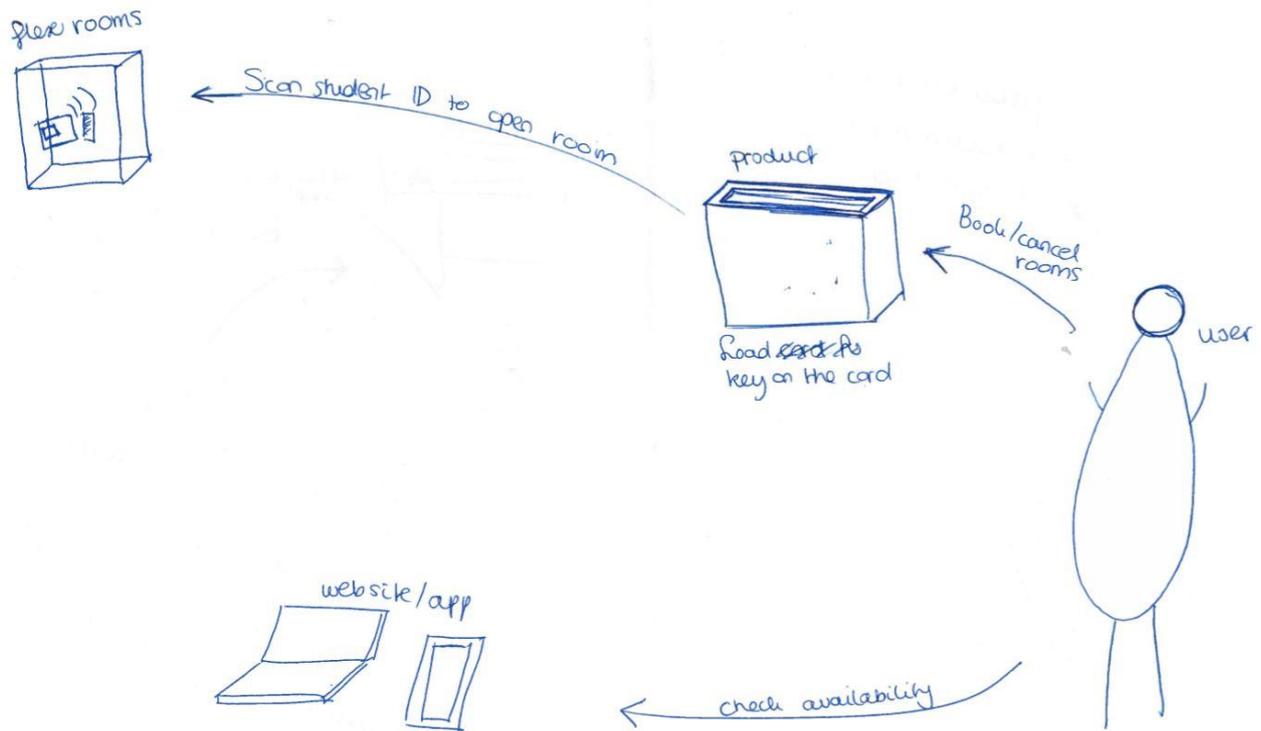


Figure 2: First idea

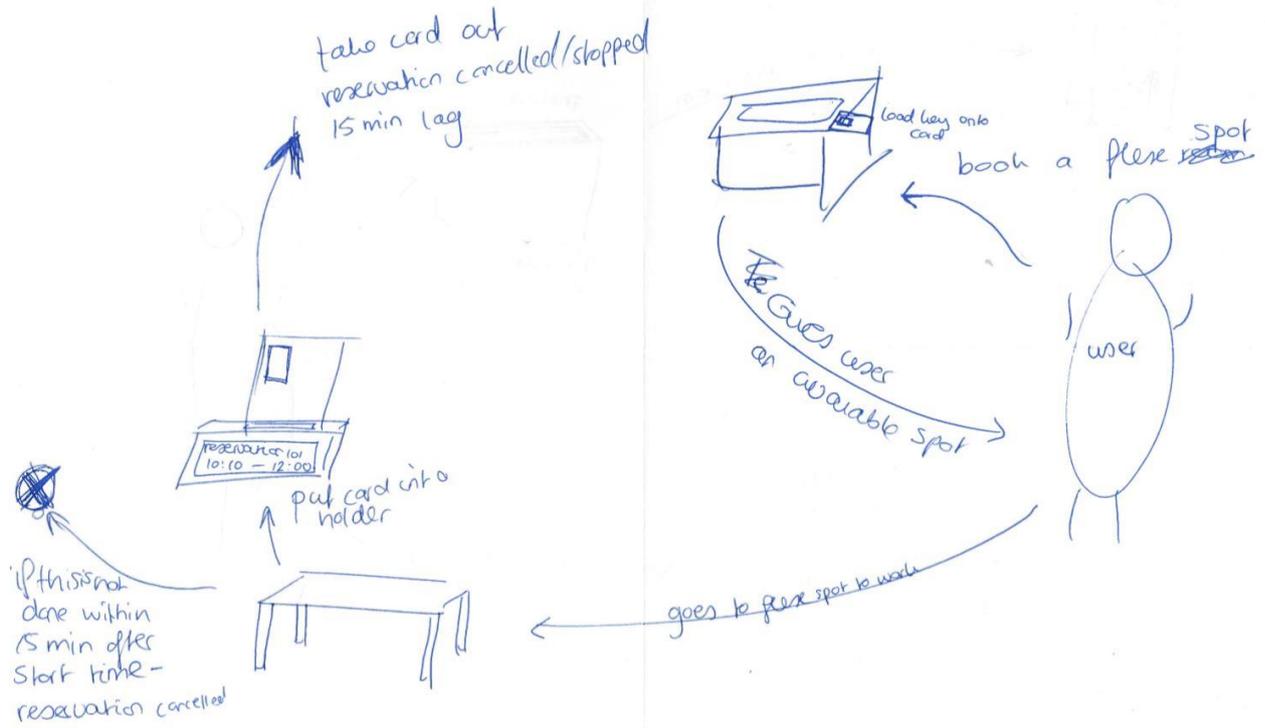
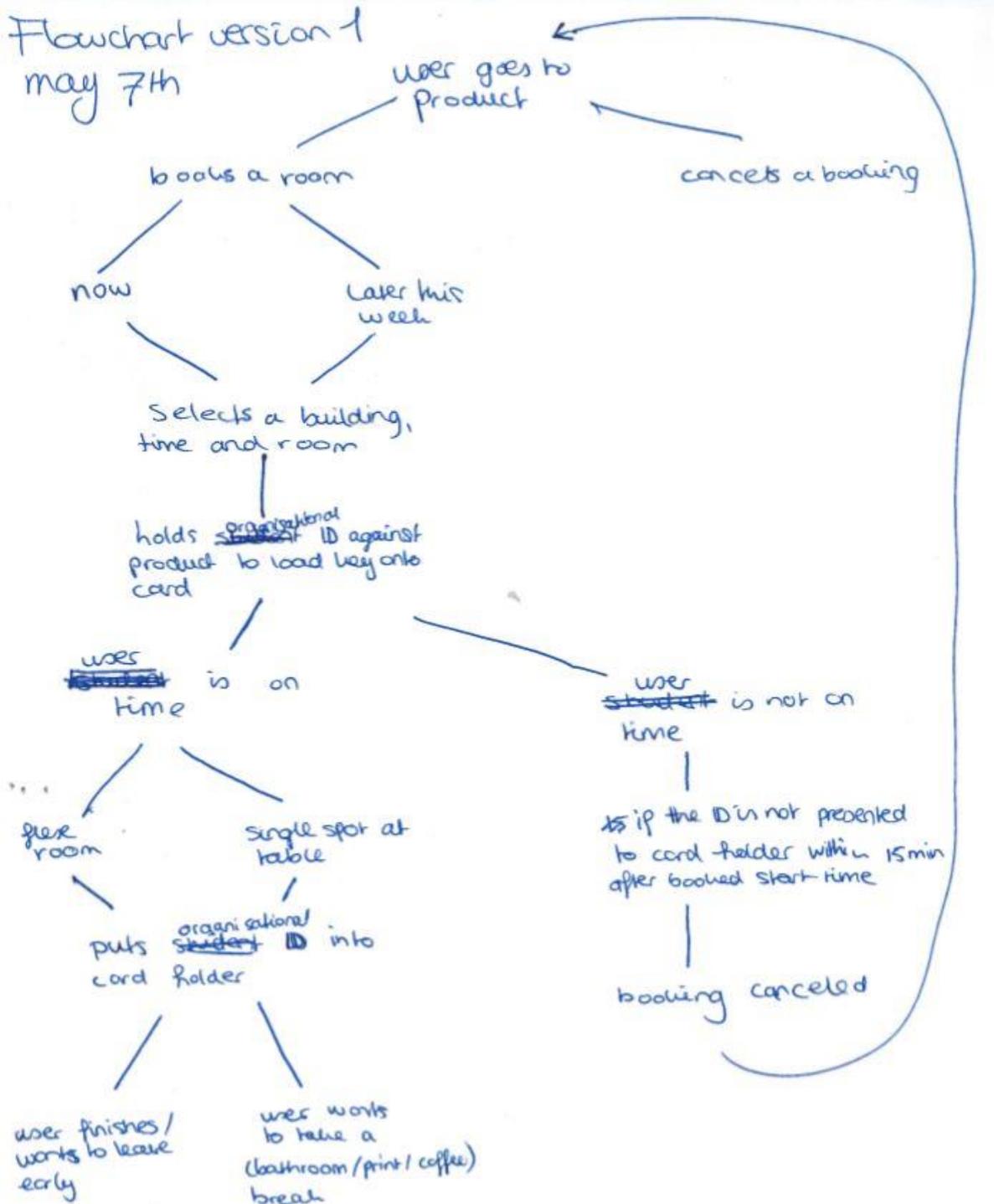


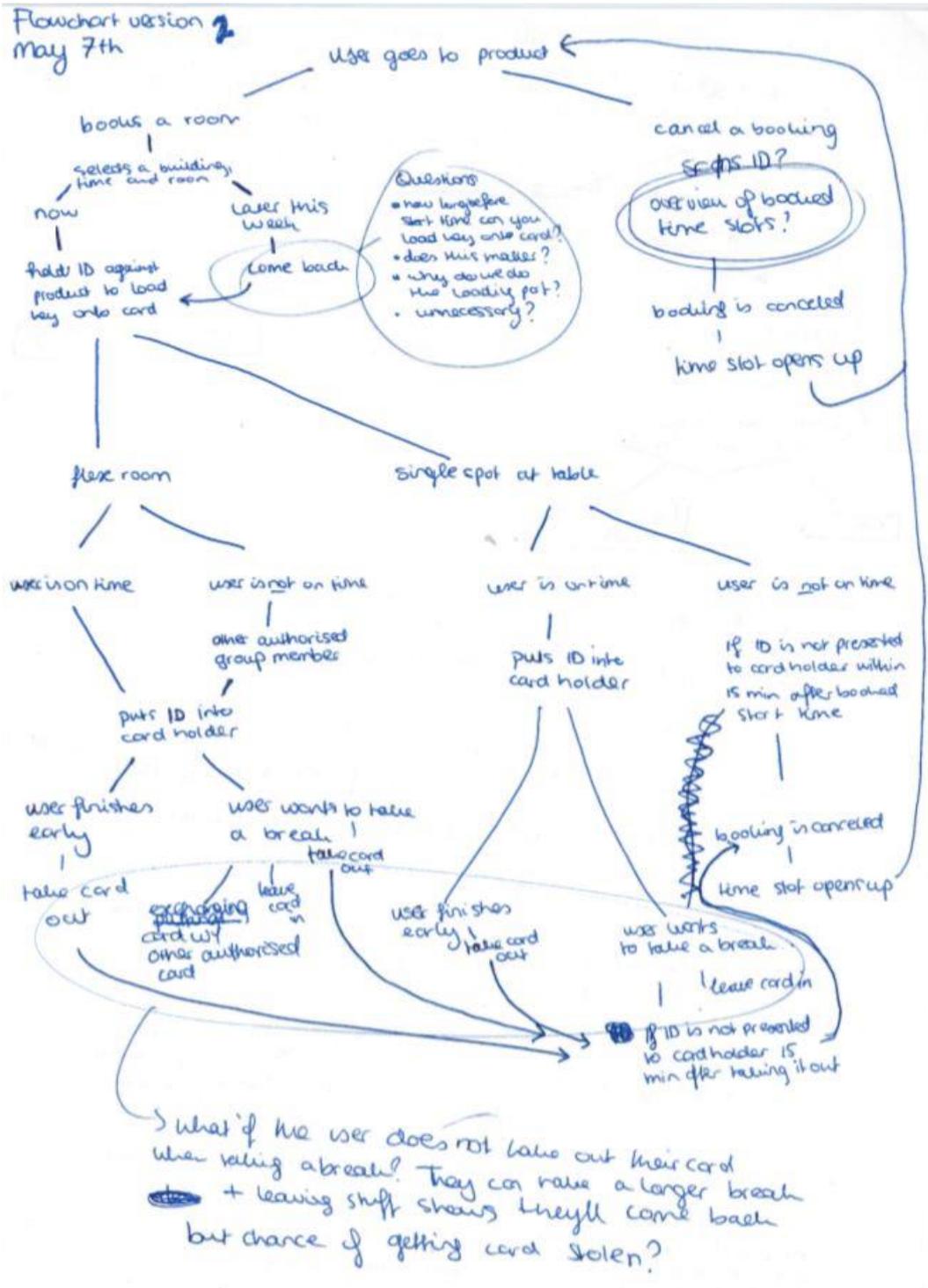
Figure 3: First idea

Product

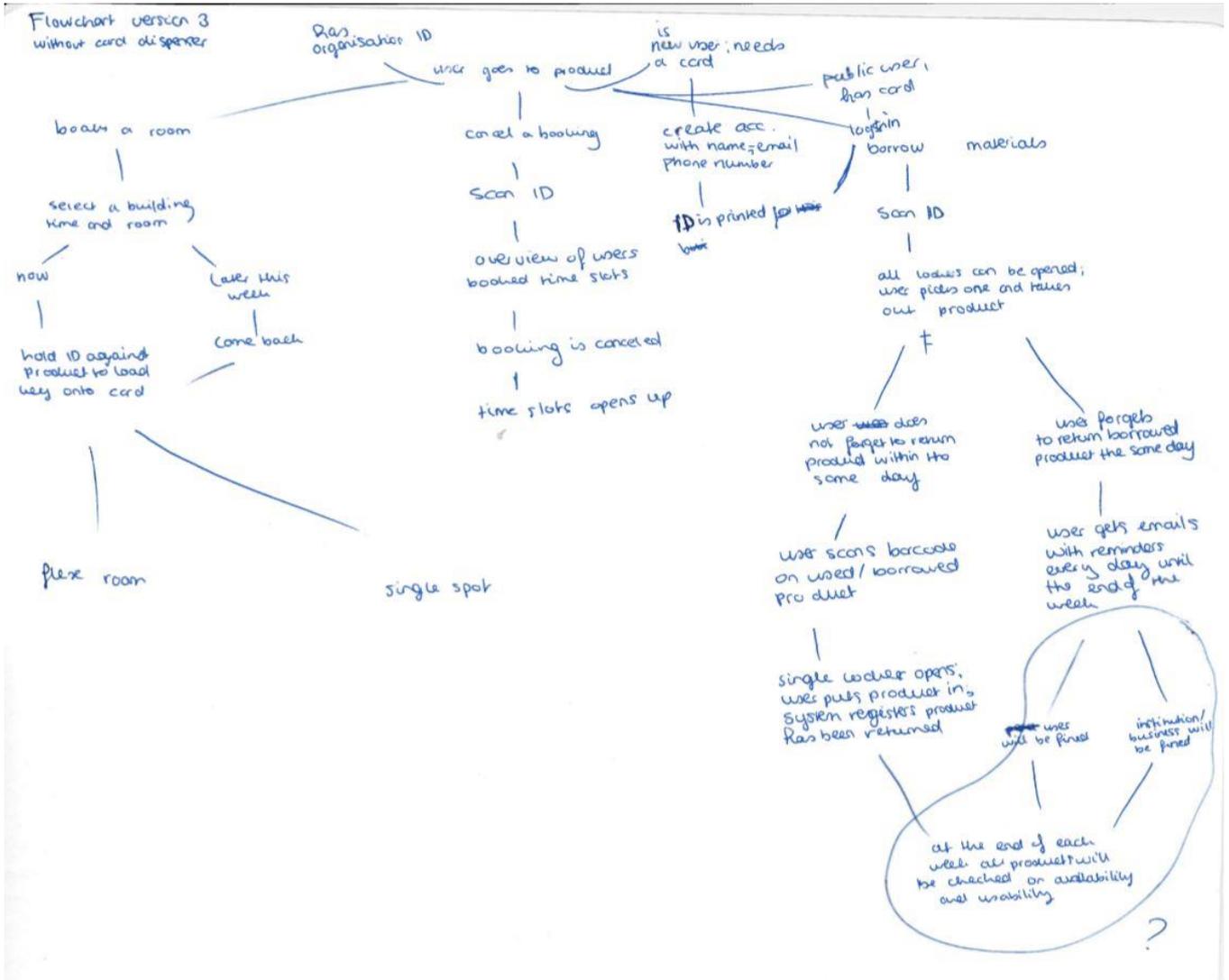
- Consists of:
 - a screen/touch
 - cardholder
 - cardreader
- working principles:
 - checks ██████ key on card
 - ↳ the code / personal card code
 - ↳ if a key is load onto card
 - Loads key onto card
 - register reservations
 - ↳ locks those time slots
 - register cancellation
 - loads key onto card
 - checks if the booked rooms are used on time
 - ↳ gives penalty when student is too late or don't show up.

Figure 4: Product needs

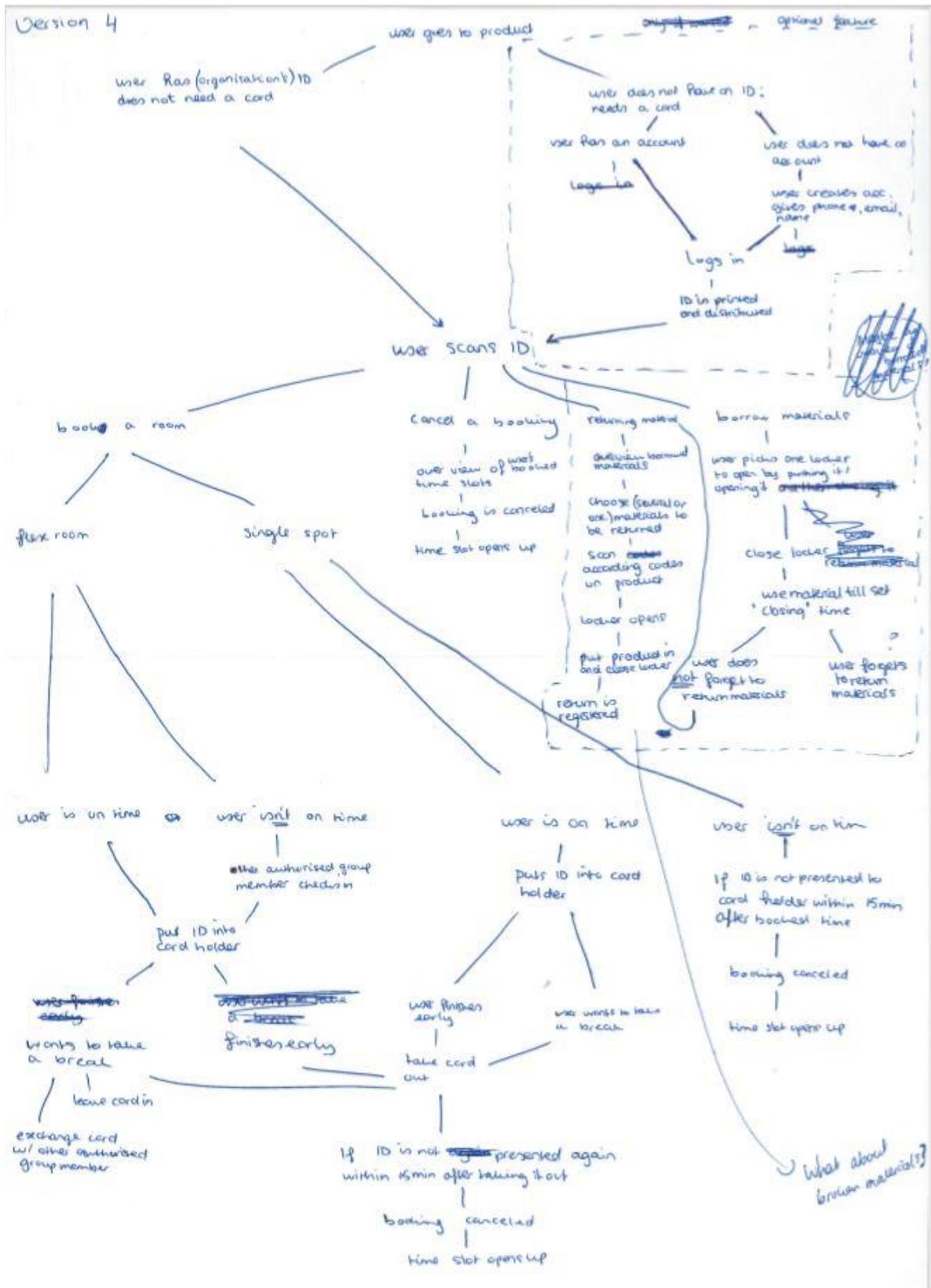




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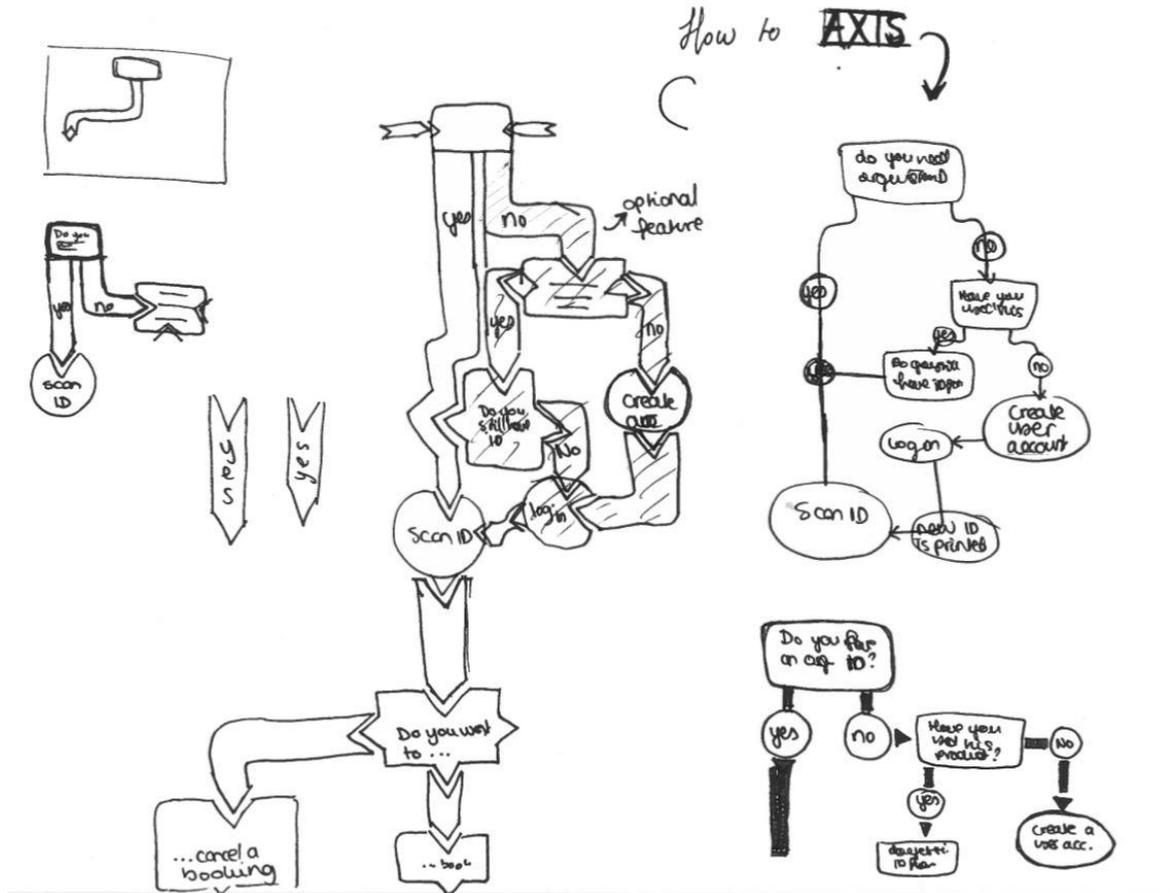
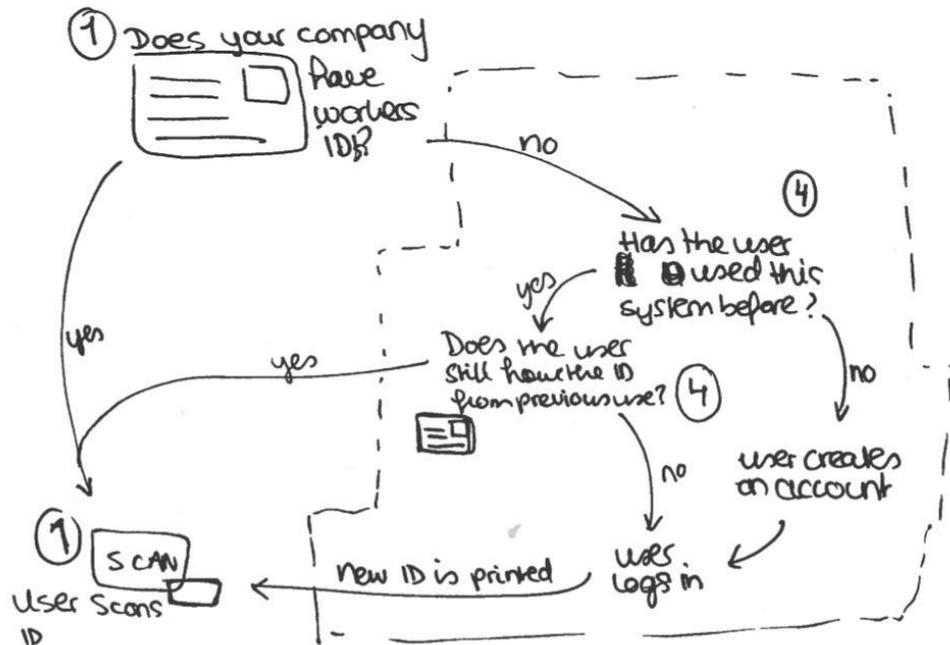


Figure 5: Infographics



Rookinas
Figure 4: Infographics

Materials

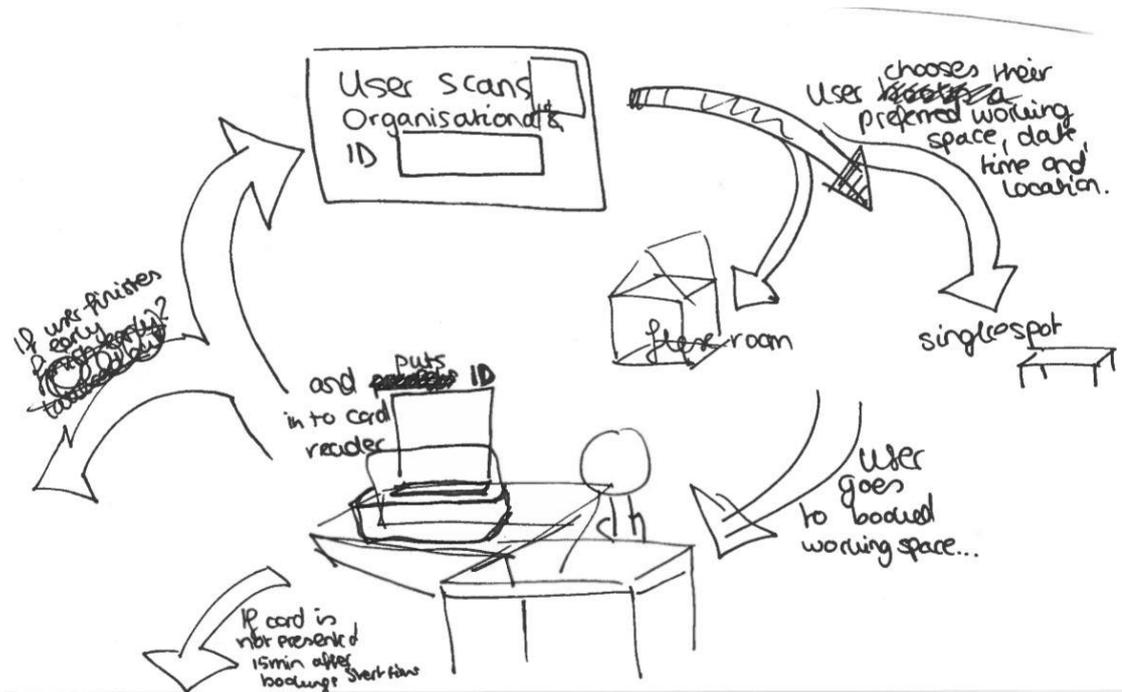


Figure 7: Infographics

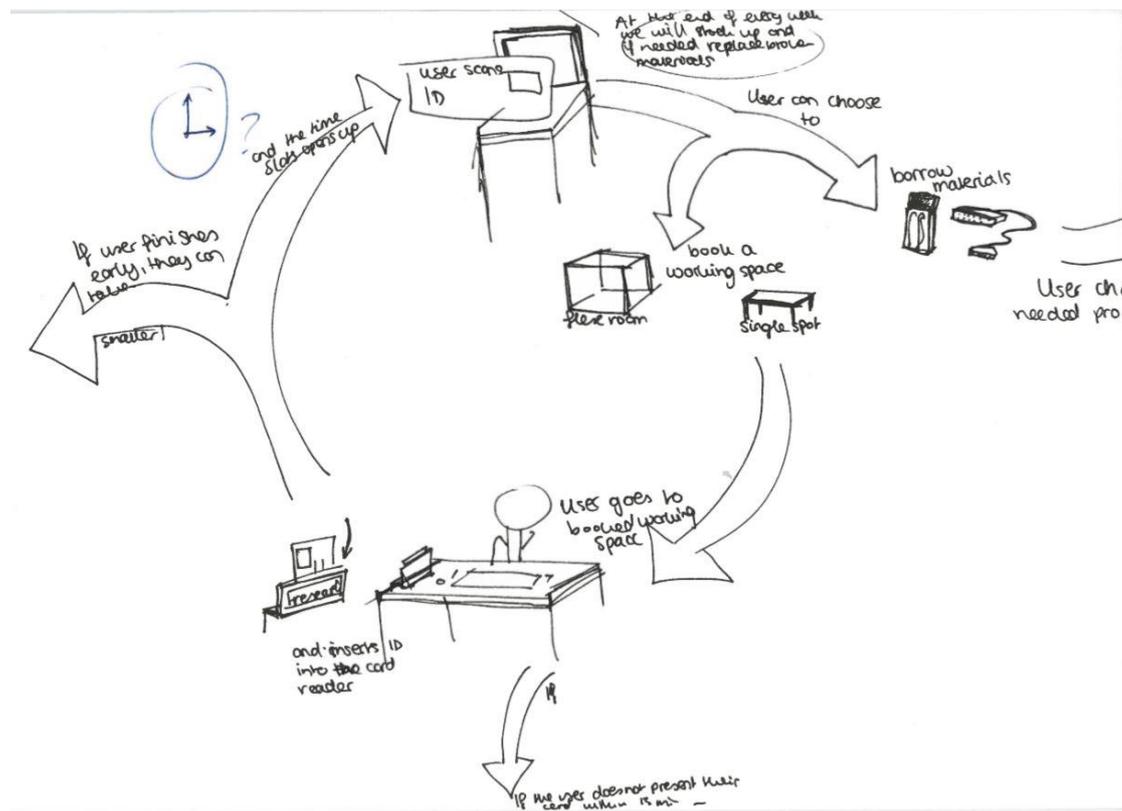


Figure 6: Infographics

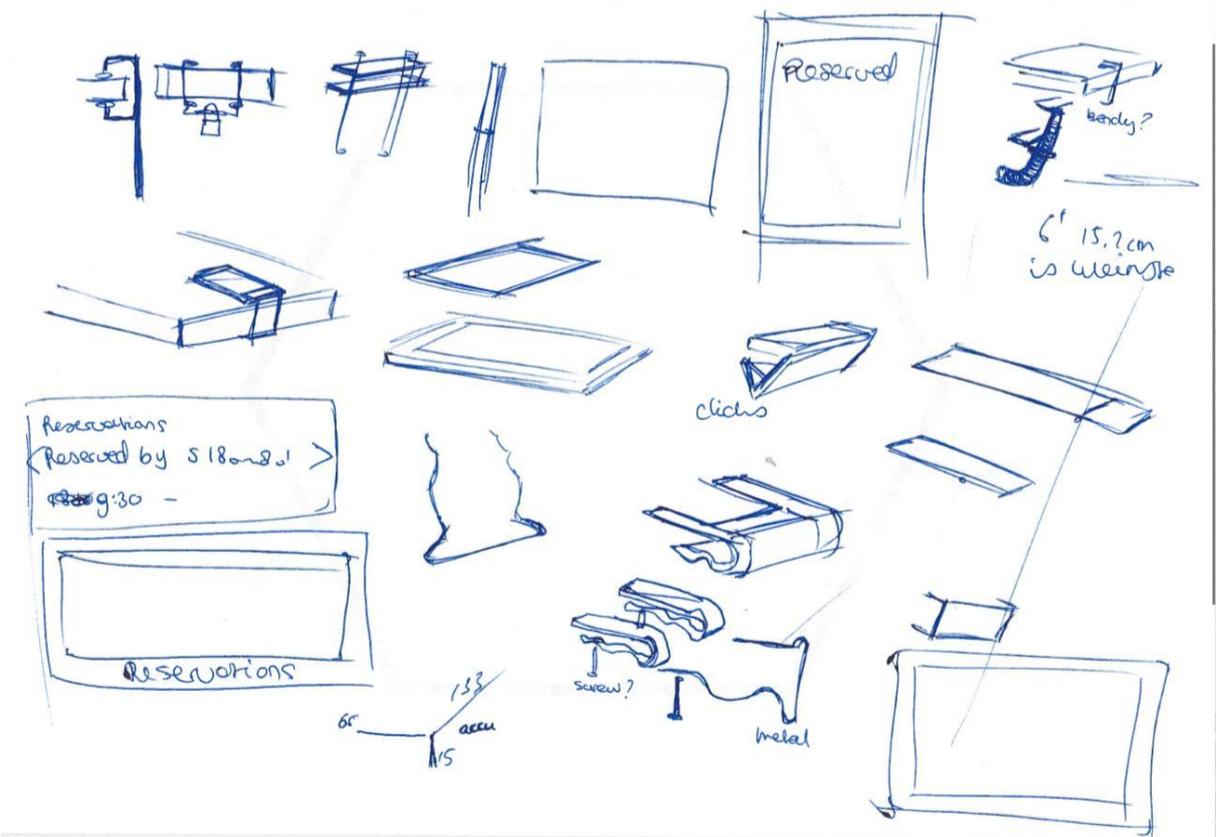


Figure 14: Sketch reader

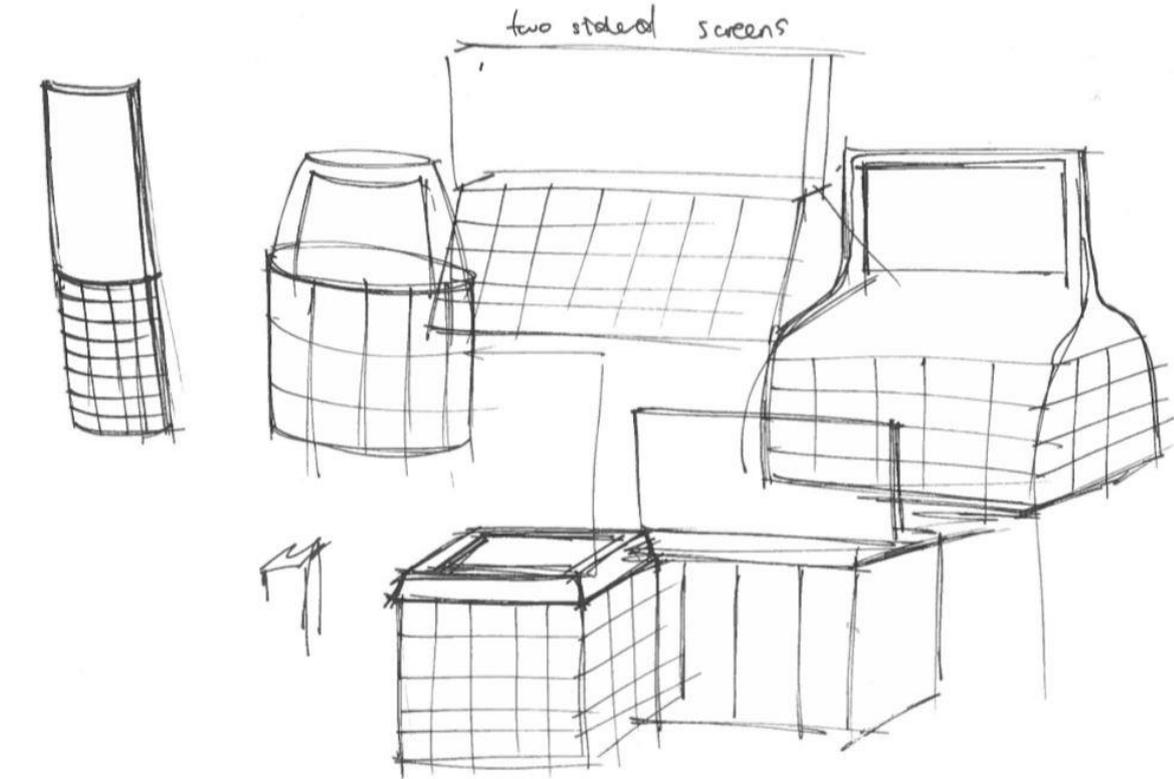


Figure 15: Sketch station

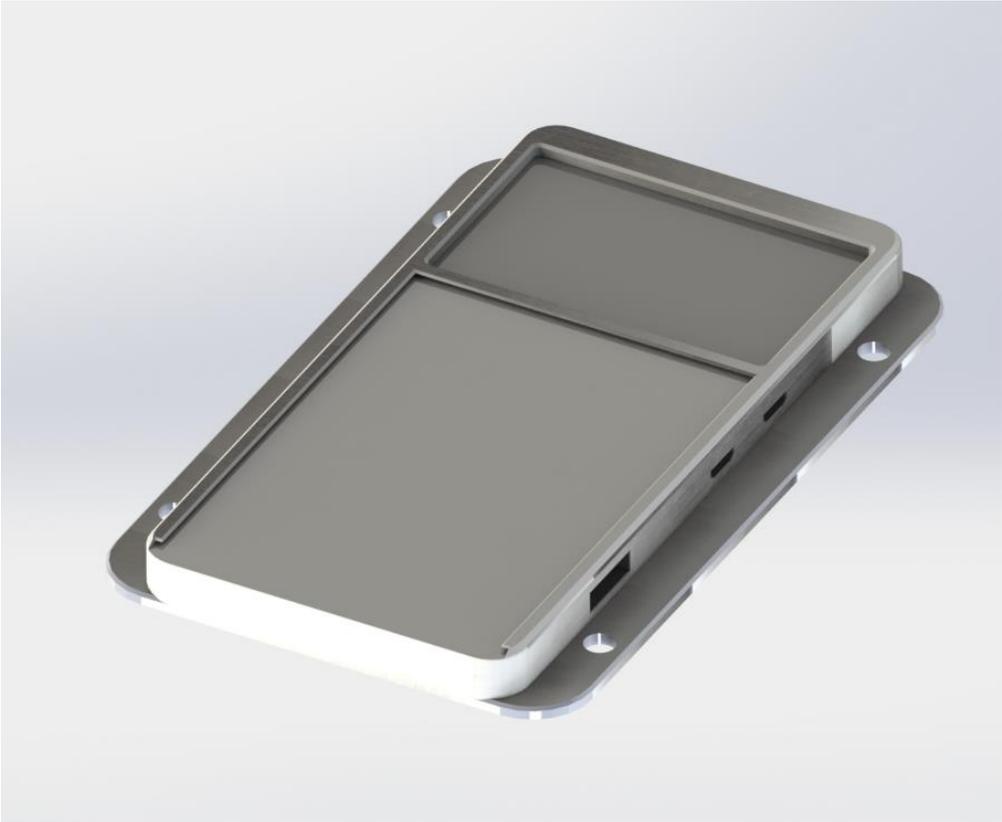


Figure 16: Render card reader