

WORKSHEETS

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Worksheet name: Interview with Mikkel Rodkjær (Profox)	Worksheet no: 1
Date for data: 11-02-2016	Date: 11-02-2016
Responsible: AJ & ML	Group 9:

OBJECTIVE:

The objective was to gain information about the handling of event equipment pertaining flight cases in a small firm (Profox).

EXPERIMENT/DATA:

The interviewee, Mikkel Rodkjær, is a partner in Profox APS, a LPC (Live Production Company). The interview consisted of a semi structured interview without a specific set of questions but with the aim of finding problems or potentials with the management of inventory pertaining flightcases:

They rent out a lot of stuff and managing what is rented out and to whom and what is in stock would be impossible without the Easyjob software, an inventory management system. "I have no inventory or stock in my head any longer, everything is in Easyjob. This of course makes us a bit vulnerable if Easyjob is hacked". He then showed us the Easyjob program and the functions he uses:

- The main function is a calendar with bookings/jobs, and an overview of all the products that can be assigned to each job.
 - Creating a packaging list, for managing what to pack in the lorries.
 - Invoices to the clients
 - An overview of what equipment is available and when. Easyjob also contains functions that the company don't or rarely uses:
 - Setting up "packages", so they remember the right cables for certain equipment.
 - A repair section with products that need service.
 - Tracking where the equipment has been on job.
 - ROI (return of investment) on each equipment.
 - Weight and size of equipment.
 - Hourly consumption for personnel, transport and so on.
- Lastly he tells us that it is important to note that when they buy a software package like easyjob, there is a lot of man work needed in order to get the system up and running and maintaining it.
- He mentions that they have a problems with cables, which in this industry are fairly expensive. The cables are often lost or forgot when uninstalling the equipment at an event, often due to being mixed up with cables from other LPC's working on site, and they see this as a big problem. A cable cost from 200 DKK and up and most

are custom made by Profox themselves hence expensive man-hours. They use a lot of time marking their cables with color coding both to better manage the many different sizes but also to better recognize them so that they ensure to get every cable back home.

- He showed us that they use tour labels, A5, which are mounted on the flightcase either in a steel well (which is in a hole that is cut into the flightcase) or as a 5 mm plastic sheet that is glued onto. They use them often, and to specify what the contents are and to which customer they are intended.
- They do not check the equipment before right before it is shipped. (Vi får ikke tjekket udstyret, om det er funktionelt og har det indhold der står flighten har, når det kommer hjem, før lige inden det kommer afsted igen
- He told that they had considered a barcode system, with electronic tools to register products e.g. when packing a lorry but that they found it too expensive considering the value it would give them. He told us that the easytool Scanner and the easytool Barcode-printer would cost about 30.000 DKK.
- He was very fond of the technology that one of their warehouse neighbours, bricklayer, uses, which is RFID. They use RFID technology to track and manage deliveries going out of the warehouse, so if customers complains about something not being delivered, they can easily check who and when it is shipped so they can always document that they have shipped it.
- They sometimes have a hard time recognizing their flightcases when out on a festival with a lot of other LPC's with their flightcases, especially if the festival management's logistics is not optimal.
- The unmounting process is often done at night where all equipment is black, which can be good for hiding the equipment in the show, but bad for when the equipment has to be found and identified.

EVALUATION:

We learned that the biggest problem is not the flightcases themselves, but the management of them and the equipment. We learned that the barcode system is not as cheap as we thought, and the cost-benefit is actually holding Profox from buying it.

REFLECTION:

We need to further research the specific process of loading equipment from stock and into a lorry to identify improper processes and the reactions from the employees.

We need to validate if other rental companies experience the same problems as Profox.

Tour labels and their use should be also be investigated.

Worksheet name: Equipment analysis	Worksheet no: 2
Date for data: 11-02-2016	Date: 23-02-2016
Responsible: AJ & ML	Group 9:

OBJECTIVE:

The objective was investigate the various kinds of flightcases and equipment.

By looking and sellers and manufactures of tour labels, house boxes and cable ties, we can get an idea of:

- What people are willing to pay for them, (how necessary are they?)
- How are people using them? (how good or bad are they?)
- How big is the market? (Is it a stable market without price fluctuations?)

EXPERIMENT/DATA:

Flight cases:

An online search shows that there are multiple kinds of flightcases:

Normal flightcases:

Standard sized and various modular constructions such as shown in picture 2 and 3.

Customized flightcases:

Flightcases are to a high degree customized to contain various equipment such as large speakers or monitors, as seen in picture 4.

Briefcase flightcases:

Small briefcases often with an aluminium frame which contain small things such as wireless equipment or tools.



1. Picture



2. Picture



3. Picture



4. Picture

Houseboxes:

An online search shows the following pictures among other found:



These pictures combined with the interview with Mikkel, Frank and Stefan give us an understanding of what the house box's purpose is:

A house box, as shown above, is primarily used for packing cables. The interior can be spatially divided with either wooden plates or boxes with or without steel frames, in order to contain many different kinds of cables. The housebox comes in sizes that range from 47x60x40 to 60x125x60 (HxBxD) with the **standard size of**. The price range is from 1.000 to 10.000 DKK depending on the quality and size and they weigh from 5kg to 25kg. The house boxes are a standard flightcase but there is still the possibility of customizing it.

http://www.thomann.de/gb/thon_cases.html

<http://www.theflightcasecompany.com/>

<http://www.amptown-cases.de/?lang=en>

Tour labels:

A online search, shows following pictures among other found. (mangler billeder)



These pictures combined with the interview with Mikkel and Frank give us a understanding of what the tour labels purpose is:

A tour label, as shown above is used when managing and packing for an production/event or job. A label with a table with different fields that a fill out with a magic marker, which only can be removed with alcohol.

The table can be different from production company to production company, but always, the label have "production name", "content of the box" "date" "number" and a logo mounting space is on the label.

Other have fields and space for:

Weight, Dimensions, Checked by, etc.

Custom designed labels are also available.

So called dishes, or mounting plates for the label to be mounting are also available online.

The search online reveals more than 20 companys customizing and selling tourlabels, tourlabel dishes, etc. The pricing is investigated for a small tour label, and label dish.

Denmark:

<http://www.flightcaselabels.dk/customlabels.php> 10 - 25 DKK

<http://www.arteq.dk/adam-hall-tour-label.html> Label 50 DKK, Dish 70 DKK

Standard small sized label

From 10 DKK to 50 DKK a piece, dependent on Quantity, and custom print vs standard print.

Standard small sized dish

Worldwide:

<https://www.accesseventsolutions.com/re-usable-tour-case-labels>

http://www.adamhall.com/en/ah_Hardware_Tour_Label_-_Tour_Label_plastic_white_self-adhesive.html - 55 DKK

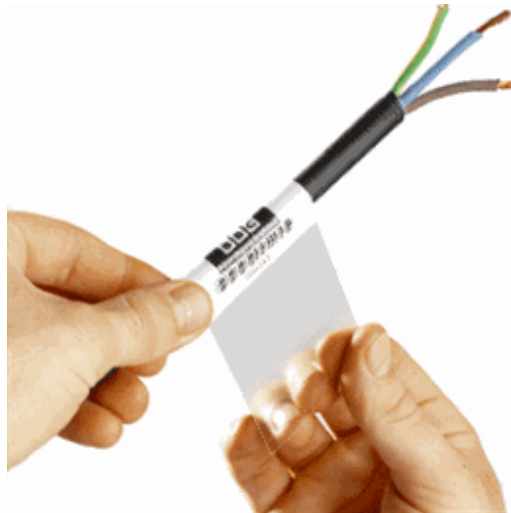
http://www.flightcasehardware.co.uk/index.php?route=product/category&path=60_102_103 - 20 DKK (dish 30 DKK)

Cable ties:

An online search shows the following pictures among other found:



5. Picture



7. Picture



6. Picture



8. Picture

These pictures combined with the interview with Mikkel, Frank and Stefan give us an understanding of what kind of cable ties there are and what their purpose is:

Picture 1: Plastic cable strips, which have modular elements which can be replaced or rearranged. The information is carried through single numbers or letters represented by each module and relate to various information such as service information. The cable strip is a standard component hence it come in endless sizes and shapes and at a very low price.

<http://www.hellermannntyton.com/site/competences/cable-ties-and-fixings>

Picture 2: Velcro bands, primarily used for holding the cable together once it has been rolled up circularly. The velcro band is a standard component hence it come in endless sizes and shapes and at a low price.

<https://www.trtools.co.uk/collections/hook-loop-products>

Picture 3: Tape which is a standard component and it is also a DIY material. It has a weak spot in it's potentially short life cycle depending on how well it was applied and how rough the surroundings were. There is a large flexibility in terms of carrying information hence it contains both logos and barcodes etc. and though it is limited by small diameter cables. Mangler kilde

Picture 4: Heat shrink cable labels which are applied using heat and have a maximum diameter of 22 cm. <https://www.heatshrink.com/>. There is a lot of flexibility in terms how the information is carried and it is only by small diameter cables. It is not easy to do hence it is mostly done by the producer.

The LPC's already mark their cables themselves in various ways for various reasons. Often they use both colored tape, velcro band and plastic cable strips. Billede fra profox and sound and light

Extra henvisninger:

<http://www.theflightcasecompany.com/>

<http://www.amptown-cases.de/?lang=en>

EVALUATION:

The small investigation showed that:

Tour Labels is a worldwide phenomenon

It is important tool in management

It is very low tech, and manual. (could be time consuming)

Acquiring labels and labels dishes is pricy and will be minimum of 100 DKK each.

We also learned that house boxes are standard equipment though it comes in various qualities and customizations, but that in general they are pricy and quality equipment.

We also learned that the LPC's mark their cables themselves and that cable ties comes in a wide range of varieties and can often be customized at a relatively low price.

REFLECTION:

Quantitative research on the labels may need to be investigated.

Making a smarter tour label seems like a potential "solution"

Other small simple strategies can be

There is a high flexibility in altering the flight cases since it is primarily wooden plates hence a high flexibility in integrating a wireless device - we need to investigate how much space is left over after the various flightcases has been packed.

The combination of various apply and information carrying methods is relevant for an create research in combination with NFC tags.

Worksheet name: Research on inventory management trends	Worksheet no: 3
Date for data: 12-02-2016	Date: 15-02-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to gain information about the emerging trends of inventory management through a desktop research.

EXPERIMENT/DATA:

- Lowe's in Gaithersburg has about 25 mobile devices outfitted with store applications that allow employees to ring up sales, view competitors prices and track inventory without leaving a customer's side. They don't need to go to a computer kiosk, checking the stock room or calling other stores in the area. Wallace from Lowe says "A lot of customers are impressed that we're able to use the phone to scan something on the shelf and find out the quantity".

https://www.washingtonpost.com/business/capitalbusiness/retailers-using-high-tech-solutions-to-manage-inventory/2012/06/15/gJQAfFdqjV_story.html

- The US military has always had a challenge in keeping track of supplies and equipment around the world. In World War 2 the US Army kept track using IBM punch cards and electric accounting machines (EAMs) but today RFID tags have replaced punch cards and RFID readers and computers have replaced the EAMs. According to the DoD (Department of Defense) there are 3 main applications for RFID technology: Supply chain management, asset tracking and security. The benefits are according to the DoD:

- Improved inventory management
- Improved labour productivity
- Elimination of duplicate orders
- Replacement of manual procedures
- Automate receipt and acceptance
- Improved inventory and shipment visibility and management
- Enhanced business processes within the DoD
- Improved asset tracking

<http://www.defenseindustrydaily.com/rfid-technology-keeping-track-of-dods-stuff-05816/>

- The U.S. Army's Automated Identification and Movement Solutions (AMIS) division, created an enhanced Parachute Tracking System (ePTS) that employs RFID to provide end-to-end, verifiable chain-of-custody accountability, traceability of a new family of personal parachute systems in support of global military operations. They can now view and manage main and reserve parachute processes, such as warehousing, inventory, packing, shipping, jumping and recovery.

<https://www.rfidjournal.com/purchase-access?type=Article&id=12046&r=%2Farticles%2Fview%3F12046>

Worksheet name: Research on inventory management trends	Worksheet no: 3
Date for data: 12-02-2016	Date: 15-02-2016
Responsible: Anders Jelle	Group 9:

- Electronic shelf labels are starting to get adopted into danish supermarkets such as Superbest. The E-paper technology is getting cheaper hence the ROI is getting faster, and at the same time the supermarkets are heightening their customer service and saving man-hours. The electronic shelf labels are connected wirelessly through an infrared transceiver which has multiple benefits:

- Dynamic pricing, offers and product information
- Increased profits
- Reduced operating costs
- Improved customer experience with better customer services
- A benefit to your employees
- Secured a 100 % price line
- Removed price complaints and more peace at checkout

When there are price corrections, text changes or campaigns you print out a new paper shelf label and you go out and exchange it manually by the product. With electronic shelf labels there are no time consuming manual labor process, due to the product management system automatically sending the information to the electronic shelf label.

When price corrections, text changes or promotions print today a new paper shelf labels and go out and change it in the product. But with electronic shelf labels, you avoid the time-consuming manual work process, because the product management system automatically sends the information out to the electronic shelf labels .

<http://eg.dk/brancher/detail-engros/mode-bolig-og-livsstil/andre-loesninger/butiksdrift/elektroniske-hyldeforkanter>
<http://eg.dk/brancher/detail-engros/foedevare-og-andre-dagligvarer/kundecases/s-aa/superbest-esl>

- The danish grocery business group Coop Denmark are inclined towards digitalization of supermarkets. They predict that in the future the shopping cart itself scans the goods through the use of RFID chips on the goods and a reader in the shopping cart, and then you just pay at the checkout without having to scan the goods again.

<http://www.sondagsavisen.dk/testogindkob/2015-02-05-sadan-bliver-fremtidens-indkobstur/>

EVALUATION:

We learned that wireless mobility are keywords in new inventory management. Lowe’s showed us that hand terminals are outdated and that smartphones are capable of running software normally used for hand terminals. We also learned that NFC technology is a growing trend which is perfect for a business where you have high quality and long lifetime assets. E-labels are soon to be fully adopted at various retailers and that they are especially good at solutions where you need to change information often and to a lot of instances at a time. We also found that scanning a large amount of NFC chips in one place is a vision of future retail processes.

REFLECTION:

We need to investigate the possibility of operating various wireless chip technologies from a smartphone. We need to search for companies who uses NFC technology to a high degree and to see how they use it. We also need to research the price, features and potential pitfalls of using e-labels.

Worksheet name: Rental software products (RSP) analysis	Worksheet no: 4
Date for data: 24-02-2016	Date: 24-02-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to gain information about various RSP systems and compare features and price with those of Easyjob to see if there is a state of the art system.

EXPERIMENT/DATA:

Capterra.com compares various rental software products based on prices, features, support, deployment and the possibility of training. According to Capterra.com the best program is EZRentOut, after that comes Point-of-Rental and far down the list comes EasyJob.

Easyjob:

Easyjob is a program which is installed though they also have an app based system.

Price (free trial):

- Easyjob 6S - Express = No lump sum but 3.700 DKK annually (Silver support)
- Easyjob 6M - Lump sum of 22.000 DKK and 2.200 DKK or 9.500 DKK annually (Silver and Gold support respectively)
- Easyjob 6L - Lump sum of 40.000 DKK and 4.500 DKK or 12.500 DKK (Silver and Gold support respectively)
- Easyjob 6XL - Lump sum of 90.000 DKK and 4.500 or 12.000 annually (Silver or Gold support respectively.)
- Easyjob also provides barcode printers (5.600 DKK) and barcode terminals (start at 17.000 DKK).

Deployment:

- Installed
- Mobile

Support:

- Business Hours

Features:

- Customer database
- Equipment rental
- Inventory management
- Late fee calculation
- Maintenance management
- Multi-location
- Reservations management
- Scheduling
- Short/Long term rental

<http://www.protonic-software.com/en/easyjob/>

EZRentOut:

EZRentOut is an app based program.

Price (free trial):

- Lowest: Standard = No lump sum but 4.000 DKK annually and 2.000 DKK pr. user annually.
- Highest: Premium = No lump sum but 18.000 DKK annually and 3.600 DKK pr. user annually.

Deployment:

- Mobile
- Web based

Training:

- Documentation
- Webinars
- Live Online

Support:

- Online
- Business Hours

Features:

- Contract management
- Customer database
- Equipment rental
- Inspection management
- Inventory management
- Late fee calculation
- Maintenance management
- Medical equipment rental
- Multi-location
- Online booking
- Rate management
- Real estate rental
- Recurring rentals
- Reservations management
- Scheduling
- Short/Long term rental

<http://www.capterra.com/rental-software/spotlight/134914/EZRentOut/EZRentOut>

<http://www.ezrentout.com/pricing>

Point-of-Rental:

Point-of-Rental is both an app- and web based program which can also be installed.

Price (free trial):

There are only fixed prices for the RentalEssentials, but you need to write to point-of-rental to get a quote for the RentalExpert and RentalElite systems.

- Lowest: Basic = No lump sum but 4.000 DKK annually and only one user and 50 new contracts monthly.
- Highest: Premium = No lump sum but 16.000 DKK annually and only 10 users.

Deployment:

- Installed
- Mobile
- Web based

Training:

- Documentation
- Webinars
- Live Online
- In person

Support:

Business Hours

24/7 (Live Rep)

Features:

- Contract management
- Customer database
- Equipment rental
- Inspection management
- Inventory management
- Late fee calculation
- Maintenance management
- Medical equipment rental
- Multi-location
- Online booking
- Rate management
- Recurring rentals
- Reservations management
- Scheduling
- Short/Long term rental

<http://www.capterra.com/rental-software/spotlight/134914/EZRentOut/EZRentOut>

EVALUATION:

It is relatively hard to compare the prices due to the missing information from Point-of-Rental but in general it can be seen that Easyjob is the cheapest if the firm has a growing amount of users. The Essentials system with P-O-R has a limit in users. Both P.O.R and EZRentOut has more features than Easyjob such as contract management and inspection management but Easyjob has the possibility of customizing operating procedures or processes. Easyjob is the only firm that directly offers tools such as scanners on their website.

REFLECTION:

We need to further research the use of barcode scanners to assess if the relatively high price is rational compared to the value it gives.
We also need to investigate if the requirement specification is aligned with the features of Easyjob.

Worksheet name: Interview with Frank Søndergaard (Sound and Light)	Worksheet no: 5
Date for data: 15-02-2016	Date: 15-02-2016
Responsible: AJ & ML	Group 9:

OBJECTIVE:

The objective was to gain information about the handling of event equipment pertaining flight cases in a small firm (Sound and Light). Based on the interview with Profox we specifically wanted to know about the management system and to try and quantify the amount and size of jobs and resources spent on them.

EXPERIMENT/DATA:

The interviewee, Frank Søndergaard, is a partner in Sound and Light APS, a Live Production Company LPC. The interview consisted of a semi structured interview with various questions prepared beforehand which are the following:

1. How many employees do you have?
2. Which system (both physically and digitally) do you use to manage inventory?
3. How many resources do you use on jobs/events?
4. How many events do you approximately do in a year?
5. How many large jobs/events do you have every year and how big are they?
6. Do have any problems pertaining the existing system?

Answers:

1. 7.
2. We use Easyjob, along with all the products being barcode registered, but we don't have the equipment for scanning since we find it too expensive. We then have men to fill up the flightcases and to load the lorry through the use of packing slips.
3. We usually send 3-4 or four men, including one responsible, installing on every job. We also have around 3-4 men to maintain the warehouse and shipments.
4. Around 700.
5. Around 20-25 which fill up about 2 lorries.
6. He found the management of equipment cost inefficient, due to the fact that they were still using packing slips. He wanted an automated system, so he did not even need to register every product with e.g. a barcode scanner.

They often have freelance workers when demounting/uninstalling the equipment on site, but the freelancers have very little knowledge of which and where to put the various equipment, so they either pack it wrong or need to ask the person in charge. When there are a lot of projects running they see that someone circumvents the system pertaining the packing lists - if someone has forgotten equipment on the packing list, they tend to just add the equipment without updating the list in easyjob or consulting someone else. This creates a mess in the inventory management, because equipment can be seen as in stock, but can still be missing due to being on a job.

Besides the questions we talked loosely about the inventory management:

- When they get a 'job' they have project manager who uses Easyjob to mark which equipment they need, then print out the packing slip and then they pick out the products in the warehouse. They then mark when they have picked a product on the packing slip, but they would like to use barcodes so they can just register how much of the list has been picked, if they need anything or so that they can change the picked amount of a product on the go. They use the same process when the products get back from a job, and it is their assurance of getting everything back from the job. They then count the products once a year where they can see that they are missing e.g. 30 cables, which would then need to be produced.
- To integrate one barcode scanner into their system, where all products are already barcode marked, it would cost about 20-25.000 DKK.

- They have around several hundreds of different cables, 2-300 flight cases and about 10.000 items.
- They have been reluctant to upgrade their barcode system due to the fact that for many years they have been hoping for a more automated solution and because they cannot see that much value in the system, due to them still having to scan and register the equipment manually on a terminal.
- They also wish that they could sometimes track their flight cases when e.g. a customer calls saying that they have not received the equipment, and it is sent through Danske Fragtmænd, then they need to track and trace the shipment, where they could easily see the location of the flightcase if it could be located through GPS.
- About 30% of shipments are shipped using transportation firms such as Danske Fragtmænd A/S.

EVALUATION:

We learned and confirmed that Sound and Light have the same problems with inventory- and rental management as Profox. They both consider an upgrade of the barcode system but are reluctant due to the low cost-benefit but also that other emerging technologies might set a new standard.

REFLECTION:

We need to further research the specific process of loading equipment from stock and into a lorry to identify improper processes and the reactions from the employees. We also need to validate if bigger rental companies experience the same problems as Profox and Sound and Light.

Worksheet name: Interview with Stefan Jensen (Nordic Rentals)	Worksheet no: 6
Date for data: 18-02-2016	Date: 19-02-2016
Responsible: AJ & ML	Group 9:

OBJECTIVE:

The objective was to gain information about the handling of event equipment pertaining flight cases in a large firm (Nordic Rentals).

EXPERIMENT/DATA:

The interviewee, Stefan Jensen, is responsible for inventory at Nordic Rentals, a LPC, in Løsning. The interview consisted of a qualitative dialog with various questions prepared beforehand which are the following:

1. Which system (both physically and digitally) do you use to manage inventory?
 - Is there any immediate problems with related to those processes?
 - How often do you experience mistakes and what kind of mistakes happen?
2. Are there any immediate problems relating to loading or unloading lorries?
 - What causes the problem?
 - How do you register the flightcases in the lorry?
3. How do you use tour labels?
4. How often do you buy flightcases and from where?
 - Do you have any preferences?
5. How do you pack cables?
6. Do you use freelancers?

Answers:

1. They use Protonics Easyjob for inventory management and they use packing lists for packing. They have the latest update, the 6.th, which they gave about 80.000 for, but they have not implemented barcode scanners yet. They are getting ready to use the scanners, and they will need 10 scanners that cost around 10.000 DKK each. They are aiming for a paperless warehouse in 2017. All equipment is barcode marked but not the cables.
 - There is a lot of paperwork relating to it and we need to cross of packing lists.
 - We experience that people do not get all the equipment with them back home e.g. cables, which we lose about 200 of annually and they cost from 200 DKK and up. It is either because that cables are not found, because they are packed wrong or because the third party technician throws a cable out despite that Nordic Rentals have their own repair shop, so the cables are never registered.
2. Only if the lorry still has equipment inside or if something is forgotten. The wireless equipment is often forgotten.
 - Probably communication, and the wireless equipment does not always stand with the rest of the 'order' and it is small equipment such as in-ear-monitors or microphones.
 - We do not necessarily check the flightcases when packing the lorry, we trust that the one who packed the order has done it properly.
3. When we have an order we write on every tour label on every flightcase the information about the project, this also makes it easier to see what belongs to the order when packing a lorry. We also use tape with equipment information which is attached to the tour label.
4. Not that often, it is about 5 years ago and we bought 70 flightcases from Amptown.
 - They value speed and price, but they have chosen Amptown who are a bit more expensive than the rest, but the flightcases are also of a high quality.
5. We pack them in houseboxes, and often they are combined and taped together by technicians before being packed in the housebox.
6. Yes we use freelance technicians all year and then they use freelancers in the warehouse in the summer period - in that period they have around 3 times as many freelancers as technicians. The freelancers are mostly used for the heavy lifts to

the lorry and for cleaning up

Besides the questions we talked loosely about the inventory management:

- They want to use scanners because they want to get rid of mistakes and at the same time they want the process to be paperless.
- They do not have enough resources to count and register equipment when it comes home. They assume that if their own technicians is in the job then they will get everything back. But often the equipment is not packed as well when it gets home as it was when it was shipped.
- They would like to be able to track their safety equipment to the individual product in order for them to be more personally safe.
- A lot of the responsibility is put upon the technicians pertaining equipment error messages.
- The technicians sometimes forget equipment and flightcases on site, but it is rarely forgotten completely, often it is just loaded onto another lorry. When they forget something, they must send a car to the site to pick up the equipment.
- They would like to be able to track the progression of the packing digitally, so that they can organise better or so they can correct technicians or tell them to hurry.

EVALUATION:

We confirmed that both Profox, Sound & Light and Nordic Rentals have the same problems with inventory- and rental management. We also confirmed that the future of inventory management is paperless.

REFLECTION:

We need to further research the context of the venue because they often have their own technician which is a new stakeholder.

Worksheet name: Interview with Simon Johansen (Lyngsoe Systems)	Worksheet no: 7
Date for data: 23-02-2016	Date: 23-02-2016
Responsible: JH & AJ	Group 9:

OBJECTIVE:

The objective was to gain information about the existing technology and opportunities of logistic systems already implemented on the market. Furthermore we wanted to establish a connection and possible collaboration with the company Lyngsoe Systems, to use their knowledge and experience in the field of designing a trading system from scratch.

EXPERIMENT/DATA:

The interviewee Simon Binderup Johansen is senior sale director at Lyngsoe Systems at their headquarter in Års. Lyngsoe System do also have offices in Germany, USA and Canada and customers in all continents.

It was a semi structured interview with a prepared agenda to talk from. The interview was in Danish and therefore the documentation is also written in Danish.

Agenda

1. Introduction - study programme and reports. Vores kompetencer: Arbejder i tværfeltet mellem menneske, teknologi og forretning:
 - Brugerresearch
 - Produktionsmetoder, 3D-modellering
 - Forretningsmodeller/planer
2. Hvem og hvad er Lyngsoe?
 - Hvilken værdi tilfører i jeres kunder?
 - Sælges løsningerne som hele eller er det abonnementsbaseret?
 - Hvad har de af kompetencer?
 - Har de nogle mål?
 - Har de statistikker på hvor meget gevinst deres løsninger har givet for andre?
3. Vores idé:
4. Specifikt omkring RFID:
 - Hvilke forskellige slags? Er der et datablad?
 - Er der nogle chips der er mere hensigtsmæssige end andre?
 - Er der en risiko når det er i nærheden af elektronisk udstyr eller magneter?
 - Hvor mange chips kan man have sammen og er der problemer ift. at læse dem?
 - Hvor hurtigt kan man læse fx. 500 chips på meget lidt plads?
 - Hvilke metoder har i til at montere chips?
 - Har i bestemt udstyr til dispensering?
 - Kan man se flowcharts over eksisterende løsninger?
5. Hvad er jeres største problemer ift. chipsene?
6. Kan i hjælpe med at validere integrationen af programmet i Easyjob?
7. Er der mulighed for sponsor af materialer?
 - Flightcases
 - Sensorer
 - Programmeringssoftware

Answers:

2. Hvem og hvad er Lyngsoe Systems:
 - Vi er i bund og grund et ingeniørhus som hovedsageligt består af software ingeniører og teknikere.
 - Vi er med i hele udviklingsprocessen af vores systemer til kunderne. Vi laver undersøgelser på kundens lokation, udvikler systemet med alle ressourcer in-house, vi implementere og vedligeholde løsningen. Derudover tracker vi efter implementering data fra kundens system, som efterfølgende er med til at optimere.
 - Vi implementere egne løsninger i eksisterende produkter fra 3. parter. Hvis vi kan købe standardiserede elementer gør vi ofte

det i stedet for at udvikle det selv.

- Vores kunder er især postvæsen hovedsageligt håndtering af pakkelfow. Lufthavns håndtering af bagage, track n' trace, hvilke også hjælper til at finde ud af hvor i systemet fejler er sket, hvor den kan forbedring og hvem der er ansvarlig for omkostninger forbundet med fejlen. Fiske Distribution, Mcdonald's og Smirnoff levering af fødevarer og sporbarhed heraf. Alle kyllinger i Danmark inkl. hvor godt den enkelt produktion klarer dig på en landsdækkende scala. Flere biblioteker og distribution af bøger i forhold til hyldeplads og højtidet.
Generelt sikre Lyngsoe sporbarhed og gennemsigtighed i en et system/produktflow og baserer dette på algoritmer.
- Nogle kunder køber abonnement løsninger, så de derved ikke behøver at lave store investeringer. Derved udvider de løsningen i takt med virksomhedens øvrige vækst. Andre virksomheder investerer for starten og har kapital hertil.

4. Specifikt omkring RFID

- Hvilke forskellige slags? Er der et datablad?
 - Aktive og Passive tags. Aktive tags har et batteri og det har passive ikke. Passive er dem vi kender fra labels og bag i bøgerne på biblioteket.
 - Er der nogle chips der er mere hensigtsmæssige end andre?
 - Det afhænger rigtigt meget af hvad de skal kunne. Passive tags er billige.
 - Tags der benytter UHF frekvenser (Ultra High Frekvens) er i en enorm udvikling. 868 frekvens er her alt detailhandlen foregår og derfor også der udviklingen sker.
 - Jo højere frekvens, jo højere afstand kan der læses fra og jo flere tags kan der opkobles på samme reader. 1356 frekvens kan læses med anvendelse af en SmartPhone.
- wifi tags er dyre
 - Er der en risiko når det er i nærheden af elektronisk udstyr eller magneter?
 - Nej, det mener jeg ikke er et problem. Der er udviklet tags der tager højde for de miljøer de skal anvendes i. Fx kan nogle gå i industrielle opvaskemaskiner hvor de bliver kogt, og andre placeres på metal og anvender metallet som en ekstra leder.
 - Hvor mange chips kan man have sammen og er der problemer ift. at læse dem?
 - I fiske distributionen har vi 100 kasser med to tags på hver kasse, og det kan readeren læse på sammen tid. Det vil sige 200 tags der læses på samme tid
 - Hvor hurtigt kan man læse fx. 500 chips på meget lidt plads?
 - Hvilke metoder har i til at montere chips?
 - Mange virksomheder har professionelle printere som kan printe labels hvor der sidder en RFID chip indeni. Samtidigt kan printerene koble et bestemt nummer til hver enkelt chip som så gemmes i et software system.
 - Vi har ikke nogen metode til at montere tags på kabler, men det kan udvikles og især efter jeg hører det problem i har lokaliseret.
 - Har i bestemt udstyr til dispensering?
 - Kan man se flowcharts over eksisterende løsninger?

6. Kan i hjælpe med at validere integrationen af programmet i Easyjob?

Ja. Det er helt normalt at vi udvikler til eksisterende systemer, så brugeren fortsat kan bruge det system de allerede har erhvervet sig

7. Er der mulighed for sponsor af materialer?

Vi fik tags, og får tilsendt datablad over forskellige chips mm.

Others:

- Prototype test i deres laboratorium
- Interesse om samarbejde og sparring løbende i processen
- Ofte er det transport bilen de har i fokus i deres systemer, dette kaldes en van-reader. Readeren sidder dermed i bilen og kontrollere om alt er med. Derudover anvender de gate-reader som er en port hvor alt lasten køres igennem inden det kommer ind i bilen. Porten registrerer om alt er med og giver fx grønt lys når lasten er pakket korrekt.

Hvis der sker en fejl kan den enkelte bruger på stedet ofte på adgang til at se hvad fejlen er så den lettere kan løses, andre steder skal der tilkaldes en manager for dette. Derfor skal interaktions graden fra brugeren overvejes.

- En tag koster i gennemsnit 50 øre.
- Det er nødvendigt at forstå workflow og lokalisere GAP's inden den rette tag kan vælges til den pågældende opgave. Programmeringen sker herefter in-house og defineres ud fra hvad brugeren ønsker. Skal alle kabler fx blot registreres som et kabel med deres tag, eller skal hvert type kabel kunne spores og derved have individuelt nummererede tags.

- Vi oplever at nogle brugere gerne vil være fri for at scanne alle kasserne
- Tags kan fungere som relæ for hinanden, og derved kunne registreres over længere afstand
- To-vejs kommunikation (som den der er udviklet til Hospitalet) har en batterilevetid på ca. 5 år. Information på taggen kan opdateres løbende
- Delighters (fra Kano modellen), benytter i dette overfor jeres kunder?

Vi har high score lister fra kyllinge producenterne, så alle producenter kan se hvor på ranglisten de ligger. De møder hinanden og snakker om det, så de er ret bevidst om hvem der ligger højere på listen, og prøver at få tips fra dem. Det er helt ned til temperaturen på kyllinger i det første døgn, så det er ret detaljeret.

Det gør at det ikke bare er et dumt stykke teknologi, men giver noget ekstra til kunden som får dem til at arbejde lidt ekstra.

- Hvad er det der er virkeligt træls for brugeren og hvis sker der når det går galt? Det bruger vi til at gøre det lidt rarere for kunden når vi udvikler.

EVALUATION:

Vi oplevede en stor interesse fra Lyngsoe til at samarbejde om en evt løsning. Vi gjorde Simon opmærksom på at vi ikke kan sige om vores løsning kommer til at indeholde et system, men Lyngsoe ser et klart potentiale inden for emnet. Desuden er deres teknologi og viden nyttigt i udviklingen af et system til udlejning af musikudstyr.

REFLECTION:

Bevarer kontakten og modtage yderligere materiale om tags og om hvordan de pågriber et projekt. Inkludere deres viden hvis det bliver relevant i en mulig løsning. Anvende deres labs til test at en eventuel prototype.

Worksheet name: Phone interview med produktionsansvarlig fra Nibe festival	Worksheet no: 8
Date for data: 24-02-2016	Date: 24-02-2016
Responsible: JH	Group 9:

OBJECTIVE:

The objective is to gain insight about how the customers handles the rented equipment at the given stage. And to get an understanding of the handle of equipment when it is out of the hands of the rental company. E.g. Where do the customers store the flightcases during the event, and are they involved with the installing and dismounting of the equipment.

Interviewguide:

Indledningsvis gives en kort præsentation om vores projekt og formålet med interviewet.

Spørgsmålene skal ikke gennemgås slavisk, men fungere som emner og inspiration til samtalen.

Udbyder

1. Hvem lejer i jeres lyd- og lysudstyr af?
2. Hvordan vælger i udbyder, og hvorfor?
3. Hvem har kontakten til udbyderen, og hvad er personens overordnede funktion på eventen?

Opsætning

1. Hvad er proceduren når udstyret ankommer?
2. Hvem sætter udstyret op?
3. Stiller i hænder til rådighed?
4. Hvad er det mest bøvlede ved opsætningen?

Under eventet

1. Hvem er ansvarlige for udstyret under eventen?
2. Hvordan er proceduren hvis udstyr bliver defekt under eventen?
3. Hvor opbevarer i emballagen/fleightcasene under festivalen?
 - Er det problemer med dette? Kan det gøres bedre? Hvordan?

Efter eventet

1. Hvornår afmonteres udstyret? Foregår det ekstern, internt eller en kombi?
2. Hvad er mentaliteten under afmonteringen? Og hvor lang tid tager det ca?
3. Hvordan foregår processen med sammenpakningen? Udfordringer, problematikker?
4. Har i indsigt i hvordan udstyret bliver pakket, eller følger i ordre fra udbyderen?
5. Har i oplevet at få efterregninger, hvornår og hvorfor?
6. Hvad er det med bøvlede ved sammenpakningen?

Telefoninterview med Torkild, produktionsansvarlig på Nibe festival:

Udbyder

- Førhen brugte vi Nordic rental til alle vores scener, men i år har vi sendt ud til forskellige udbydere. I takt med at Nibe festival bliver større, vil vi også gerne udvikle os og have det bedste udstyr. Derfor ser ikke kun på prisen, men også udstyret og går efter top shelf.
- I år skal vi have forskellige udbydere på alle 4 scener. Derved kan vi få det bedre udstyr frem den alle. På Store scene bruger vi Victory og på Blå scene bruger vi lokale ProFox fra Svendstrup.
- Det handler også meget om hvad scenen kan bære i kg. Artisterne har også deres eget udstyr med og alt sammen vejer flere tons.

Opsætning

- Vi starter med en pre-produktion omkring påske, hvor det arrangeres hvordan alle scener skal opbygges og med hvilket udstyr

- Scenen sættes op weekenden inden festivalen og mandag/tirsdag kommer leverandøren med alt lys og lyd.
- Når lyd og lys sættes op kommer der "hands" fra lokale foreningen o hjælper med opsætningen.
- Dem som har instruktionspligten er levendørerne, og "hands" er dem der slæber udstyret hen hvor det skal være.
- Stage manager styrer alle folk på scenen
- Det er lettere at pille udstyr ned, end at sætte det op.
- Opsætningen kræver test af om det hele fungere optimalt, og er lavet af leverandøren

Under

- Der er krav til at vi skal have en forsikring der garanterer det udstyr vi lejer
- Udbyderen er til stede under hele festivalen med 8 mand. De sikre at udstyret fungere som det skal, og udretter fejl hvis de opstår undervejs. De styrer selv også lydstyrken under festivalen, og sikre de bedste omstændigheder for deres udstyr
- Udstyret bliver hejst op i scenen med kraner
- Alle flight cases bliver opbevaret under scenen eller i trucks under selve festivalen

Efter

- Der er folk på scenen til at pakke ned lørdag nat kort efter koncerten er slut. De starter omkring kl. 2 og er færdig kl. 5-6 om morgenen.
- Her er det igen "Hands" fra de lokale foreninger som hjælper. De skal opfylde sikkerhedskravene, være over 18 år og have hjelme og handsker på. Og så skal de være ædru.
- Der er en god stemning og alle ved at jo før de er færdige jo før får de fri. Alt instruktion foregår af de professionelle fra udlejningsfirmaet
- Den største udfordring er uden tvivl vejret
- Det er svært at pakke scenen sammen hvis folk ikke har prøvet det før
- Hvis noget er gået i stykker under festivalen modtager vi en efterregning på det.
- Udlejerne har mærker på alle kabler og kasser
- Nogle gange får vi mail hvor udlejerne spørg og vi har set det og det. Jeg sender mailen videre til dem jeg tror ved noget om det, men jeg aner ikke om de finder det og får den sendte tilbage.

EVALUATION:

The interview makes it clear that the Live Event Company have the overview of the equipments at the event, both when making the setup and when taking it down again. The have professional people on the event that organises the "hands"/freelancers.

REFLECTION:

Why do the packing of the stage after an event creates problems due to locating the equipments, when it is managed by professionals from the Live Event Company?.

Worksheet name: Ideation session 1	Worksheet no: 9
Date for data: 25/26-02-2016	Date: 03-03-2016
Responsible: JH	Group 9:

OBJECTIVE:

The objective with the ideation is to generate ideas based on our initial research from the field. All our different impressions and understandings are wanted in a more physical layout, so that it is easier for us discuss and evaluate them.

Agenda:

Day 1

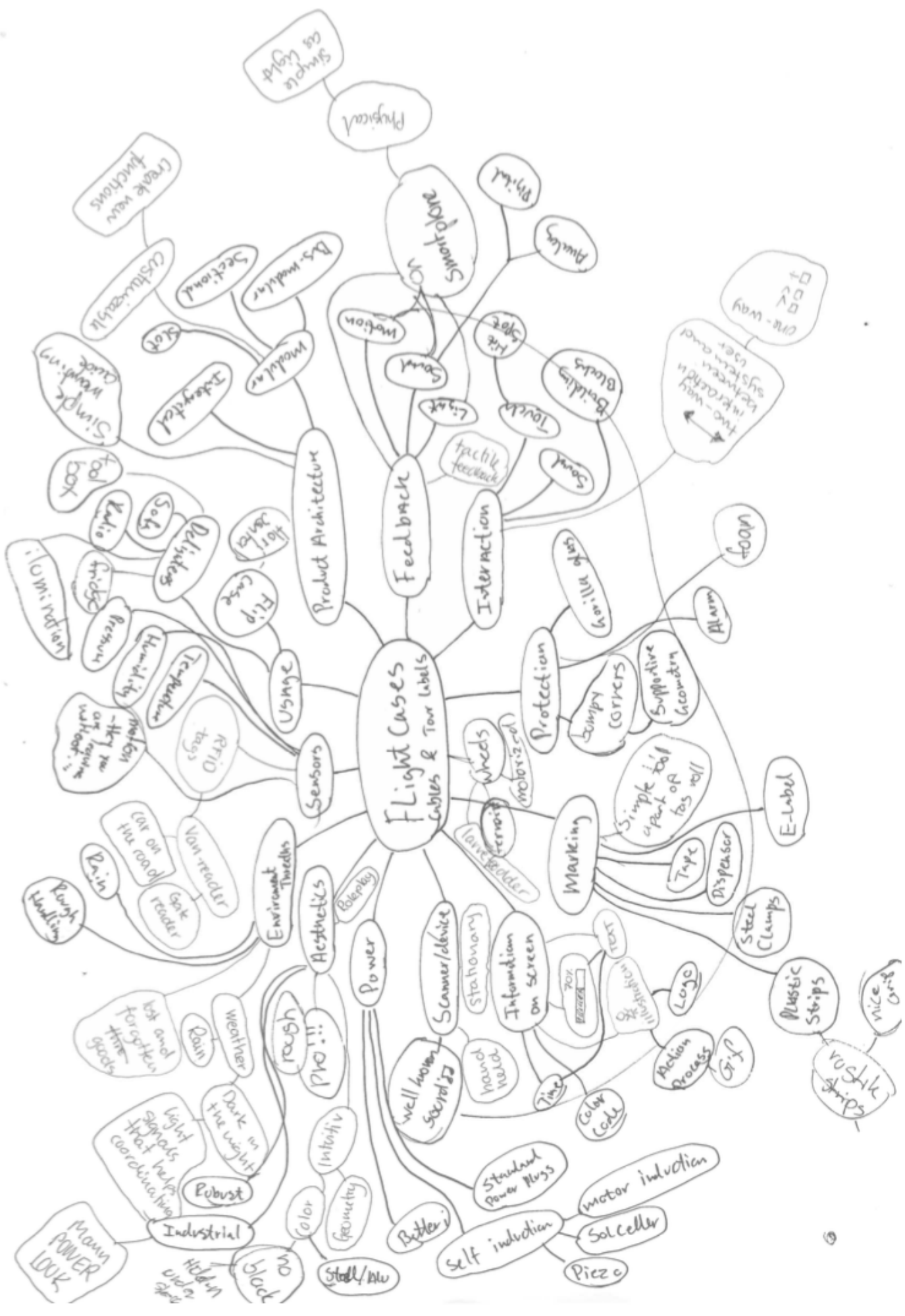
1. 10 min online individual research as preparation
2. 10 min brainwriting pool session with a pool in the middle of the table where the generated ideas was placed and could be selected for inspiration when a person was empty for ideas.
3. 10 min Joint brainstorm based on the flight case, cables and tour labels. The brainstorm is discussed and followed by an ideation session based on the subjects from the brainstorm. Finally the ideas are passed around and comment and sub ideas are added by the others.

Day 2

1. Ideation session based on a specific topic:
 - Packaging of cables
 - The use of tour labels
 - Registration of incoming equipments
2. Organising ideas. All the generated ideas was organized into stacked based on the topic of the idea. When all ideas was organized we named each stack based on characteristic from the specific stack. The topics was:
 - Register of incoming equipments
 - Protection
 - Location on site
 - Nice-to-have modules
 - Feedback
 - Packing and registration
 - Tour lables
 - Packaging and identifying cables
 - Marking/register cables

EXPERIMENT/DATA:

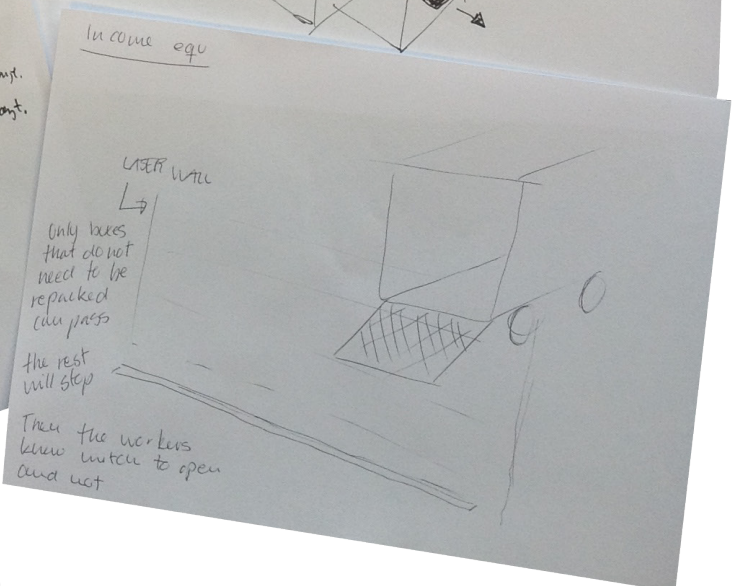
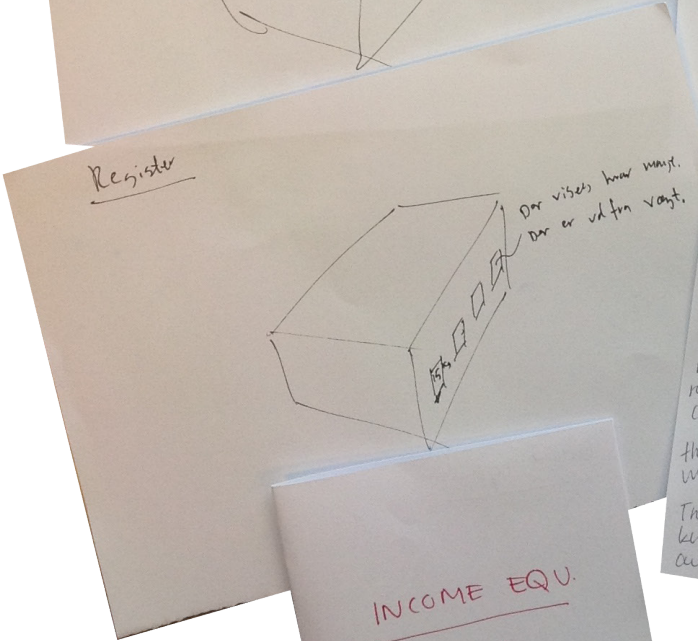
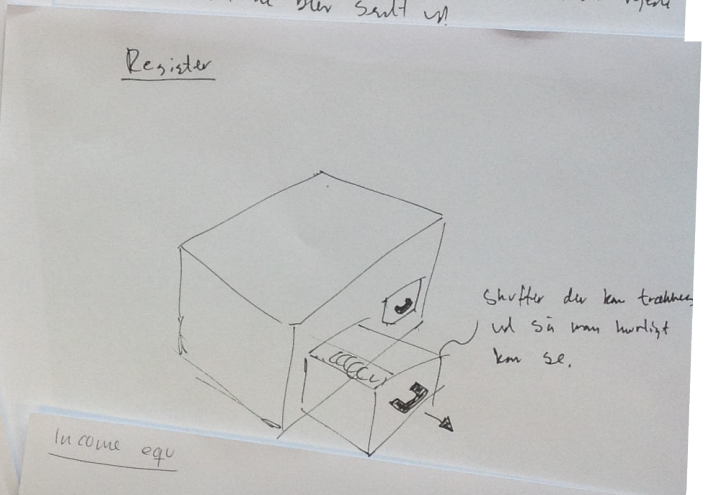
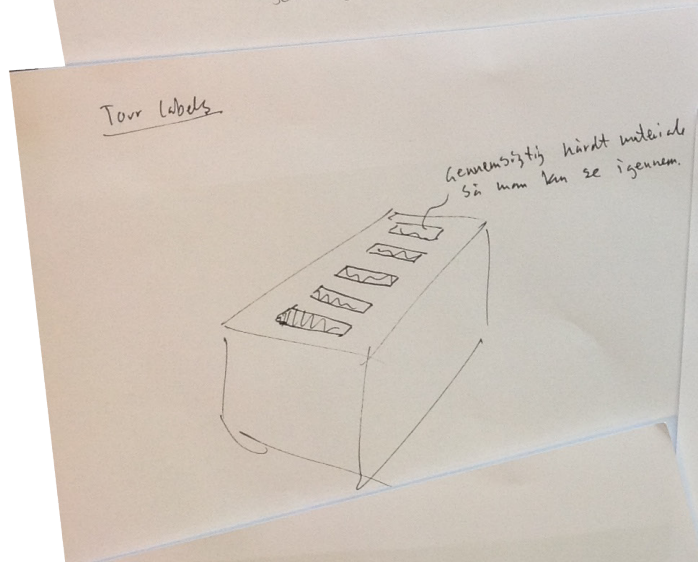
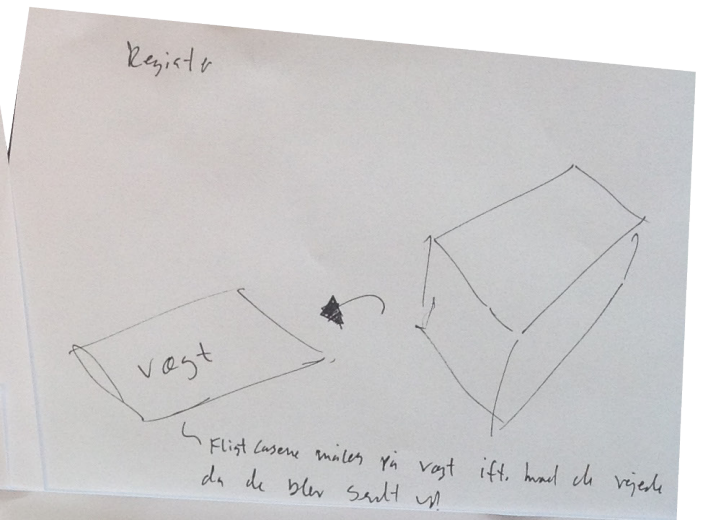
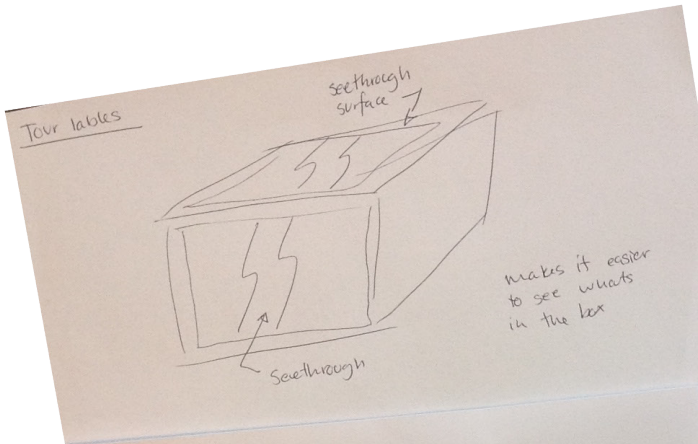
Joint brainstorm



Organised ideas

All the generated ideas from the ideation session is here illustrated in the 9 clusters made at day two in: 2. organizing ideas.

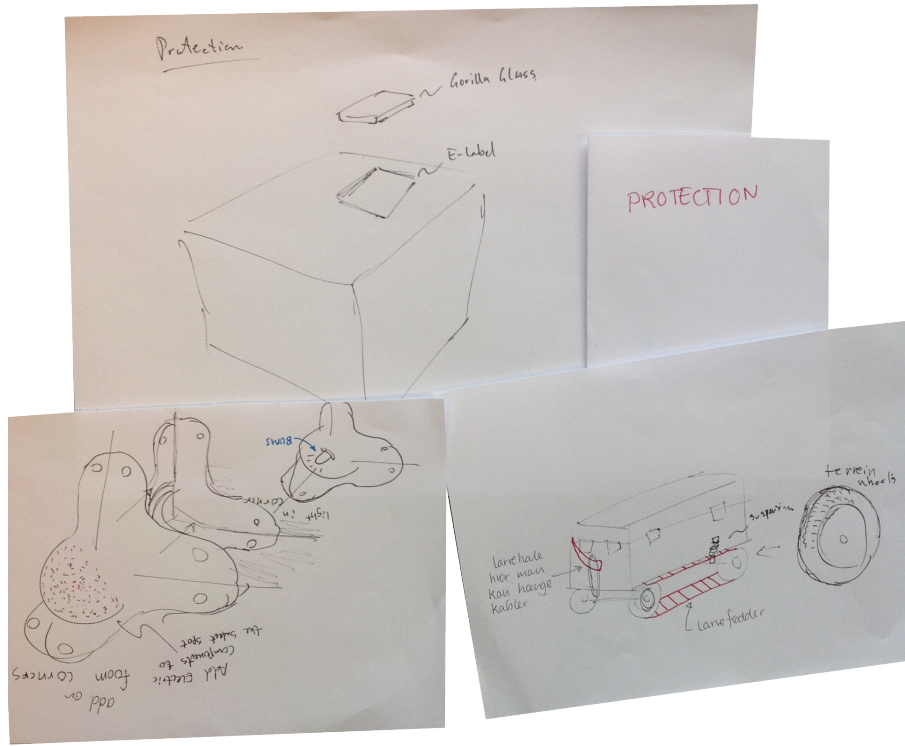
- Register of incoming equipments



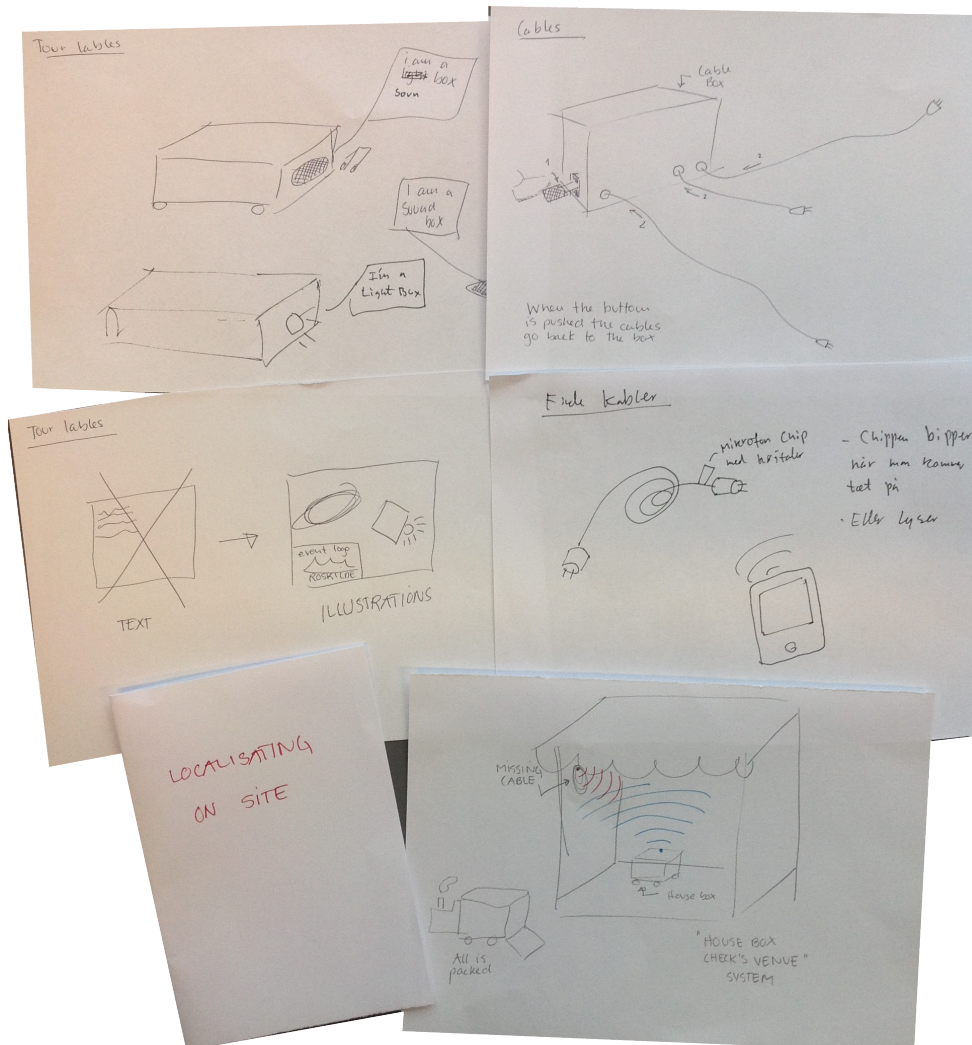
INCOME EQU.

26/2-16

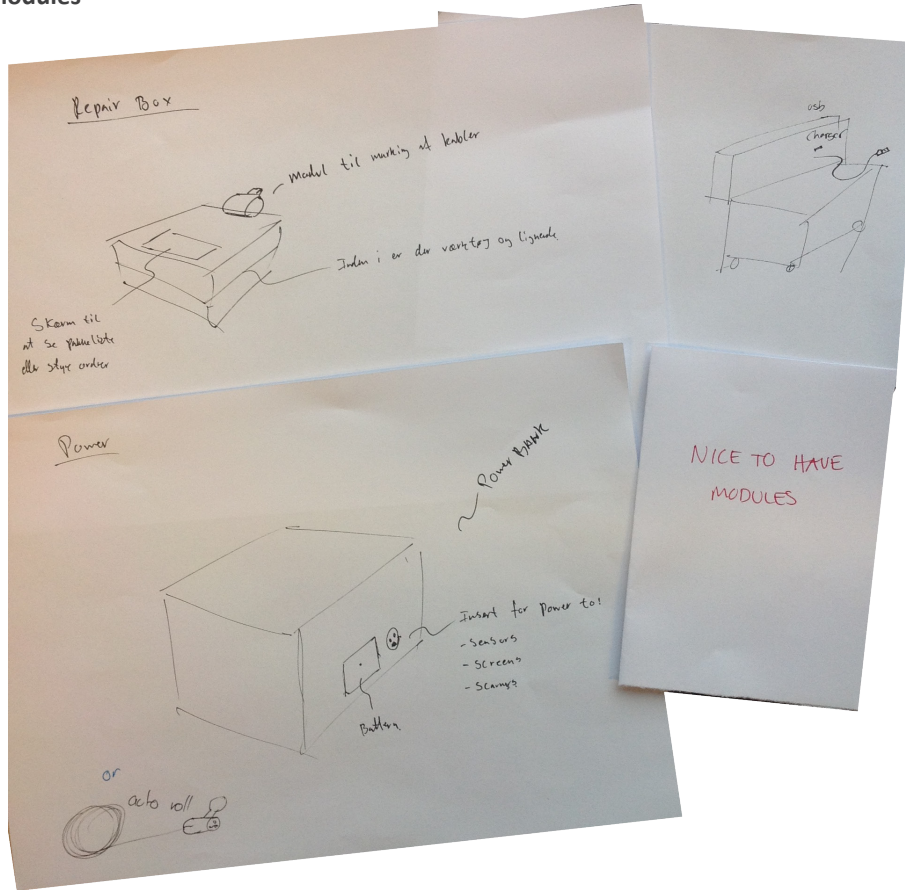
- b. Protection**



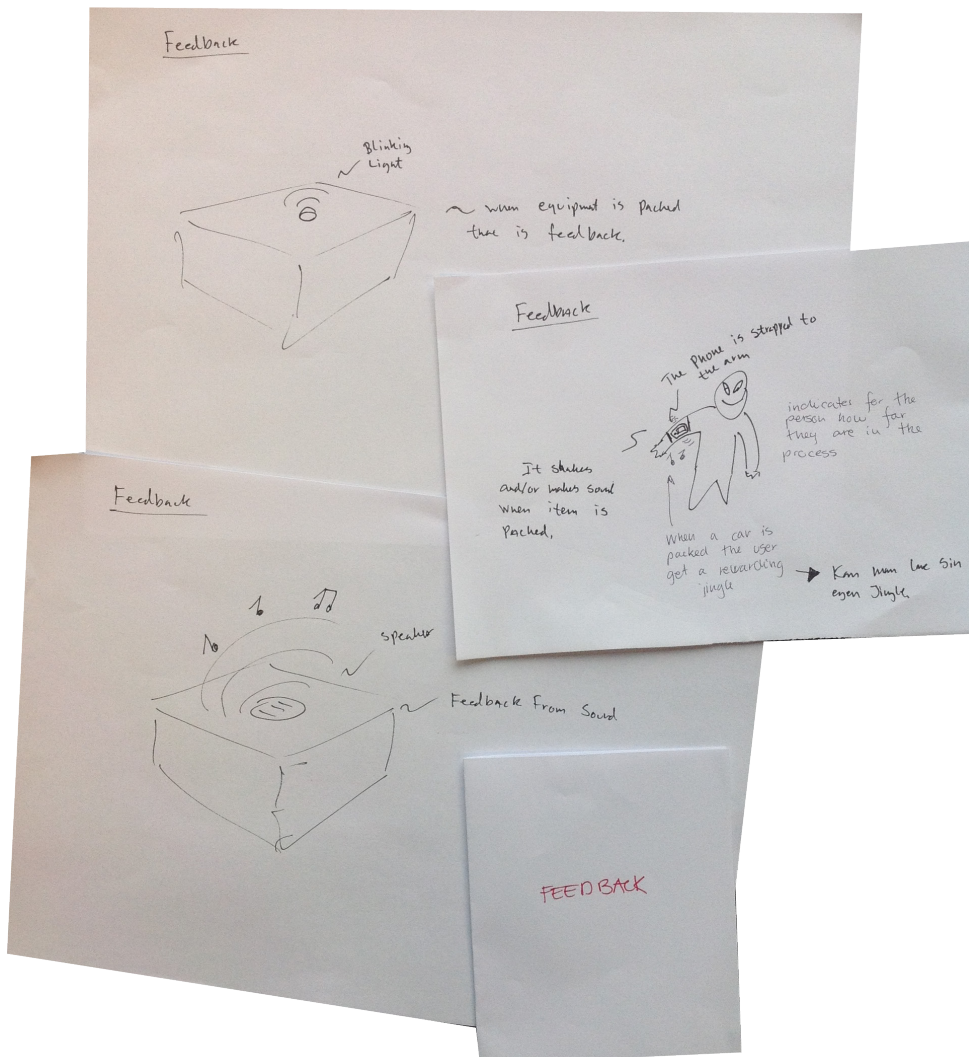
- c. Location on site**



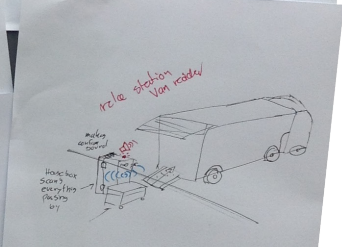
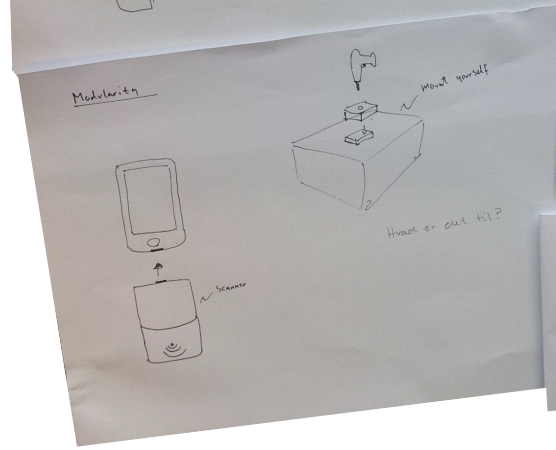
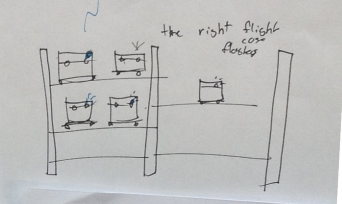
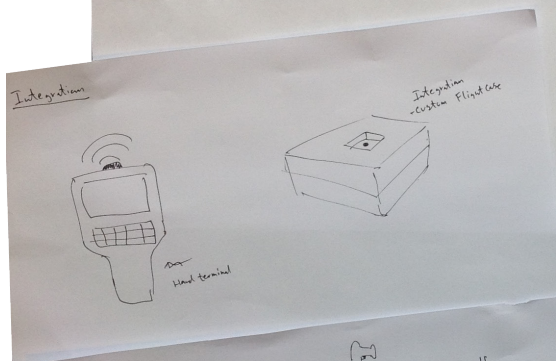
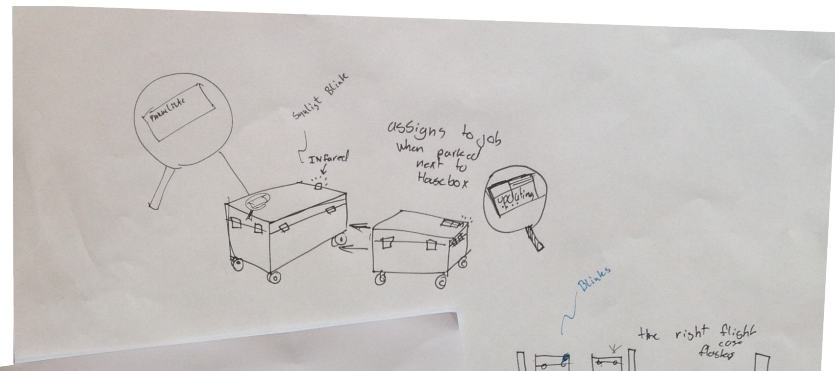
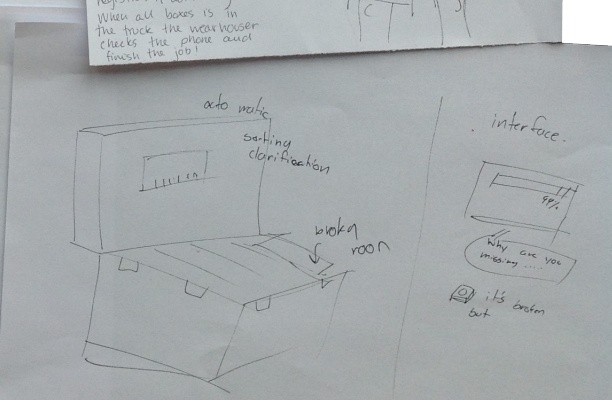
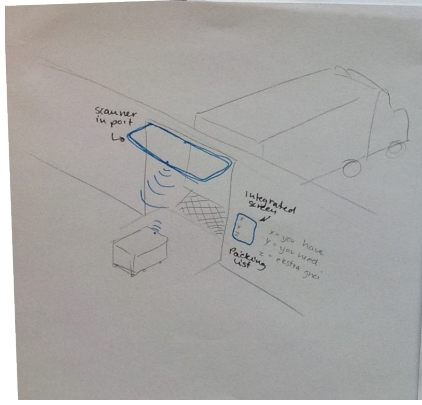
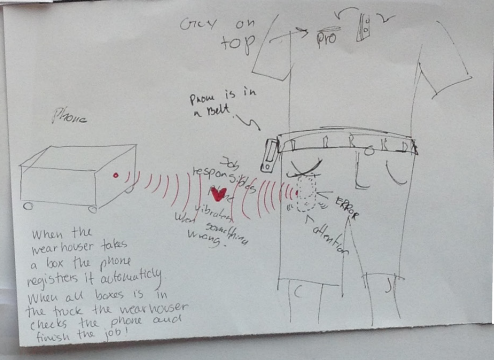
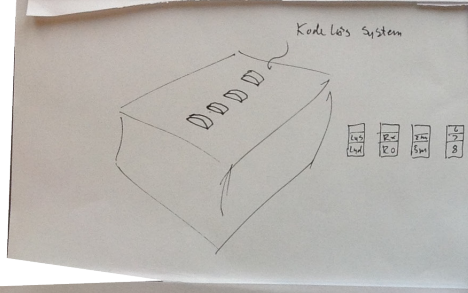
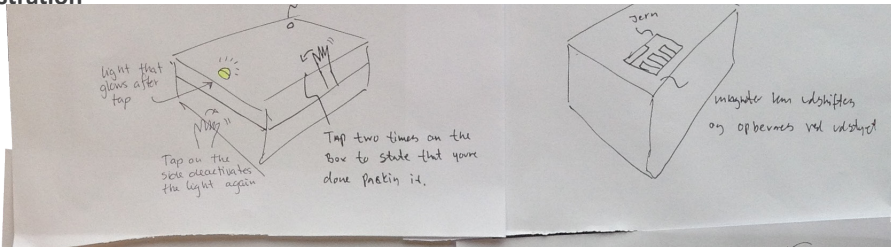
• d. Nice-to-have modules



• e. Feedback

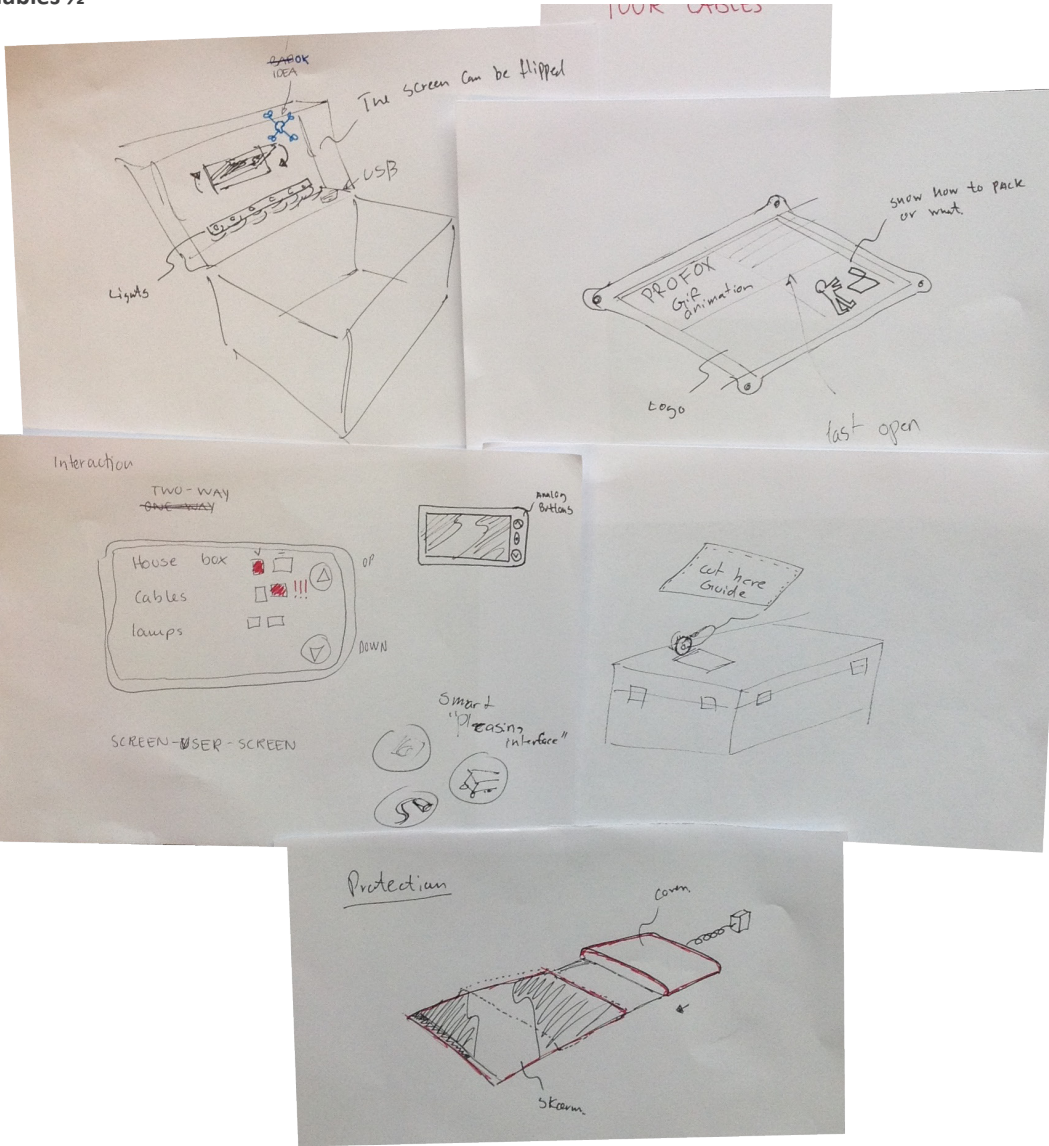


• f. Packing and registration

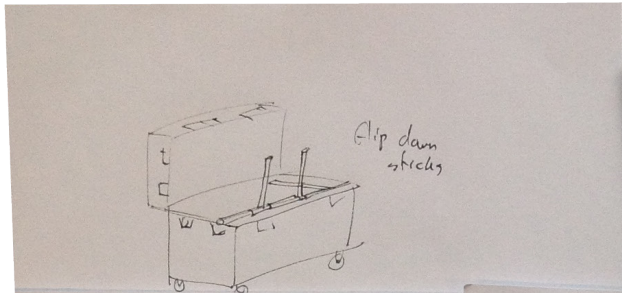


PACKING AND REGISTERING (IN HOUSE)

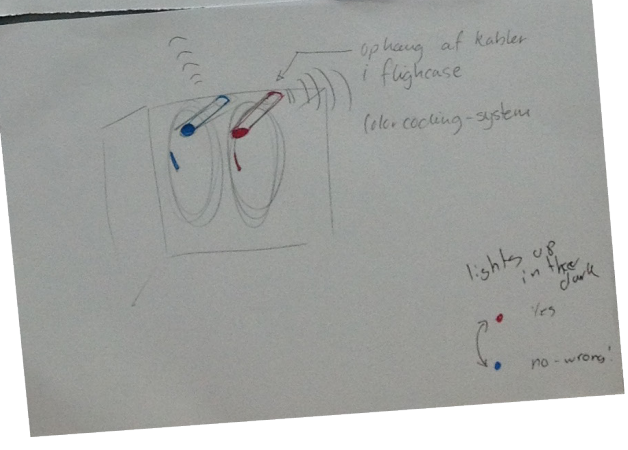
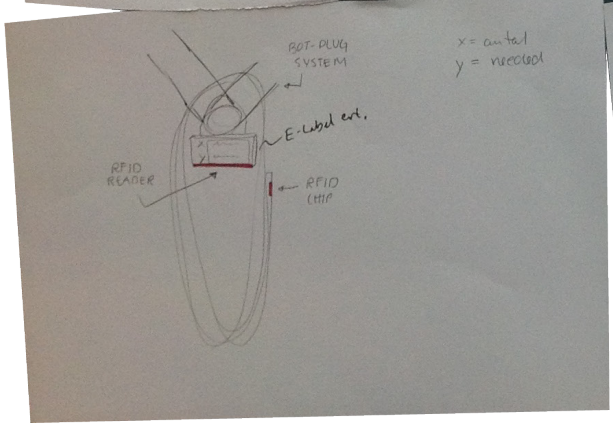
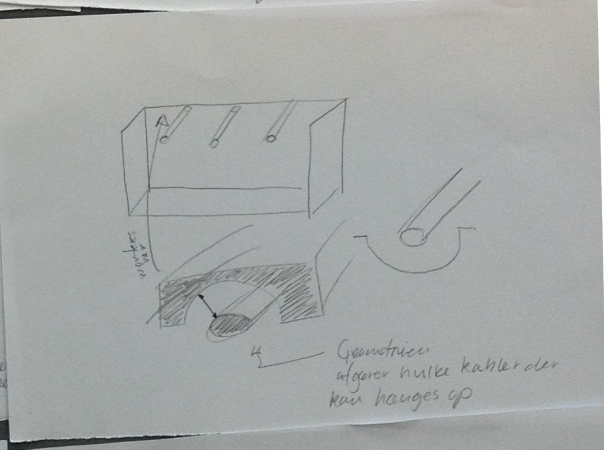
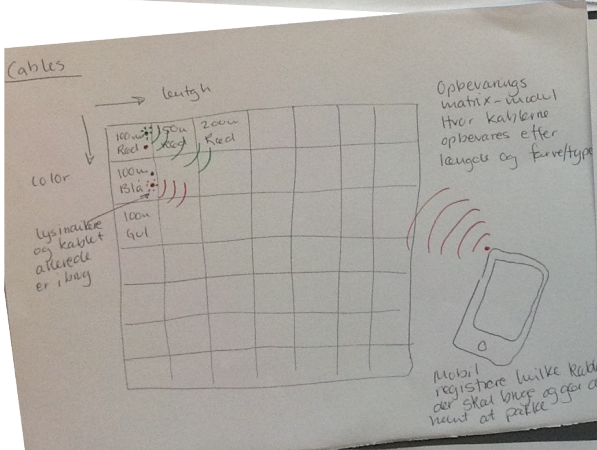
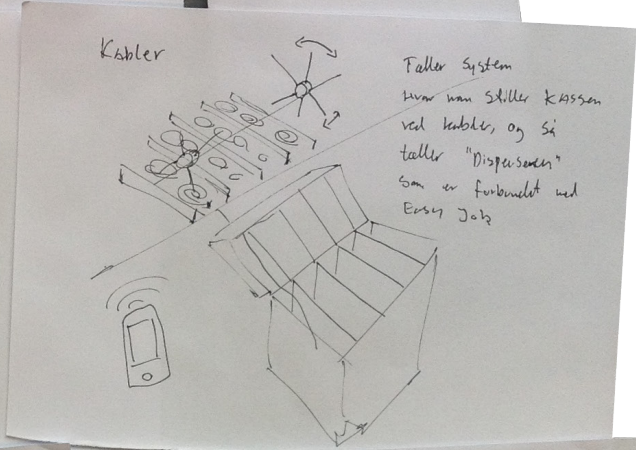
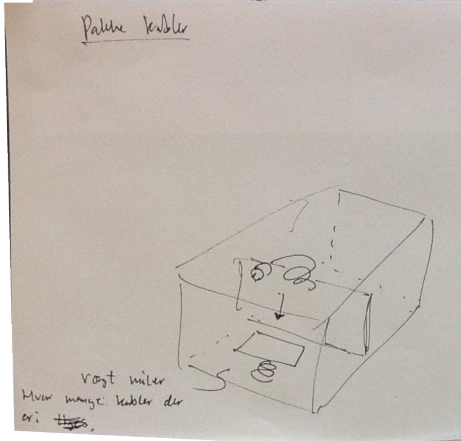
- g. Tour tables ½



• h. Packing and identifying cables



PACKING CABLES / IDENTIFY



• i. Marking/register cables



EVALUATION:

After ideation based on the initial knowledge, we generated specific functions as all ideas that solves a more or less functional problem.

REFLECTION:

Generate ideas based on a problem statement that isn't just functional, but that do also express the feeling wanted when handling the concept

Worksheet name: Interview guide for Event technician	Worksheet no: 10
Date for data: 11-03-2016	Date: 09-03-2016
Responsible: JH	Group 9:

OBJECTIVE:

The objective with this interview is to get a deeper insight of the technician "Kongen" when he is operating on the venue area. We know that he is involved when packing the truck at the warehouse, when emptying the truck at the stage, he is handling the light during the show and dismounting and packing the equipments after a show. What we know less about is how he feels during the different tasks. To investigate this we will get a deeper understanding about why it is possible to forget equipment on stage when a professional technician from the rental company (Kongen) is in charge of the packing. We will create a detailed picture of "kongen" and make a persona based on the findings.

Interviewguide:

The interview is taking place while observing the technician during their work at the venue. We will observe the workflow from emptying the truck on site until the mounting is finished and the technician starts programming the equipment.

The interview is planned to take place while they work so that their procedures can inspire and lead the unstructured interview.

Inden show

- Hvad er dine opgaver inden showet?
- Hvordan placeres kasserne når de tages ud af lastbilerne?
- Hvis du skulle beskrive dine arbejdsopgaver inden showet med et ord, hvad skulle det så være?
- Kan du beskrive hvordan du har det inden showet?
- Er der, på trods af at udstyret varierer, en bestemt rækkefølge som tingene bliver pakket og lastet på før og efter showet?

Under show

- Hvad er dine opgaver under showet?
- Kan du beskrive hvordan du har det under showet?
- Hvad er det fedeste under showet?
- Hvad er det værste der kan ske under showet?
- Hvis du skulle beskrive dine arbejdsopgaver under showet med et ord, hvad skulle det så være?
- Hvilket udstyr er det fedeste, og hvorfor?
- Hvad er din favorit feature ved udstyret?

Efter show / Dismounting and packaging

- Hvad er dine opgaver efter showet?
- Kun du beskrive hvordan du har det efter showet?
- Hvad er det vigtigste for dig når i pakker sammen (hurtighed, præcision, effektivitet, tilladt at skippe processer) ?
- Hvad er de værste opgaver i forbindelse med nedpakning af udstyr?
- Hvordan foregår sammenpakning af ledninger?
- Hvordan sikrer du at alt udstyr kommer med hjem igen?
- Hvem har overblikket over nedpakningen?
- Hvis du skulle beskrive dine arbejdsopgaver efter showet med et ord, hvad skulle det så være?
- Hvad er det fedeste efter showet? (Food processer fænomen)
- Hvad er gevinsten ved nedpakning?
- Hvad er gevinsten ved en perfekt nedpakning?
- Hvad er konsekvensen ved en dårlig udført nedpakning?
- Hvem går det ud over hvis nedpakningen er gjort forkert?
- Hvad kan der typisk ske af fejl når der nedpakkes efter showet?

House Box (med model)

- Hvordan vil du beskrive house boxen?
- Hvad er dens formål?

- Hvordan bruger du house boxen?
- Hvad betyder house boxen for dig?
- Hvad er house boxens bedste funktion?
- Hvad er house boxens dårligste funktion?
- Hvad synes du om udseendet på house boxen?
- Kunne man savne noget værktøj når man er afsted?
- Hvor er værktøjet normalt? Er det i én box eller flere forskellige?
- Hvis man havde en "værktøjs box" med, hvad kunne den så indeholde?
- Hvis man havde en "mobil scanner" - ville den være smartest som housebox eller som "værktøjsskuffe".

Andet

- Hvor stort skal et show være for at det er uoverskueligt at være en tekniker afsted?
- Foretrækker du at være alene afsted som tekniker eller at i er flere?
- Hvad er den bedste oplevelse du har som tekniker?
- Hvor tit bruger i freelancere?
- Hvor mange freelancere bruger i?
- Hvad bliver freelancere sat til at gøre?
- Er der gode ting ved freelancere? (Fx. at de er relativt friske)
- Er der dårlige ting ved freelancere? (fx. at de ikke ved så meget)
- Hvordan har du det med uddelegering af opgaver til freelancere?
- Laver de tit fejl, og i så fald hvilke?

Fritid

- Hvad bruger du din fritid på?
- Har du en bil? Hvilken?
- Har du nogle hobbyer? Hvilke?

De to situationer:

1. Under showet "in tha zone"
 2. Oprydnings situationen
- Beskriv hvordan du har det i de to situationer, hvad er dine arbejdsopgaver?
 - Hvad er vigtigt i forhold til dit udstyr i de to situationer
 - Emotionelle og sociale status i de to situationer
 - Sæt et billede på hvem føler du dig som i de to situationer

EVALUATION:	REFLECTION:
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Worksheet name: Fieldwork at concert (Rasmus Seebach)	Worksheet no: 11
Date for data: 11-03-2016	Date: 15-03-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to gain information about the mounting- and dismounting processes on site and to get a deeper insight of the technician "The King".

Interviewguide:

The interview is taking place while observing the technician during their work at the venue. We will observe the workflow from emptying the truck on site until the mounting is finished and the technician starts programming the equipment.

The interview is planned to take place while they work so that their procedures can inspire and lead the unstructured interview.

EXPERIMENT/DATA:

The concert was held at Gigantium, Aalborg, and the contact person was the production manager Jesper Philbert. The fieldwork were divided in two parts, the first from 07:30 - 13:00 with observations of unloading and mounting and a quick interview with the light technician, and from 22:00 - 23:15 with dismounting and loading.

Observations:

- De bruger deres egen lydmand og har forprogrammeret lyspult, lysdesigneren er fra Litecom og han har 'tegnet' hele showet.
- De er 20 mand afsted og får 10 freelancere ind til at hjælpe med at få scenen op, du beder om 20 freelancere til at lukke ned om natten.
- *"Vi har ikke tid til at løbe rundt med iPads og scanne det hele"*
- Chain masters pakkes ud som det første, derefter kommer trosser og lys.
- Den lille lys- og lyd pult hvor lysdesigneren står kaldes "fronthouse".
- Housebox med kabler bruges ikke som vi troede, alt er prepped på forhånd - dvs. ledninger er trukket og tapet sammen på trosser og til lys osv.
- *"Løse ledninger er roden til alt ondt" "Kabler river alt op når man ruller dem op, derfor skal kun du nødvendige ligge ude"*.
- De bruger 2 tourlabels - et normalt som der sidder fx. på dem til Nordic Rental, og ét lamineret papir, særligt til det.
- Man kan spørge 2-3 forskellige om hvor noget skal være, man bliver sendt rundt.
- Der er lavet en 3D plan i sketchup af set-uppet i trucken.
- Freelancere får ofte aften billetter af arbejdet.
- 60 og 120 er standardmål på flightcases
- Man prøvebygger scenen og stiller det op i ca. 3 uger, inden man tager på tour..
- Der bruges omtrent 5 timer på opsætning og 2,5 timer på at tage det ned.
- *"Man kunne godt bruge GPS på især det dyre udstyr"*
- *"Tjek lagerne i Hamborg, de er så store at det ikke kan passe at du ikke kører med chips"*
- *"Easyjob har desværre monopol, og de er ikke særlig flexible!"*
- *"Hvis man skulle lave et nyt system skulle man også lave et nyt styringssystem, da easyjob kan være træls at arbejde med"*
- Da jeg fortalte om idéen; *"Det var på tide at der var nogen der lavede sådan et system"*
- Mange krammer, og der er generelt et godt fællesskab.
- Der bruges walkie talkies - kan du interferere med RFID?
- De virker som myrer i en myretue der koordinerer fuldstændig uden lyd.
- Det bliver ret farligt at tage tunge flightcases ned af ramperne (se film)
- Det ville være godt at kunne sætte 'lys' til flightcases, der står under scenen, da de er svære at identificere.

Interview with light technician:

- Lysdesigneren bruger Cinema 4D, Sketchup, inventor og WYSIWIG for 3D miljøer <http://www.cast-soft.com/wysiwyg/overview>
- Det tekniske interesserer ikke lysdesigneren mere, nu er det scenografien der er mere vigtig. Han startede som tekniker.
- Det er lysdesignerens eget udstyr og han ser på det som "bare en hammer". Han virker ikke synderligt interesseret i showet (det skal siges at dette er 9. gang han eksekverer samme show)

EVALUATION:

We learned that the crew is like one big family. We also learned that each crew member feels important in the packing process and that communication is done in precise instructions and with colored tape. We also learned that they feel “the rush of the day” when the ‘puzzle’ succeeds.

REFLECTION:

We need to observe the same size of event, but without it being a tour.

Worksheet name: Interview with light technician Niels Peter	Worksheet no: 12
Date for data: 17-03-2016	Date: 18-03-2016
Responsible: JH	Group 9:

OBJECTIVE:

The objective with this interview is to get a deeper insight of the technician "Kongen" when he is operating on the venue area. We know that he is involved when packing the truck at the warehouse, when emptying the truck at the stage, he is handling the light during the show and dismounting and packing the equipments after a show. What we know less about is how he feels during the different tasks. To investigate this we will get a deeper understanding about why it is possible to forget equipment on stage when a professional technician from the rental company (Kongen) is in charge of the packing.

We will create a detailed picture of "kongen" and make a persona based on the findings.

Interviewguide:

The interview is done by phone while the technician is at work at a venue. The interview is a semi structured interview planned to get insight about the technicians feelings during the different tasks of his job. Therefore the question is only a guide, and the equations should evolve during the conversation.

Inden show

- Hvad er dine opgaver inden showet?
- Hvordan placeres kasserne når de tages ud af lastbilerne?
- Hvis du skulle beskrive dine arbejdsopgaver inden showet med et ord, hvad skulle det så være?
- Kan du beskrive hvordan du har det inden showet?

Under show

- Hvad er dine opgaver under showet?
- Kan du beskrive hvordan du har det under showet?
- Hvad er det fedeste under showet?
- Hvad er det værste der kan ske under showet?
- Hvis du skulle beskrive dine arbejdsopgaver under showet med et ord, hvad skulle det så være?
- Hvilket udstyr er det fedeste, og hvorfor?
- Hvad er din favorit feature ved udstyret?

Efter show / Dismounting and packaging

- Hvad er dine opgaver efter showet?
- Kun du beskrive hvordan du har det efter showet?
- Hvad er det vigtigste for dig når i pakker sammen?
- Hvad er de værste opgaver i forbindelse med nedpakning af udstyr?
- Hvordan foregår sammenpakning af ledninger?
- Hvordan sikrer du at alt udstyr kommer med hjem igen?
- Hvem har overblikket over nedpakningen?
- Hvis du skulle beskrive dine arbejdsopgaver efter showet med et ord, hvad skulle det så være?
- Hvad er det fedeste efter showet? (Food processer fænomen)
- Hvad er gevinsten ved nedpakning?
- Hvad er gevinsten ved en perfekt nedpakning?
- Hvad er konsekvensen ved en dårlig udført nedpakning?
- Hvem går det ud over hvis nedpakningen er gjort forkert?
- Hvad kan der typisk ske af fejl når der nedpakkes efter showet?

House Box

- Hvordan vil du beskrive house boxen?
- Hvad er dens formål?
- Hvordan bruger du house boxen?
- Hvad betyder house boxen for dig?
- Hvad er house boxens bedste funktion?
- Hvad er house boxens dårligste funktion?
- Hvad synes du om udseendet på house boxen?

Andet

- Hvor stort skal et show være for at det er uoverskueligt at være en tekniker afsted?
- Foretrækker du at være alene afsted som tekniker eller at i er flere?
- Hvad er den bedste oplevelse du har som tekniker?
- Hvor tit bruger i freelancere?
- Hvor mange freelancere bruger i?
- Hvad bliver freelancere sat til at gøre?
- Er der gode ting ved freelancere? (Fx. at de er relativt friske)
- Er der dårlige ting ved freelancere? (fx. at de ikke ved så meget)
- Hvordan har du det med uddelegering af opgaver til freelancere?
- Laver de tit fejl, og i så fald hvilke?

NYT

To situationer:

1. under showet "in tha zone"

2. oprydnings situationen

- Beskriv hvordan du har det i de to situationer, hvad er dine arbejdsopgaver?
- Hvad er vigtigt i forhold til dit udstyr i de to situationer
- Emotionelle og sociale status i de to situationer
- Sæt et billede på hvem føler du dig som i de to situationer

Data Niels Peter:

Niels Peter er ansat som Lys afvikler hos Proshop Europe.

Inden show

Han er med til planlægningen af showet, pre-produktion og set-ups, godkendelse af planer, samt booking af internt grej i deres system.

Planlægger lysshowet ud fra størrelsen, hvor mange penge det må koste og hvilken type show det er.

Opsætning af et show sker sammen med projektleder og øvrige ansatte, som følger:

1. Første dag bruges på at pakke udstyret fra eget lageret. Pakker det i lastbilerne og kører det ud på location. Her er Niels Peter ansvarlig for at pakke alt udstyret som har med lyd at gøre.
2. Anden dag ankommer de på location og går i gang med opsætningen. En hovedansvarlig "IC" (in charge), sørger for at det hele bliver færdigt til tiden.

Det kan tage fra få timer til flere dage at sætte op.

3. I dette tilfælde har han to hjælpere til at sætte lys op. Når lyset er sat op skal de programmeres.

Programmering:

- Et show som varer 3-4 timer kræver cirka to nætters programmering før at det spiller
- Det er den sjove del af arbejde, hvor den kreative process kombineret med teknisk kendskab
- Det kræver teknisk kendskab til tingene, og erfaring for at skabe et show som passer til opsætningen
- Ved det igangværende event i boksen i Herning har rytter skulle bruge hallen om dagen og frem til kl. 23. Niels Peter har derefter haft adgang til hallen og programmeret om natten. Denne omgang fra kl. 23 til 11.30
- Programmeringen bygges op omkring et indledende kreativt møde med kunden hvor de fortæller hvad de overordnet ønsker.
- Ud fra disse rammer lavet Niels Peter selv showet
- Niels Peter fortæller stolt at han bruger en lyspult af typen Grand MA 2 light, som er den tekniske beskrivelse.

- Det fede er at når hele programmeringen er lavet skal man ikke ødelægge noget når bruger pulten. Det hele spiller bare
- Det er det spændende ved det hele, at skabe noget kreativt ud fra de tekniske aspekter

Grej:

- Jo flere penge, jo federe grej og derved også federe sjov - også federe at programmere
- Han vil skyde på at lyspult, grej og lamper til dette show har en ny værdi på 4 mill.
- Man kan altid få noget federe og nyere og det er spændende at følge med i hvad der sker. I takt med at teknologien udvikler sig kommer der nye produkter og det er spændende. Der er meget stor interesse for de nye produkter som kommer på markedet.
- Da LED lamperne kom betød det at vi kunne få mere lyd til mindre strøm, det betyder flere lamper og et federe show
- Lidt en grej nørd der vil have alt det fedeste
- Vi (teknikere) er jo bare store legebørn som vil have det nyeste og bedste legetøj

Under showet:

Jeg styrer alt lyset og 4 mand der sidder på hver sin følge spot i loftet af salen. Vi bruger et internt system så vi kan snakke sammen

Det fedeste ved showet:

- Jeg kan bedst lige teater og shows med større hold bag. Der opstår en magi når det hele klapper
- Der er kæmpe nervøsitet inden et show, for general prøven kan være gået af lort, men når det hele så spiller under premieren så er det en kæmpe lettelse og lykke
- Det er lidt som at gå til eksamen, man skal levere det bedste hver gang og man har kun et forsøg til at gøre det i. Den skal sidde der hver gang
- Det kræver derfor også at man kan holde til det press som lysmand, og det er det bestemt ikke alle som kan
- Det fedeste er når det virker og ikke falder ned, så kan jeg mærke at jeg glæder andre. Publikum bruger deres fritid på at komme og kommer for at få en oplevelse, det er derfor min opgave at de går glade herfra.
- Når man er til et show får man et fællesskab med alle dem der er til stede, og så er det vigtigt at yde sin bedste præsentation og det får man også lyst til at gøre

Det værste ved et show:

- At strømmen går og alt lyset slukker, lige meget hvad årsagen er går skylden til teknikeren
- Når der sker oplever jeg total panik indeni i 2 sek. Så ser jeg 4-5 sortklædte mænd løbe mod eltavlen for resette det hele, og så kommer der lys igen. Som regel tager det 30 sek - 2 min for at alt udstyret er klar igen.
- I lyspulten sidder der en "ups" som er et batteri der kan holde strøm i ca 30 min, derved behøver lyspulten ikke genstarte da det godt kan tage lidt tid
- Hvis en enkelt lampe går ud undervejs er der ikke nogen som opdager det, men jeg ser det med det samme

Efter showet:

- Der skal vi have en fyraftensøl og hjem og sove
- Andre gange er det i krig med oprydningen med det samme, hvis udstyret eller eventet skal bruges til noget andet lige efter
- En tommelfingerregel er at sammenpakning ca tager 1/3 af opsætningen, så i dette tilfælde kommer det nok til at tage 1 dag. Ved opsætningen tager det tid at alle kabler skal de rigtige steder hen og forbindes rigtig mellem alt udstyret
- Hvis vi er flinke ved lageret så sorter vi alle kablerne under oprydningen, men det er ikke altid det sker.
- Der er mange forskellige typer kabler og vi sorterer dem oftest efter type og længde. En flight case indeholder samme længde kabler og så er der forskellige rum hvor typen på kablet sortere i. Vi kalder flight casen med kabler for house boxen.
- Det er lageret som pakker lastbilerne ud. Alle kasser der kommer retur åbnes og der kontrolleres om de indeholder det rigtige grej
 - Hvis der mangler noget fylder de op med reservedele
 - Lageret leder efter det manglende grej og i 9 ud af 10 tilfælde finde de det i interne kasser
- Hvis man er doven og træt under nedpakningen smider man nogle gange kablerne i de forkerte kasser. kl. 6 om morgenen vil man gerne bare hjem, så smiderne man tingene ned i de nærmeste kasser og kaster lorten videre til lagerarbejderne
- Jo bedre vi pakker tingene sammen, jo mere tid har lageret til at lave service på udstyret og det vigtigste for os er at tingene virker
- Det betyder meget at man ved at ens grej bare virker.
- Jeg er ansvarlig for sammen pakningen af lys, og ved dette show har jeg 3 praktikanter fra event skolen i Frederikshavn til at hjælpe mig
- Erfaring giver overblik og ro i stressede situationer, og så drikker jeg kaffe hver halve time for at holde mig vågen

House box:

- Den indeholder kabler, og nogle gange laptops hvis vi skal have mange med
- Vi mærker house boxen med tape efter hvilken type det er. Lysafdelingen har vores egen farve hvor der kun pakkes lys i. Farven markeres med et stykke tape hvor vi også skriver på at det er lys.
- På dette job har jeg 4-5 house boxe med
- Jeg vil betragte mit eksterne kontor som lyspulten. Den består af en controlpanel og to skærme. Jeg har en individuel bruger hvor jeg logger ind og så er det mine indstillinger der kommer frem.

De to situationer: (1. er under showet og 2. er sammenpakningen)

- Det går fra at jeg er "tændt og adrenalinen kører" til "Åhh nu skal vi bare hjem"
- "Jeg tror at jeg sætter autopilot på og så skal det bare ordnes"
- Motivationen er meget blandet, hvis det har været en god kunde er der god stemning og så er det også en god sammenpakning.
- Stemningen på stedet betyder meget
- Situation 1: Glad, spændt og tændt
- Situation 2: der er det holdånden som bærer en gennem det. Og at der er opbakning fra hianden
- Situation 1: Der er det bare alt afgørende at udstyret virker
- Situation 2: HVIS vi pakker det korrekt sammen, så virker det også næste gang. Man sætter lidt sin lid til udstyret
- Situation 1: Nu skal jeg vise at jeg er bedre end alle de andre
- Det er ikke bare et job, men noget man gør fordi man brænder for det

Afslutning:

- Os lysmænd er lidt nogle specielt folkefærd. Det kræver en vis mentalitet for at være sammen med os. Vi er bare lege drenge der har fået nyt legetøj.
- Jeg har gået rundt i boksen 10 gange nu, jeg kan ikke sidde stille
- Stemningen betyder meget, og den er som regel god da vi alle kender hinanden

EVALUATION:

Udstyr er FEDT! Jo bedre udstyr, jo federe er det at programmere. Programmeringen og afviklingen af et show er det fede ved arbejdet.
"Det er som en kæmpe puslespil med mega dyre brikker som man skal have til at gå op - og når det sker er det magisk"

REFLECTION:

Det er svært at få ham til at snakke om følelser, det hjælper lidt hvis det sker gennem en snak om en fed lampe. Så kommer hans passion tydeligt frem.
Et interview under og efter et show vil være behjælpeligt med at observere hans forskellighed i de to situationer, og iagttage hans bevægelsesmønstre og derved få en forståelse af hans tilstedeværelse i situationen.

Worksheet name: Interview with light technician Lasse	Worksheet no: 13
Date for data: 18-03-2016	Date: 18-03-2016
Responsible: JH	Group 9:

OBJECTIVE:

The objective with this interview is to get a deeper insight of the technician "Kongen" when he is operating on the venue area. We know that he is involved when packing the truck at the warehouse, when emptying the truck at the stage, he is handling the light during the show and dismounting and packing the equipments after a show. What we know less about is how he feels during the different tasks. To investigate this we will get a deeper understanding about why it is possible to forget equipment on stage when a professional technician from the rental company (Kongen) is in charge of the packing.

We will create a detailed picture of "kongen" and make a persona based on the findings.

Interviewguide:

The interview is done by phone while the technician is at work at a venue. The interview is a semi structured interview planned to get insight about the technicians feelings during the different tasks of his job. Therefore the question is only a guide, and the equations should evolve during the conversation.

Inden show

- Hvad er dine opgaver inden showet?
- Hvordan placeres kasserne når de tages ud af lastbilerne?
- Hvis du skulle beskrive dine arbejdsopgaver inden showet med et ord, hvad skulle det så være?
- Kan du beskrive hvordan du har det inden showet?

Under show

- Hvad er dine opgaver under showet?
- Kan du beskrive hvordan du har det under showet?
- Hvad er det fedeste under showet?
- Hvad er det værste der kan ske under showet?
- Hvis du skulle beskrive dine arbejdsopgaver under showet med et ord, hvad skulle det så være?
- Hvilket udstyr er det fedeste, og hvorfor?
- Hvad er din favorit feature ved udstyret?

Efter show / Dismounting and packaging

- Hvad er dine opgaver efter showet?
- Kun du beskrive hvordan du har det efter showet?
- Hvad er det vigtigste for dig når i pakker sammen?
- Hvad er de værste opgaver i forbindelse med nedpakning af udstyr?
- Hvordan foregår sammenpakning af ledninger?
- Hvordan sikrer du at alt udstyr kommer med hjem igen?
- Hvem har overblikket over nedpakningen?
- Hvis du skulle beskrive dine arbejdsopgaver efter showet med et ord, hvad skulle det så være?
- Hvad er det fedeste efter showet? (Food processer fænomen)
- Hvad er gevinsten ved nedpakning?
- Hvad er gevinsten ved en perfekt nedpakning?
- Hvad er konsekvensen ved en dårlig udført nedpakning?
- Hvem går det ud over hvis nedpakningen er gjort forkert?
- Hvad kan der typisk ske af fejl når der nedpakkes efter showet?

House Box

- Hvordan vil du beskrive house boxen?
- Hvad er dens formål?
- Hvordan bruger du house boxen?
- Hvad betyder house boxen for dig?
- Hvad er house boxens bedste funktion?
- Hvad er house boxens dårligste funktion?
- Hvad synes du om udseendet på house boxen?

Andet

- Hvor stort skal et show være for at det er uoverskueligt at være en tekniker afsted?
- Foretrækker du at være alene afsted som tekniker eller at i er flere?
- Hvad er den bedste oplevelse du har som tekniker?
- Hvor tit bruger i freelancere?
- Hvor mange freelancere bruger i?
- Hvad bliver freelancere sat til at gøre?
- Er der gode ting ved freelancere? (Fx.at de er relativt friske)
- Er der dårlige ting ved freelancere? (fx. at de ikke ved så meget)
- Hvordan har du det med uddelegering af opgaver til freelancere?
- Laver de tit fejl, og i så fald hvilke?

NYT

To situationer:

1. under showet "in tha zone"

2. oprydnings situationen

- Beskriv hvordan du har det i de to situationer, hvad er dine arbejdsopgaver?
- Hvad er vigtigt i forhold til dit udstyr i de to situationer
- Emotionelle og sociale status i de to situationer
- Sæt et billede på hvem føler du dig som i de to situationer

Data Lasse Henriksen:

Lasse arbejder med lys og står både for at lave tilbud, sætte shows op og afvikle shows.

Han arbejder for Tobakken (spillested i Esbjerg) Eurpoaz (Event udlejnings virksomhed i Holstebro) og som selvstændig.

e-mail: Lassehen@gmail.com

Inden show

- Sætter på på venue, mest det der omhandler lys
- Er med til alt det visuelle klargøring inkl. special effect som fyrværkeri og ild
- Hvis jeg har nogle frivillige under mig, tjekker jeg op på at de ved hvad de skal gøre under showet så der ikke er tvivl om det
- Kontrollere om sikkerheden er korrekte omkring alle special effects

Programmering:

- Der er to måder at programmere et show på.
- Enten sker det på dagen og er af den mere simple slags ofte på Tobakken
- Hvis det er til en turné burger ca en måned forinde udelukkede på programmeringen inden jeg kommer på venuet
- Jeg kan li begge dele lige godt. Det er mere frihed ved det simple, men det avancerede er fastlåst når først det er programmeret
- Jeg råber ikke hurra for programmeringsdelen, jeg kan bedre li at være der under koncerten
- Der er en hovedregel der hedder at til 1 sekunds musik går der 1 minuts programmering

Under show

- Jeg trykker på de rigtige knapper på det rigtige tidspunkt
- Det er helt sikkert det mest hyggelige. Det er mennekser jeg har arbejdet sammen med længe og her er der tid til at snakke sammen og vise hvad man kan. (nyde hinanden selskab)
- Når det hele spiller er jeg stolt
- Lasse er stolt over for banden, managere og til sidst publikum. Publikum bemærker mest de store tydelige effekter.

- Jeg kan ikke være bekendt at levere et show uden effekter
- Måden jeg skaffer arbejde på et også at vise jeg kan levere et show. Eller er det ikke mig de ringer til næste gang.

Udstyr:

- For mig er det græsk katolsk, jeg er bare glad for der er udstyr
- Nogle gange er der ikke meget, og så er det svært at lave et show
- Kina er no-go! Men gode produkter er man glade for og så betyder det ikke så meget hvilke produkter det er
- Udvikling er gået fra analogt til digitalt udstyr. Det hele skal helst være digitalt, ellers er det træls når man får en blanding. Det er bedst med 100% digitalt udstyr.

Det værste:

- hvis strømmen går, så er der ikke noget der virker og så kan jeg ikke lave et show, men det er ikke min skyld hvis det sker. Så det værste der kan ske for mig er hvis min lyspult går i stykker

Efter show

- Primære formål er at tage alle kablerne ud af lamperne og komme dem i de rigtige kasser
- Man ved hvilke kasser kablerne skal i forbi de er markeret med tape hvorpå der er skrevet med touch hvad der skal i.
- De fungerer jo som multikasser og skal hurtigt tømmes så der kan komme noget nyt i og videre til et nyt event. Derfor er det smart med tape og touch fordi det hurtigt kan ændres

De to situationer: (1. under showet og 2. efter showet når der skal pakkes sammen)

1. Det er fedest under koncerten hvor man ser det færdige resultat af ens arbejde
 2. Det handler om at pakke hurtigt sammen så man kan komme hjem. Vi får det altid til at være en sjov og hyggeligt process. Vi går og joker med hinanden og fortæller vittigheder.
- Jeg har kollegaer fra hele landet og det er under oprydningen vi har tid til at snakke sammen og joke lidt.

Følelsen i de to situationer beskrevet ud fra kongerige-princippet:

1. Der føler jeg mig nok som prinsen. Jeg har stort ansvar, men er ikke kongen
2. Her er jeg nok general. Jeg har overblik og sørger for at min soldater gør det de skal.

Bedst show:

- Top gear i Oslo. Det var en kæmpe opstilling to gange så stor som parken. Jeg vil tro det var 100 gange større end det jeg plejer at lave og det var fedt at være med til
- Der var 10 bosser over lys med hver 50 mand under sig. Jeg var en af bosserne og det var fedt
- Fedt når noget så stort kommer til at fungere. Når et show starter skal det bare kører, man har kun et forsøg
- Hvis det pakkes forkert har det ikke så stor en betydning. Eller jo så skal man bruge mere tid på at ordne det til den næste koncert når man sætter op. Det går ud over en selv

Arbejdsplads:

- Når jeg er ude er det bilen. Det er her jeg klæder om, skriver mail og er alene
- På en sommer kører jeg omkring 10-15.000 km og det er altid i lejebil betalt af bandet. Ellers vil det slide for meget på min egen bil og være for dyrt i forsikring, så det er en fast aftale vi har
- På selve scenen er det min lyspult og et stort skab som er hjertet af alt lys og som får det til at fungere.
- Jeg får altid en øl inden showet starter, det giver styr på nerverne
- Forplejning er altid med og betalt af arrangøren. Som regel er der en buffet så man altid kan spise når det passer ind i ens eget arbejde

Fritid:

- Skate og surf

<p>EVALUATION: Kina-udstyr betragtes ikke som udstyr. den kategori går det slet ikke ind under.</p>	<p>REFLECTION:</p>
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Worksheet name: Interview with Frederik Lisborg from Sound and Light	Worksheet no: 14
Date for data: 11-03-2016	Date: 15-03-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to get a deeper insight of the technician "The King" and to 'probe assumptions', telling about and showing our immediate solution with the technician and get insights from him.

Interviewguide:

The interviewee is a technician from Sound and Light, who manages everything relating to the setup of lights. He is also the 'Light Jockey', or light designer/light executor so he is the one creating and running the light show.

- Han begynder at fordele de kasser, som han skal bruge, som noget af det første når man åbner lastbilen. Når han er alene starter han typisk med at forbinde strømmen, og få ophængnings materiale ind, får hængt kraner op.
- Lamperne sættes til forskellige adresser, og de har en stor stak papirer med til fx. hjælperne, så de kan se hvor tingene skal stå. Der kan ske adresseringsfejl, hvis der fx. er trykket et tal for meget på adresserne.
- Rækkefølge:
 1. Taljer, strøm og ophængning.
 2. Få banket riggen sammen (hands)
 3. Hængt op, vater ud og tjekker at alle wirer er stramme.
 4. Opmåling af lamper og sætte de andre folk i gang.
 5. Skubbe tomme kasser tilbage.
- Følelse inden showet: Hvis det er større arrangementer hvor det er første gang, så kan man blive eksamens nervøs. Når folk begynder at komme ind så har man ikke flere chancer - så starter showet altså.
- **Det fedeste:** Der kan gå sport i hvor effektiv man kan være, altså hvor hurtigt man kan få det op. Også at tjekke om alt dur, eller selve afviklingen af showet.
- **Det værste:** En hård indlæsning, hvis der mangler hjælpere (fysisk arbejde og tunge løft) eller hvis man er presset på tid. **Det er irriterende hvis man skal vente på andre før man kan pakke sammen, det er frustrerende at se handsne stå og kigge - "Man har i baghovedet at man skal holde handsne i gang i stedet for at du bare står og kigger".** Det er også træls hvis man fx. ikke må bruge røg, så kan man ikke 'yde' sit bedste, og især hvis man først får det af vide når man kommer frem.
- Der er stadig en slags sport i at pakke sammen når man er færdig (altså med sig selv).
- Favoritudstyr: Lyskvaliteten ved lamper der ikke er Kina-kopier, det giver en tilfredshed at det bare virker ordentligt. At det bevæger sig pænt og skifter pæn farve. MA2-lyspulten er et dejligt stykke værktøj, han ser det som en tømrer der har en god skruemaskine i hånden. MA2 pulten er ny, og den er optimeret med software og hardware, vinklingen af skærme, ergonomisk er den lavet så man kan sidde og arbejde ved den som ved et computerbord. Man kan fx. trække keyboardet ud ved at trække armlænet tilbage, og interfacet (det digitale) ligner ikke noget der er lavet i paint eller er pixeleret, men det ser mere professionelt ud. Samtidig fungerer touchskærmen med det samme og knapperne rasler ikke og den er generelt gedigen lavet.
- Han bruger forskellige knapper, men fadere bruges mest.
- Han mener at grunden til at det ser så komplekst ud fordi at man gerne vil have alle de fysiske knapper, det sidder i muskelhukommelsen at man har en bedre følelse af hvor tingene er.
- Han synes at det er vigtigt at hardwaren ser godt ud overfor andre, og han ser sig selv som en professionel når han står ved pulten.
- Den værste opgave er at pakke scenepodier sammen, eller at banke truss fra hinanden, eller at trække alle de store tunge kabler, eller at afmontere special-løsninger hvor der er særlige beslag hvor det er "pusse-nusset".
- Normalt er det ikke kun én der har styr på at pakke ned, men de deler det op i lyd og lys, man har sit eget område.
- Værktøj man kunne bruge: Han har et værktøjsskab eller en kuffert med det gængse - skruetrækkersæt, svensknøgler, skævbidder, lommelygte.
- Ved simple halfester kunne man godt være én person, men når der kommer mange lamper så er det rart at have en makker med.

Probe assumptions

- Det at man har en scanner til at tjekke det hele kunne være rigtigt fint især til de store produktioner, for det er svært at overskue det hele. Ved de mindre opgaver har man dog et hurtigt overblik.
- Han mener at en scanner kunne integreres i lastbilen, men kunne godt se idéen med en mobil scanner.
- Han mener at man bruger samme process nu med tape, som man kunne gøre med farver i e-labels.
- Det kunne være fint at bruge e-labels så man ude på venue kunne vise hvor kasserne skal stå.
- Han mente at det kunne være fint hvis kasserne kunne signalere med lyd eller lys hvornår de skulle tages.
- Hvis det kunne scanne når man smed kabler i og den samtidig kunne tilføje vægten, så kunne det gøre det lidt nemmere når man skal sende ting med transportør eller med mindre biler eller så folk ved at hvor mange man skal være til at bære det.
- Hvis man har en masse identiske lamper, men du har forskellige numre, så kunne det være en kæmpe fordel at få kassen med den bestemte lampe til at lyse, så man ikke skulle lede i alle kasserne.
- Det kunne være dejligt hvis man ikke skulle skrive på alle labels, det er meget tid der bruges hvis det er fx. 100 kasser.
- Man kunne bruge en 'brik' som easyjob spytter ud, og så kunne man smide det på flightkasserne, og så bliver kasserne tildelt det givne job.
- Du bruger næsten allesammen iPhone, så det kunne også være noget man kunne bruge.

EVALUATION:

We learned that one of the fun parts of dismounting and packing when the show is over is the battle the technician has against himself and time. We also learned that the MA2 console is a good example of a product that the technician likes.

REFLECTION:

We need to further test our assumptions and concept with a model. We also found that it was hard to make the technician talk about his feelings perhaps because it is too abstract an element, next time we interview it we should use some pictures, quotes or statements that they can familiarize with. We need to investigate what a 'nice interface' is.

Worksheet name: Ideation session 2	Worksheet no: 15
Date for data: 2-03-2016	Date: 29-03-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The ideation was 'free', meaning no structure, where we emptied our heads based on the system as being with RFID and e-labels. The objective with the ideation was to envision how the product would look and work in the scenario where the light technician plans and controls the flightcases and e-labels.

EXPERIMENT/DATA:

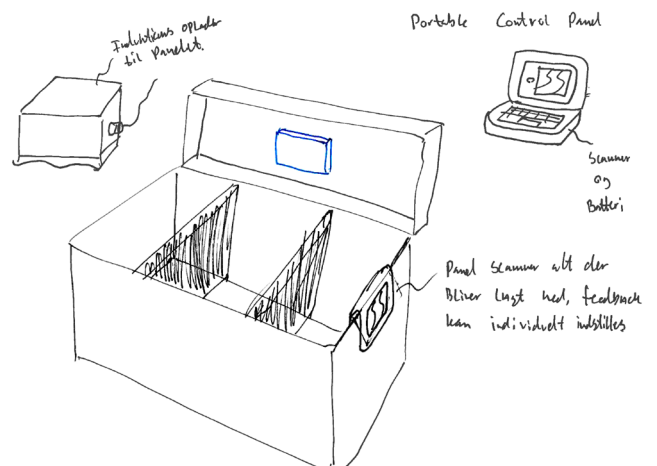
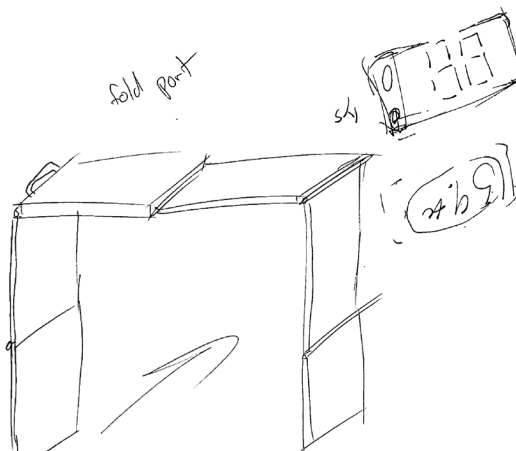
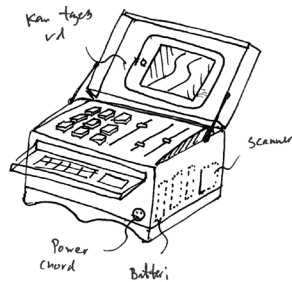
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- Du bruger næsten allesammen iPhone, så det kunne også være noget man kunne bruge.

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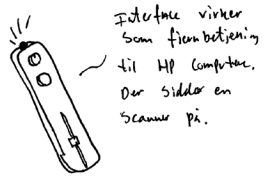
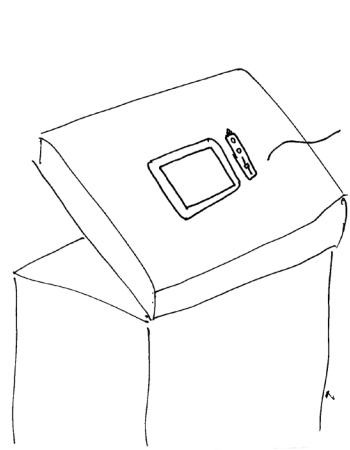
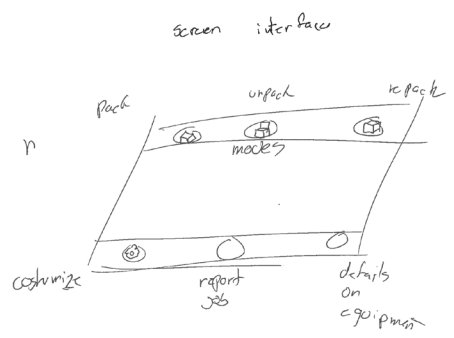
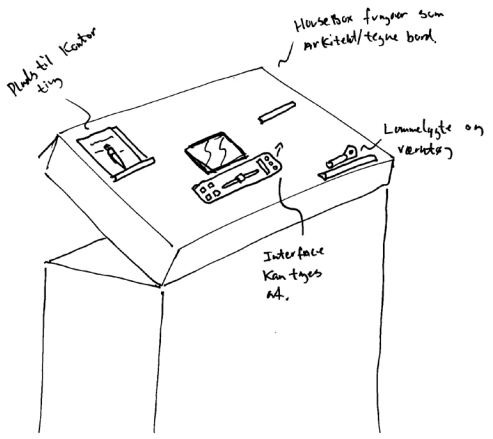
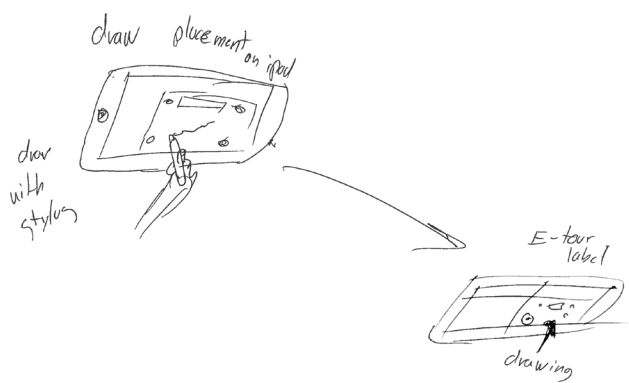
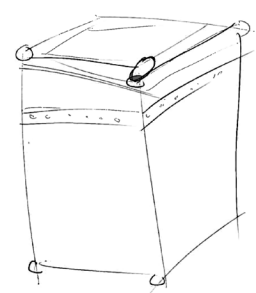
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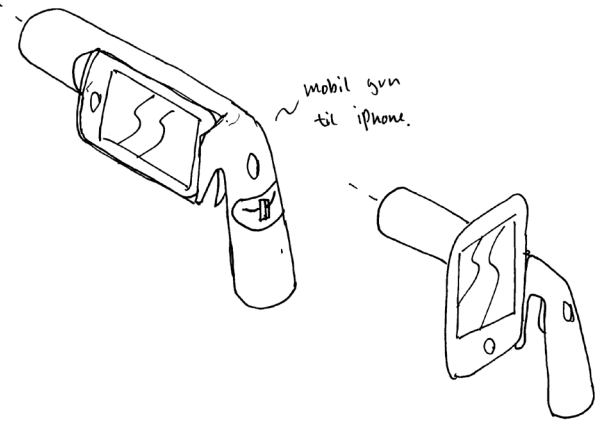
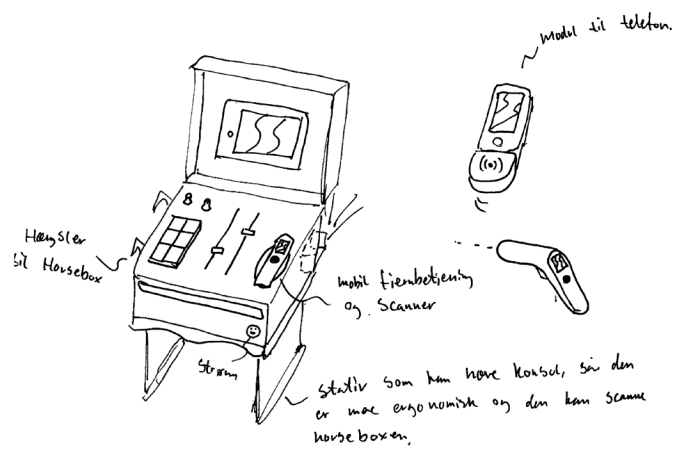
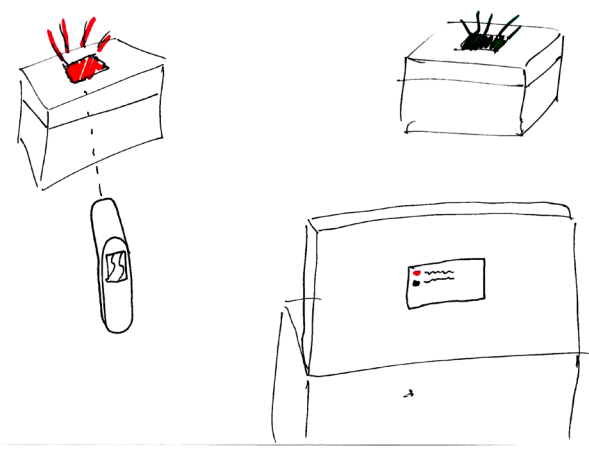
Ultra Portable !

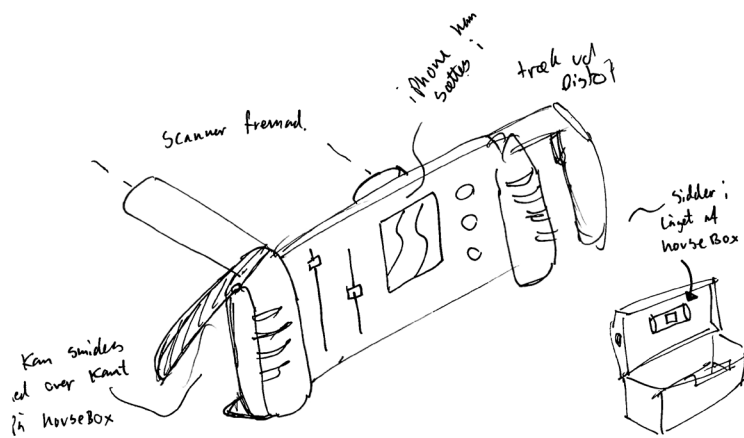
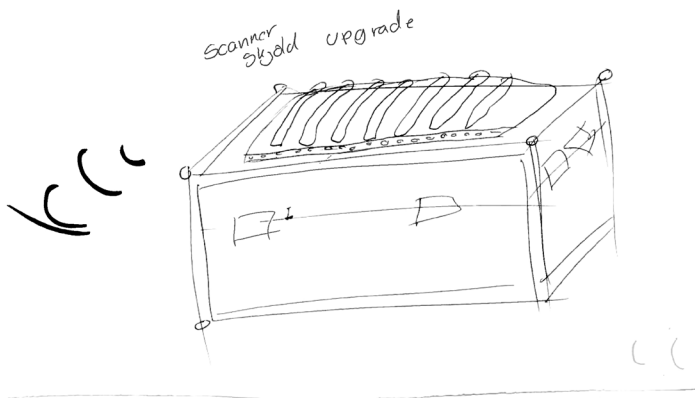


ricder



Interface virker som fjernbetjening til HP Computer. Der sidder en scanner på.





EVALUATION:

The ideation sprouted the idea of a smaller and more modular product which resembles a remote. We also came closer to defining the product architecture, which was divided in three major structures. We also got a basic understanding of the content and look of user interface.

REFLECTION:

We need to 'probe' the three concepts with models together with a user in order to get feedback on the processes, product architecture, and the user interface.

We need to combine the best from the three concepts and the feedback from user Niels Peter and make an updated prototype to test with other users

Worksheet name: Probing interview with Niels Peter	Worksheet no: 16
Date for data: 2-03-2016	Date: 29-03-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to probe our assumptions of the three concepts together with Niels Peter, and to further define Niels Peter's role at an abstract level.

EXPERIMENT/DATA:

The interview took place in a room at Rendsburgsgade, and it was divided into three parts:

1. Showing problems and concepts and let Niels Peter comment on it.
2. Go through pole pictures and let Niels Peter define the value.
3. Go through professional pictures and let Niels Peter define the value.

Three concepts were presented on A3 sheets, and two models were used as well.



- He wanted the scanning element to be in the back of the truck, instead of in a box or a product, so that you know that the flightcase is in the truck - he was afraid that it would register non-relevant flightcases that drives by if the scanning element was in e.g. the housebox. Also it should be mounted in the roof of the truck so you wouldn't lose the width in the truck.
- He found it a very good idea to use e-labels instead of tour labels. He liked the idea of having various colors of light integrated into the e-label, so that you it would be easier to delegate tasks to hands.
- He wanted a scanner in each flightcase that contained smaller parts.
- If you had to fill the 'control center' concept with tools, he wanted a printer for patch-labels (label for the various addresses), hammers, wedges and R-clips for the rigging.
- He liked the idea of being able to define addresses for lamps, but it would be needed to be done with a remote, since the lamp can only get an address when it's connected to power, and the power comes when the flightcases are long gone.
- He asked what he should do if they loaned 200 lamps from another company, and these lamps comes in standard flightcases - how would we manage these?
- He saw a potential in the planning of packing a truck - normally you want to pack the truck as tight as possible. "Let's say that you have two guys packing the truck, and they have two hands - could you report when a flightcase has been fully packed and is ready for loading?". He wanted the flightcase to automatically tell that the flightcase is full and ready for packing.
- He liked the idea of having an interface where you could see all the equipment in relation to positions, so that you could project an plan-image of where the equipment was to be positioned onto the e-label. Now they have to use glow-tape and write a lot.

- He found the most important thing to be that you want to be sure that you have everything with you the first time you drive to the event. He found one of the worst things to be if you have forgotten something e.g. a hoist, because you can easily use three hours on nothing along with the cost of having it packed in the warehouse and sent with a courier.
- He stated that if you gave somebody ‘the module’ he would be incapacitated to packing, because he would have his hands full.
- He liked ‘the module’ concept the most, because he could use it on the venue. His wish-concept was that you have a scanner in each truck, a screen in the warehouse and ‘the module’ on the venue.
- He found it very smart to integrate the WYSIWYG graphics into the controller, because it ‘knows the space’.
- All flightcases are opened when they get home to the warehouse in order to make sure that everything has returned - he would like to spare this process.
- He would like if you could report if equipment was dirty or defect, so that they wouldn’t have to check all flightcases when they get home to the warehouse.
- In the end he was asked what the coolest gear in the industry was he answered “Trackable LED floor”, and then he proudly showed a video where it was made for a Madonna concert.

2. Value definition in pole-pictures

The poles are defined as:

1. Portable/Stationary
2. Buttons/Touch
3. Rough/Delicate

Portable/Stationary:

He wanted the size of the control element to be the size of a regular 13” laptop or a tablet with a keyboard. Also he stated that it needs to run on batteries since there are not always regular power outlets.

Portable

Stationary



Portable like a 13” laptop or a tablet with keyboard.



Buttons/Touch:

He stated that with light shows you need tactile feedback like in buttons, but he does not necessarily need buttons for when planning the light on the flight cases. With precision work you need buttons. He thinks that a touch screen would be ok for him, and he actually prioritizes the customizability of a touch screen rather than the ergonomics of buttons. He does not think that you need a fader button. He also states that it would be a nice feature that you could search for equipment on the controller, where you would need buttons and a mouse pad. He could see the potential of having e.g. 12 colored buttons who represented the various lights on the flightcases, so that you could easily manage and use them.

Buttons

Touch



Combination of touch and keyboard.



Rough/Delicate:

It has to be very durable because it must be able to withstand a fall to the floor, so the durability must be like military equipment. The use and look must be delicate though, because you would want to use it. It must not be like an iPad that you drop on the floor and it gets ruined, rather like a Nokia 3310 that you can throw through a wall without anything happening. He thought that you could make a remote control with LED's where you could control the lights. He also found that the use of a 'matrix' could be very useful - the matrix is normally used for the light show, but it could also be used for the controller.

Rough

Delicate



Military durability

Delicate look and use - so you WANT to use it.



3. Value definition in professional-pictures

3 parameters and analogies are used to define the word professional:

1. "Reliable as a DeWalt radio"
2. "Customizable as a gaming mouse"
3. "Quick and Efficient as a Bosch screwdriver"

We started by asking how Niels Peter would define himself as a professional. He stated that his work is timing and precision based, and also you need a feeling for the space and the band playing. Also you need to be able to control 4 guys and at the same time receive input from a 5th guy - he could relate his feelings when working to that of a surgeon, who only has one chance and it must be perfect the first time.

When asked how he would define his tools as professional he was shown the 3 parameters, analogies and pictures.

He prioritized reliability as the most important factor, it was simply a must. They give about 3 times as much for high quality lamps that work every time compared to cheap china lamps. After that came the parameter Quick and efficient which had the second priority. The last priority was the Customizability

He stated that they often use an U.P.S. (uninterruptible power supply), which they put the power through, so if the power goes down everything doesn't shut down.

EVALUATION:

The ideation sprouted the idea of a smaller and more modular product which resembles a remote. We also came closer to defining the product architecture, which was divided in three major structures. We also got a basic understanding of the content and look of user interface.

REFLECTION:

We need to 'probe' the three concepts with models together with a user in order to get feedback on the processes, product architecture, and the user interface.

We need to combine the best from the three concepts and the feedback from user Niels Peter and make an updated prototype to test with other users

Worksheet name: Scenario Envisioning	Worksheet no: 17
Date for data: 30/31-03-2016	Date: 31-03-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to initially envision the various scenarios through body storming, but not to go into details. We needed to map the possible scenarios throughout the journey in order to realize problems or potentials relating to the interaction.

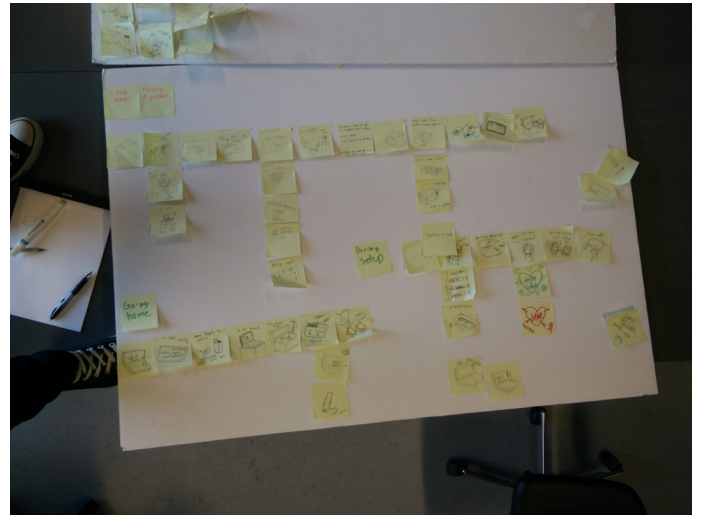
EXPERIMENT/DATA:

The structure consisted of body storming on 5 scenarios:

1. At warehouse before a job
2. On the road an unloading at venue
3. During setup/programming at venue
4. Take down/loading at venue
5. At warehouse after a job

The envisioning led us to realizing that:

- Assigning colors to e-labels can be done with both the control unit and the remote.
- The interface on the control unit can be divided into various modes, one for when packing at the warehouse, one for setup/programming, and one for packing at the venue. Also we found that there are parameters that needs to be in the interface; Flightcases, Items, Views, Sequence, Colors, Positions/Locations, State.
- There are various potential functions for the remote:
 - Scanning wires and see which flightcase they go to, making the e-label light up.
 - Turning the light in the e-label to various modes like on, off, blink or sequence, on a single e-label or on predefined groups.
 - Having a powerful integrated laser pointer.
 - Change the status of equipment to e.g. dirty or damaged.
 - Change the status on e-label.
 - Communicate with a printing device integrated in the control unit.
- Other companies flightcases could be managed with original procedures or with connection modules/tags like glow tape.
- The e-labels and processes should be divided visually through light to each truck and position.
- How the job should be ended, and where, can be done in many different ways such as at the job when everything has been loaded into the trucks, or when you get to the warehouse and have unloaded, or first after the flightcases has been sent to service when at the warehouse.
- The e-tour labels can show the sequence and order of packing flightcases in the truck with e.g. three different intensities or paces of blinking light on three flightcases.
- The patch list could be sent to the control unit by sms, and printed by a small printer in the control unit.
- The user of the control unit could log in to their own 'account' where they can alter views, setups or jobs and log in to a job as well.
- Having a button on the e-label could be used for assigning colors or for disconnecting the flightcase from the job when e.g. it has been through service.
- The control unit could be placed several places before use - It could be on a desk like a laptop, hanging on a hook on the wall or attached to the belt of a technician like a tool.



EVALUATION:

We learned that the system- and product architecture but also the wireless technology e.g. IR vs. RFID, means a lot for the interaction. We also learned that the intelligence applied to each device must be carefully considered e.g. can the remote do the same as the control unit? We found that the biggest problem is when other companies' normal flightcases must be managed together with flightcases with RFID.

REFLECTION:

We realized that we needed a lot of technical knowledge before we can approve or discard various interactions like e.g. using the remote to communicate with e-labels. We must start consider the parameters of flexibility and mobility versus security and consistency, which is highly relevant when defining where to place the scanner - as a mobile unit or integrated in a truck?

Worksheet name: Display research	Worksheet no: 18
Date for data: 04-04-2016	Date: 07-04-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to gain information about pro's and con's of the use of e-labels, or electronic shelf labels (ESL), and especially to find out which wireless technologies they use, how much power they use and how expensive they are.

EXPERIMENT/DATA:

The research consisted of a short phone interview with Michael Jørgensen, Division Director at Delfi Technologies A/S, and with desktop research on other companies.

Phone interview with Michael Jørgensen

The phone interview happened due to Michael answering a mail, where we asked if we could get some information regarding technical specifications for the Delfi Breece system. Michael told that they use bluetooth technology with a maximum range of 10-12 meters, for their Breece system, which is estimated to be too short a range for our concept, unless you could integrate some sort of Mesh technology.

Michael suggested to contact the firms Pricer and Imagotag.

Research on Pricer

During our research we found that ESL ca be as cheap as 0.08 \$, make 3.000 updates per hour and 5 year lifetime with 4 updates per day.

RFID ESL

http://www.alibaba.com/product-detail/2-years-warranty-factory-price-rfid_1860110432.html?spm=a2700.7724838.0.0.CljnaR&s=p (operating temperatures of -20)

<http://www.imagotag.com/products/label/g1-retail-label-family/g1-retail-2-7/>

EVALUATION:

We learned that the system- and product architecture but also the wireless technology e.g. IR vs. RFID, means a lot for the interaction. We also learned that the intelligence applied to each device must be carefully considered e.g. can the remote do the same as the control unit? We found that the biggest problem is when other companies' normal flightcases must be managed together with flightcases with RFID.

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Worksheet name: Interview with Lars Jankowski (Lyngsoe Systems)	Worksheet no: 19
Date for data: 05-04-2016	Date: 07-04-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to probe our concept as scenarios and go through them with Lars in order to get his immediate feedback. We also need information about technical requirements.

EXPERIMENT/DATA:

The interviewee Lars Jankowski is a business architect at Lyngsoe Systems at their headquarter in Års. It was a semi structured interview with a prepared agenda to talk from. The interview was in Danish and therefore the documentation is also written in Danish.

Agenda:

1. Go through the iso-system map
2. Go through scenarios and explain products.
3. Get immediate comments pro's and con's.
4. Questions about technical requirements.

Questions:

1. Er der interferens i forhold til radioer og walkie talkies?

Nej det burde ikke være et problem, det er de færreste kommunikationssystemer, der kører på UHF frekvenser, som RFID-tags gør.

2. Kunne man koble e-labelen op så den kommunikerer via RFID, og hvad skal der sidde af udstyr for at den kan køre det? (Processor, batteri, sender?)

Det kunne man godt, men man skal bruge aktive tags, der skal bruge batteri og der skal være en processor hvor LED dioderne og e-labelen skal kodes sammen. Man kan også overveje små smart devices

3. Hvor stor skal en scanner være for at kunne scanne det den kan? Evt. at den sidder i flightcasen eller i tour konsol?

Scannere til lastbiler har vi tit lavet, og det er ret nemt på trods af at der skal strømtilførelse til fra lastbilen. Men den burde godt kunne sidde i tour konsol, det skal være to pladeantenner, som fylder ca. to små modemmer.

4. Hvor meget batteri/strøm tror du at:

- En scanner der kan scanne i det format - kan den sidde på en computer/bærbar enhed, kan den sidde i en lastbil? Den bruger relativt meget strøm, men batteriet fra en bærbar computer ville sagtens kunne trække det.

- E-labelen bruger, især på radiokommunikationen.

E-labelen i sig selv bruger ikke så meget batteri, men det aktive tag samt processor gør.

5. Kan man bruge remoten via RFID, IR eller bluetooth?

Man vil kunne bruge den med både RFID, IR og bluetooth, men også over 3G, altså via en app - det ville nok virke optimalt.

6. Hvilke frekvenser skulle man arbejde på for dette system?

Man skulle arbejde på ultra høje frekvenser, UHF, der på passive tags ligger på henholdsvis 866-868 Hz og for aktive tags 433-434 Hz.

7. Er der chance for at der er forsinkelse, og i så fald kan man estimere hvor meget eller sige hvilke faktorer der er relevante? Det er utroligt sjældent at der sker mærkbare forsinkelser.

8. Simon snakkede noget om at der var mulighed for at få lov at prøve at prototype ved dem? Altså hvor vi tester med deres tags? Så kan vi verificere at det virker og at der i forvejen findes en mulig leverandør.

I kan sagtens teste ved os, og vi har både tags, kasser og diverse udstyr.

9. Varetager de kun software-delen eller laver de også tags, scannere eller generelt devices?

De laver både tags, scannere men også displays

Comments on iso-systemmap, scenarios and products:

- Lars thought that the concept was reasonable, and that most of the processes within the concept system could be executed with existing technology.
- He meant that a RFID scanner can scan about 100 passive tags in a second or two, which is not enough when +200 cables, with tags, rushes by the scanner. You would either need to have a stationary scanner integrated into the housebox or use the modular tour console to scan the housebox individually.
- He also meant that you could easily integrate the scanner into the tour console, since the scanner needed is the size of 2 very small modems or routers. He also thought that you wouldn't need extra power, but could rely solely on the battery of the tour console.
- He was fond of the idea of having some kind of display on the flight cases, but not as an e-label. He thought that the quality of tablets, or small dumb smart devices, is rising very fast compared to their price, of around 800-900 DKK. He found it important that the display had a certain flexibility of the graphical display, but also that it runs on 3G, it has the potential of GPS and it has a stronger construction than e-ink. He thought that if you wanted LED light in the e-label, you would need a processor or a small computer (Raspberry Pie), an active RFID tag, and then you would need to gather it into one program - he found it quite expensive, especially in the development part. He said that you already have smart screens which are completed products, ready for installment except for the programming.
- He found it smart to let the 'king' be able to control the lights, but he thought it would be smart with an app, enabling the hands to do more and to be more included. He thought that perhaps the hands could use the app to scan e.g. tags on wires or barcodes to see the location or to change a state. A second notion was that it was a good idea to have barcodes present and visible in case the system goes down.
- The patch list, containing addresses for the various equipment, could be sent by sms, but he thought that an app could handle the information and interaction better, and at the same time you could possible control the freelance-tasks by creating defined tasks in the system in order for the hands to access through the app.
- Pertaining repacking we discussed if it was okay to put cables in the wrong house boxes as long as they got back home to the warehouse. It could work if the housebox inventory was updated in the system and e.g. on the e-label. In order to do this a scanner is needed as an integrated part of the housebox or during packing or loading you would use the 'semi handheld' scanner and you would need to use more time scanning the housebox.
- He found it hard to use IR or RFID to point and choose individual flightcases, he was more fond of choosing it by using buttons on the remote.
- He advised us to research or contact the company Indu-Electric since they made AV equipment for a lot of different industries with where flight cases are used, as a reflection to the implementation or future expansion in the business model. He also told that the way he would get the project realized is by reaching out to event people, explaining or testing system or a prototype with them - it has to be good enough to make people want it already with the pilot project.
- He thought that we should focus on the time saved on site rather than errors avoided.

Some time after the interview the team needed to verify the technology used.

The following is an e-mail correspondence relating to the price and composition of scanners and flight cases.

-Hej Anders,

Jeg har set dine spørgsmål igennem og her er mine bedste svar på dem.

Det giver god mening at integrere antenner i en housebox fremfor at anvende et konsol.

- Når man ikke skal scanne med samme afstand som før (op til 2-3 meter) men max. 1 m, og man samtidig ikke behøver at triangulere, da der ikke er nogle kasser, der kører forbi, behøver man så hele TO plade antenner? Og kan man sørge for at antennen kun scanner i kassen, og ikke i andre kasser, eller skal man netop bruge to pladeantenne her?

Mht. antallet af antenner i en housebox, kan man bruge en lidt større antenne, som dækker et større område.

Samtidig vil jeg anbefale at houseboxen bliver foret med metalfolie på indersiden:

- til at reflektere radiosignaler fra antennen, så man kan læse flere tags i houseboxen

- til at holde udstrålingen indenfor houseboxen, så den ikke påvirker tags udenfor boxen.

Husk at der til pladeantennen hører en reader, som skal styre den.

- Hvor flad kan man lave pladeantennen? Hvor lille et areal kan man samtidig lave den? Og hvad koster en pladeantenne -> har i datablad over dem i bruger? (Det skal bruges, så vi kan lave et overslag over hvad e-labels ville komme til at koste, foruden programmeringstimer)

En pladeantenne som den ovenfor er ca. 5 mm tyk og den vil kunne dække en housebox. Der skal så laves et hul til stikket i låget af houseboxen.

Pladeantenne med kabel koster ca. 120 EUR

Tilhørende reader koster ca. 670 EUR

- Du mente, at et almindeligt computerbatteri sagtens kan trække kraften fra de 2 pladeantenne - nu har vi jo ikke en computer mere, men derimod et batteri, der samlet skal sørge for e-ink display, LED dioder, mikroprocessor med bluetooth opkobling OG pladeantennen -> Ville man stadig kunne klare den 'bare' med et computerbatteri (eller tilsvarende).

- Hvor hurtigt tror du en pladeantenne (eller 2) ville dræne et almindeligt computerbatteri hvis det læser konstant op til 1 m? Eller kan man sige hvor meget strøm det ville bruge?

Man kan lave noget styring, så readeren kun bliver tændt når låget på houseboxen er åben. Så ville et computerbatteri kun klare ca. 30 minutter.

(Men det er svært at lave en udregning uden en mockup af houseboxen). I kan designe houseboxen, så den har et kammer i bunden/siden til et stort batteri'

EVALUATION:

The display on the flightcases can be made in several ways, but Lars suggested a more expensive solution, with a small smart device, of around 800-900 DKK per display.

He also thought that you could integrate a scanner in the tour console.

He was very fond of integrating an app, so that the hands would have some kind of tool as well.

REFLECTION:

We need to see how low we can get the price down on the e-labels, since we need a relatively high volume for implementation.

We need to further explore the interaction with the tour console since it is verified that it can be a portable scanner.

We need to investigate the need for and potential of having an app integrated.

Worksheet name: Shape & interaction - Remote	Worksheet no: 20
Date for data: 05-04-2016	Date: 05-04-2016
Responsible: ML	Group 9:

OBJECTIVE:

The objective was to explore and diverge on how the remote could be designed.

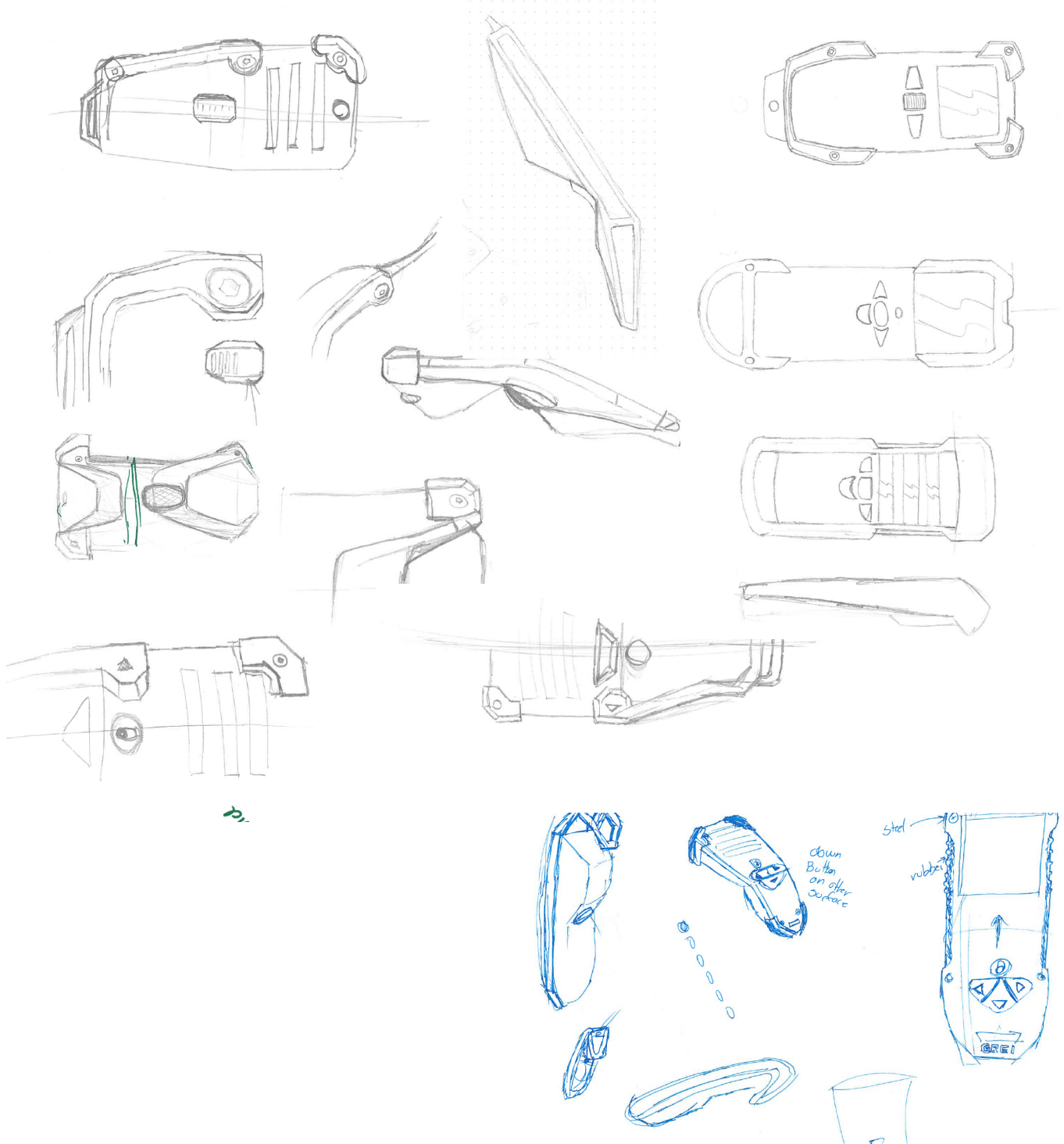
EXPERIMENT/DATA:

A representative from the team started by sketching different interaction principles that could be used on the remote. Making remotes with scroll wheels, toggle wheels, buttons, and etc. as well as exploring various compositions of the placement of these elements.



Worksheet name: Shape & interaction - Remote	Worksheet no: 20
Date for data: 05-04-2016	Date: 05-04-2016
Responsible: ML	Group 9:

More



Worksheet name: Shape & interaction - Remote	Worksheet no: 20
Date for data: 05-04-2016	Date: 05-04-2016
Responsible: ML	Group 9:

EVALUATION:

The session created ideas, and consensus about how the remote could look.

REFLECTION:

Many of the sketched ideas needed to be modelled in either foam or 3D software to see how well the worked together.

Worksheet name: Quantitative questionnaire	Worksheet no: 21
Date for data: 15-03-2016	Date: 16-03-2016
Responsible: AJ	Group 9:

OBJECTIVE:

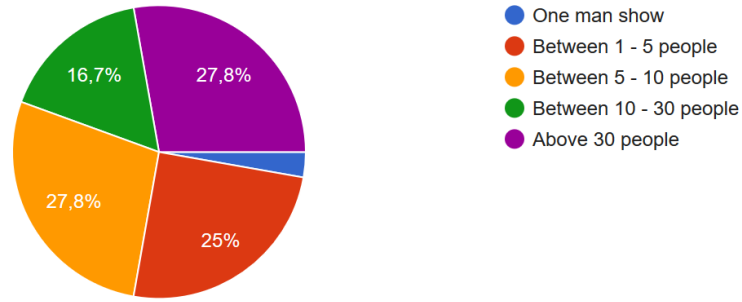
The objective was to verify if the problems we had identified at the various rental firms during the research were common at other rental firms in the industry. We also wanted to see which kind of equipment was lost, the employee size and how many flightcases firms had in stock. We also wanted to see how many of the firms checks their equipment after a job, how they packed equipment and what they used and last we wanted to hear about immediate problems with the processes.

EXPERIMENT/DATA:

A digital quantitative questionnaire - https://docs.google.com/forms/d/1ayC24Mbaa-hJndPoU8Omc4-9jVOTTr1KES_wL6lFC4/edit#responses - was sent out to hundreds of email addresses of rental firms found on the Easyjob web page within 'Customers'. 36 answers were analyzed and the results were clear:

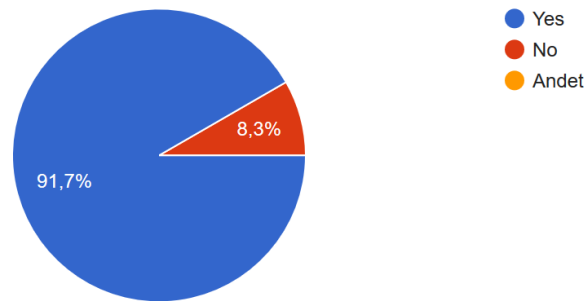
1. Around 50 % had over 10 workers as staff.
2. Over 90 % had experienced equipment getting stolen, lost or forgotten after an ended job.
3. The lost equipment is accounted for in various rates of percentage:
 - Small cables 95 %
 - Larger power cables 60 %
 - Microphones 60 %
 - Light fixtures 30 %
 - Computers 24 %
 - Smoke machines 6 %
 - Mixers 6 %
 - DJ consoles 3 %
4. 70 % had experienced equipment packed in wrong flightcases, 36 % had experienced equipment packed in wrong truck/van and 70 % had experienced equipment not returning from venue.
5. Over 50 % had over 200 flightcases in stock, and 25 % had above 500 flightcases in stock.
6. Over 90 % manage rental and inventory using Protonic's Easyjob, and almost 3 % manage physically with paperwork. 5 % manages in other ways.
7. Over 60 % checks if they got all the equipment and flightcases when it comes home to the warehouse after a job and 25 % only does it some times.
8. Around 45 % always checks if equipment is functioning when it returns from a job, 52 % only does it sometimes and 3 % never does it.
9. 75 % uses pre-made picking lists when packing equipment and 63 % writes on tourlabels. 27 % uses barcode scanners and 16 % prints disposable tourlabels.
10. 70 % sort their cables at the warehouse and 30 % does it at the venue.
11. The problems experienced with the processes were:
 - Mass Check In/Out with small RFID tags would be ideal but no reliable system for very small items and cases with alu-frames yet available
 - Speed of use, people circumventing system as it's too slow (a firm who used barcode scanners)
 - Check in is not made properly
 - Items forgotten, tools stolen and lost
 - Techs bringing on extra gear from warehouse, that is not accountet for.

How large is the company work at? (36 svar)

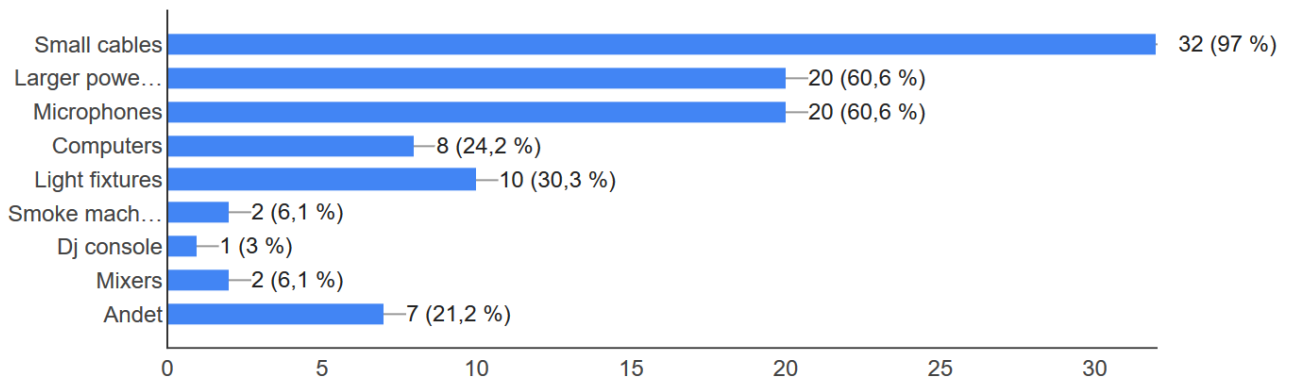


Have you, in your company, experienced equipment/items getting lost, stolen, or forgotten after an ended job? (36 svar)

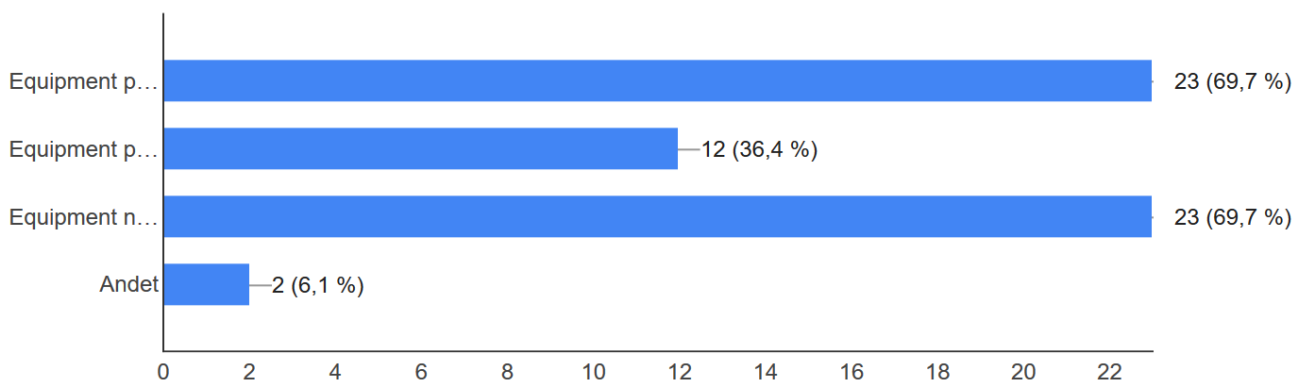
(36 svar)



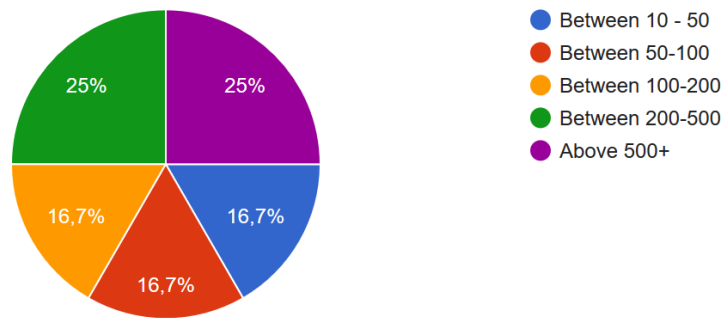
If yes - what kind of equipment? (33 svar)



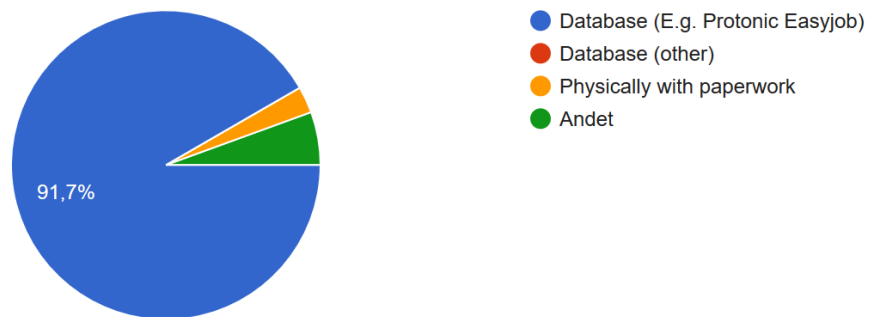
Have you experienced problem any of following (33 svar)



How many flightcases do you currently stock? (36 svar)

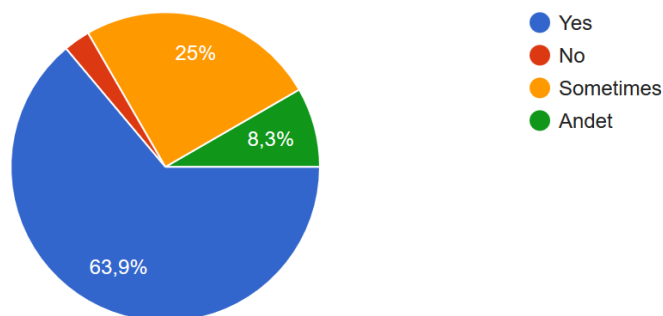


How do you manage your rental and inventory? (36 svar)



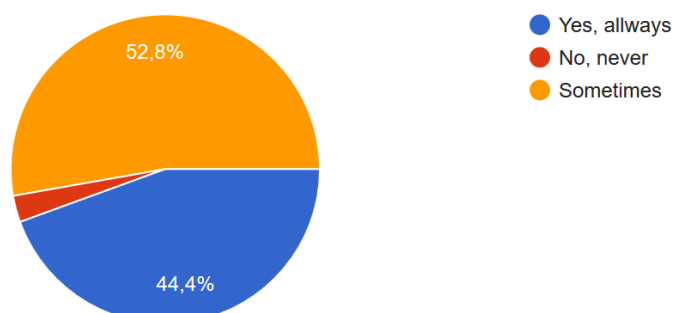
Do you check if you got all the equipment and flightcases when it comes home to the warehouse after a job?

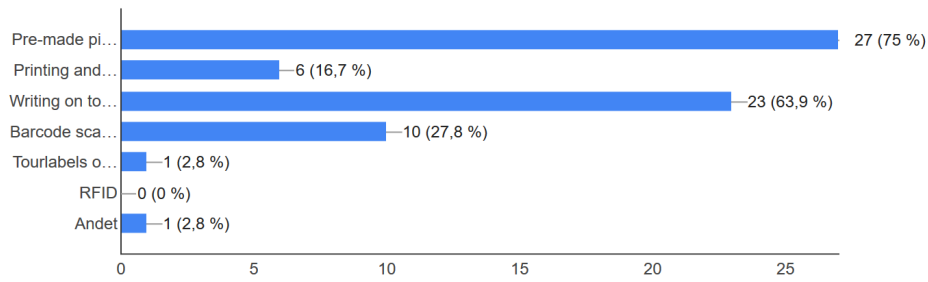
(36 svar)



Do you check if all equipment is functioning, when it returns from a job?

(36 svar)

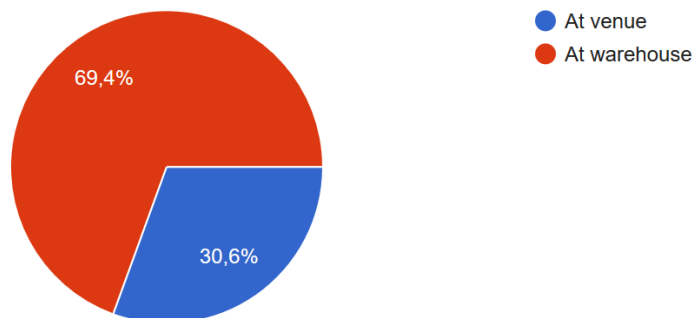




Have you experience problem with any of these processes? Please tell what:
(8 svar)

- Mass Check In/Out with small RFID tags would be ideal but no reliable system for very small items and cases with alu-frames yet available
- No
- speed of use, people circumventing system as it's too slow.
- check in is not made properly
- items forgotten, tools stolen and lost
- It dosent always feels neccessary with as small gigs as I do
- Techs bringing on extra gear from warehouse, that is not countet for.
- NO

Where do you sort your cables? (36 svar)



EVALUATION:

The problems we had seen pertaining loss of equipment seems to be common in the industry when considering the percentages from the questionnaire. We realized other problems with the system such as people circumventing the system as it is too slow which was from a firm that used barcode scanners and that technicians brings extra gear that is not counted for.

REFLECTION:

The limit of flightcases in stock was 500, which is why we do not know how the 30 % with above 500 flightcases differentiated. Now that we have seen that firms do indeed have the same problems we need to define how big the problem is, such as how much a company loses on lost equipment annually.

Worksheet name: Light shade test	Worksheet no: 22
Date for data: 21-04-2016	Date: 25-04-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to test how many different colors could be used on the e-tour labels in relation to how many shades of color a user was able to see on a semi-transparent material in 3 various lighting environments.

EXPERIMENT/DATA:

The tests had 9 test persons, and was conducted in a room where we had the possibility of having 2 different lighting environments: dark and bright.

The setting was done so that 4 different colors were presented on 4 different sides of the testperson, so that the lights did not stand right next to each other. The test person then have to rotate around themselves seeing each light for around 1 second each, and afterwards guessing how many shades were present, and then the specific the color - they also have to close their eyes before and after they have seen the colors .

The test would be started with 4 shades of red, green and blue (RGB) respectively resulting in 12 different shades, and can then be simplified down to 2 shades of red, green and blue respectively, resulting in 6 different shades.

The lights used are multi colored LED light candles with a remote.





Results:

- Test with 4 shades of red:

9/9 participants could differentiate between all 4 shades and could define the color, in a bright environment.

- Test with 4 shades of green:

3/9 participants could differentiate between all 4 shades, and could define the color, in a bright environment. 2/6 could not differentiate even after the environment changed to dark.

- Test with 4 shades of blue:

5/9 participants could differentiate between all 4 shades, and could define the color, in a bright environment. 1/4 could not differentiate even after the environment changed to dark.

- Test with 2 shades of red:

9/9 participants could differentiate between both shades and could define the color, in a bright environment.

- Test with 2 shades of green:

4/9 participants could differentiate between both shades, and could define the color, in a bright environment. 1/5 could not differentiate even after the environment changed to dark.

- Test with 2 shades of blue:

5/9 participants could differentiate between both shades, and could define the color, in a bright environment.

- Test with 2 shades of green/blue:

9/9 participants could differentiate between both shades, and could define the color, in a bright environment.

In four coincidences, the participants could not differentiate between the shades even after the environment had changed to dark, three of these coincidences were with green shades, the last coincidence was with blue shades.

The min. number of shades guessed in the 4 shade tests were 10, and the max. 12.

The min. number of shades guessed in the 2 shade tests (only counting for the three main colors, RGB) were 4, and the max. 6. Conclusively red was the easiest to differentiate, after this comes blue and lastly comes green.

EVALUATION:

We learned that there is a distinct difference between differentiating between red colors, and green and blue color - the red being by far the easiest, followed by blue and green respectively. Proposedly, 3 shades of each color should be sufficient for differentiating between them, but they can also be mixed, which can result in 18 or even 27 various shades, where the red should be used as the 'base color.

REFLECTION:

The test itself only counted the color based on a relatively large area of light (being the light candles), to make the conclusion definite you would need to test on the prototype of the e-tour label, being a small 'strip' of light and on the venue when the users are stressed and tired.

Worksheet name: Concept probing at profox	Worksheet no: 23
Date for data: 19-04-2016	Date: 25-04-2016
Responsible: ML	Group 9:

OBJECTIVE:

The objective was to get some user feedback on our product system.

A presentation of the overall concept and the scenarios, also presented at status seminar the 18. of april was presented to Mikkel Rodkjær during his lunchbreak on the 19. of april, at Profox office and warehouse.

The interviews audio was recorded, and the significant feedback was transcribed after the meeting.

EXPERIMENT/DATA:

- Jeg kan rigtig godt li skærmen!
- Helt klart det med lyset, det er mega smart!
- Jeg tror umiddelbart.. jeg forstår godt tanken, men onsite så blir det for meget at sku styre en fjernbetjening. Jeg ser andre måder at gøre det der på, istedet for at stå med en fjernbetjening. Man kan mærke lyset (light fixtures) op med tape eller numre istedet, så skal man ikke stå og dirigere på samme måde, og jobbet blir gjort ordentligt. Jeg tror ude i virkeligheden vil man springe hen over det hvis man skal ha en fjernbetjening med, og hvem af os sku så gå rundt med den?
- De fleste af vores kasser stor hvid skrift på, hvor der står MAC 700, og skummet er passet til den ene lampe, så problemet er måske ikke så stort. ideen er måske fin nok til større jobs, større end dem vi laver, men tror ikke løsningen er en remote.
- Det kunne være at man enten havde mærket alt lys, (light fixtures) i forvejen med en farve og et lys, det er selvfølgelig et product mere, men tror mere det den retning man sku gå med.
- Hva med man forestillede sig, at man helt tilfældige lampe i en kasse og så sagde labelen hvad der var i, så var det ikke så vigtigt at få tingene tilbage i samme kasse igen. (Auto id på labelen, as the team have decided on)
- Hvis man kunne gøre det til en standard at få Rfid chips i alt udstyr nyt udstyr, som nogle virksomheder allerede gør, så har den (skærmen) virkelig sin berettigelse i den her branche, det vil være en teknologi der kan bruges på så mange forskellige måder.
- Hvis man ku lave en intergration både med Easyjob, eller lignende, og på den måde få et link ud til hver lampe, så har i måske noget i ku leve af resten af livet
- Har nogle telefoner ikke os en Rfid læser ?
(jo eller så kan man putte et cover på der kan)
- Hvis man ku gøre det derhen af så, kunne det virkelig blive brugbart! alle har jo en smartphone, godt nok er der måske en app og cover der skal laves til en samsung, iphone android også videre, men hvis den første er lavet, så har man et arbejdsredskab i hånden som alle har, som altid har strøm på.
- Keep it simple, vil jeg sige.
- Også nemt; Vi har siddet og kigget på det her stregkode system til easyjob, en scanner dertil, og en licens til den scanner, det koster ca. 15.000, og så har vi én, der er bare ikke den nemme løsning
- Der gør det lidt nemmere for alle ansatte hvis de havde adgang.
- man kan gøre brug af teknologien, hvis det er igennem en app. der er tidspunkt, netforbindelse, locations, og så videre. det vil bare ikke være nemt med eller billigt at få ned i en fjernbetjening. Det vil være så meget værdi, i ku plukke fra en smartphone og bruge vider udvikle med..
- .. Jeg tror sku ikke på fjernbetjeningen
- Det er mega fedt det med farverne og er virkelig godt tænkt.
- Også til at hjælpe freelancere med at pakke på vores lager. så vi ku stille et lille setup up klar, og sætte det til lyse når der kommer nogle og henter det.
- Jeg kan se værdi flere steder: man kunne os bruge det til at markere hvilke ting der sku videre på et nyt job, så man pakker dem bagerst. det vil være et styrings redskab som man kan bruge på så mange niveauer, hvis man tænker den rigtigt.
- Jeg mener virkelig der et marked for det, hvis man kan ramme den rigtigt.

- Jeg har sådan app sammen med min kæreste, der hedder buymeapie. det triggede mig lige da du sagde plukliste:
- Det er skide smart, for det er på min egen enhed, - det kan os være firmaets, det er sådan set lige meget. Men der sidder allerede ID, også videre i.
- Og lave en app, det kan man lave rigtig mange penge på hurtigt, som lille firma.
- Jeg tror os consolen som en pakkelist er lidt overflødig at samme grunde. Det må sku gerne være på en app os, så den er ved hånden, eller på en tablet man kan ta med rundt på lageret.
- For vores firma vil det gi mest mening med noget der var mere software, og cloud baseret.
- Det åbner os nogle muligheder for at åbne noget af vores database for andre..
- Jeg siger ikke det skal være som jeg prædiker, men jeg ku bare godt se at noget der er cloudbaseret vil passe bedre.
- Jeg synes man skal focusere på at "nasse" de informationer der ligger i easyjob, ud til rfid tags, ud til skærme, og den helt rigtige app, så tror jeg satme i vil tage den branche der med storm.
- I dont know about what you want to do with the project afterwards, and want to make i commercial, but i truly believe you got some thing that would "spark benene væk under hele branchen"
- Når der har været en udlejning så plomberer vi den med en strips lingende ting, der kan man os gøre igennem jeres system. Vi vil gerne ku se om tingene har været brugt, og det er så måden vi gør det på.

(Når tingene ikke har været brugt siden sidst så behøves det ikke at blive tjekket, og det er sådan vi gør det

- Det vil os være fedt hvis du som dj kan melde en fejl, som fx. en play knap der snart skal skiftes eller lign. uden at du skal forbi en anden mand der så skal køre det ind i systemet. Hvis det skal være en succes... Altså hvis man går konsol vejen så skaber man måske samme barriere som easyjob gør med scanner og stregkode printere, ...hvis markedet sku tages med storm, og ideen sku "virke i banken" så ska du tænke produktet væk og gøre bruge af den viden at alle har en smartphone i den her branche, i 99 % af tilfældende.
- Så er i allerede foran konkurrenterne, så kan i tjene penge så mange ting der ind under.
- Man ku sælge templates til tourlablen, og nye functionaliteter til app'en hele tiden.
- Man kunne lave stadion templates, så at i egentlig tegne parken, boxen osv. op og så sælger det til de tour manager der skal afsted.
- Der er et kæmpe potentiale synes, og ikke kun i vores branche.
- Det vil virkelig hjælpe os med at "detailspore" produkter.

E-tourlabel udforming.

Mikkel griber prototypen i 3D og siger:

"Jeg tror den skal være så flad som muligt" "så simpelt og fladt som muligt"

EVALUATION:

We should rethink the concept into an app.
Cut all "excess" of the concept, and give the same functions in a "cheaper" way.

REFLECTION:

Mikkel is one of the founders of the Profox, and self learned "event technician", and have no particular area of focus, as a rigger, Lightjockey, sound technician or etc. He is not the

But the fact that he's been running a event company and events for 10 years, give validation to his arguments and the team may need to rethink the concept. A swot analysis could be great to find out how to proceed

Worksheet name: App layout and navigation development	Worksheet no: 24
Date for data: 04-05-2016 / 09-05-2016	Date: 09-05-2016
Responsible: Mathias Lund	Group 9:

OBJECTIVE:

inorder to develop the app, the team needed to look for already existin apps with “patterns” and navigation that could used as inspiration.

EXPERIMENT/DATA:

The team investigated nummerous apps, and looked for patterns. The apps was all apps with a higher complexity, with many features and functions.

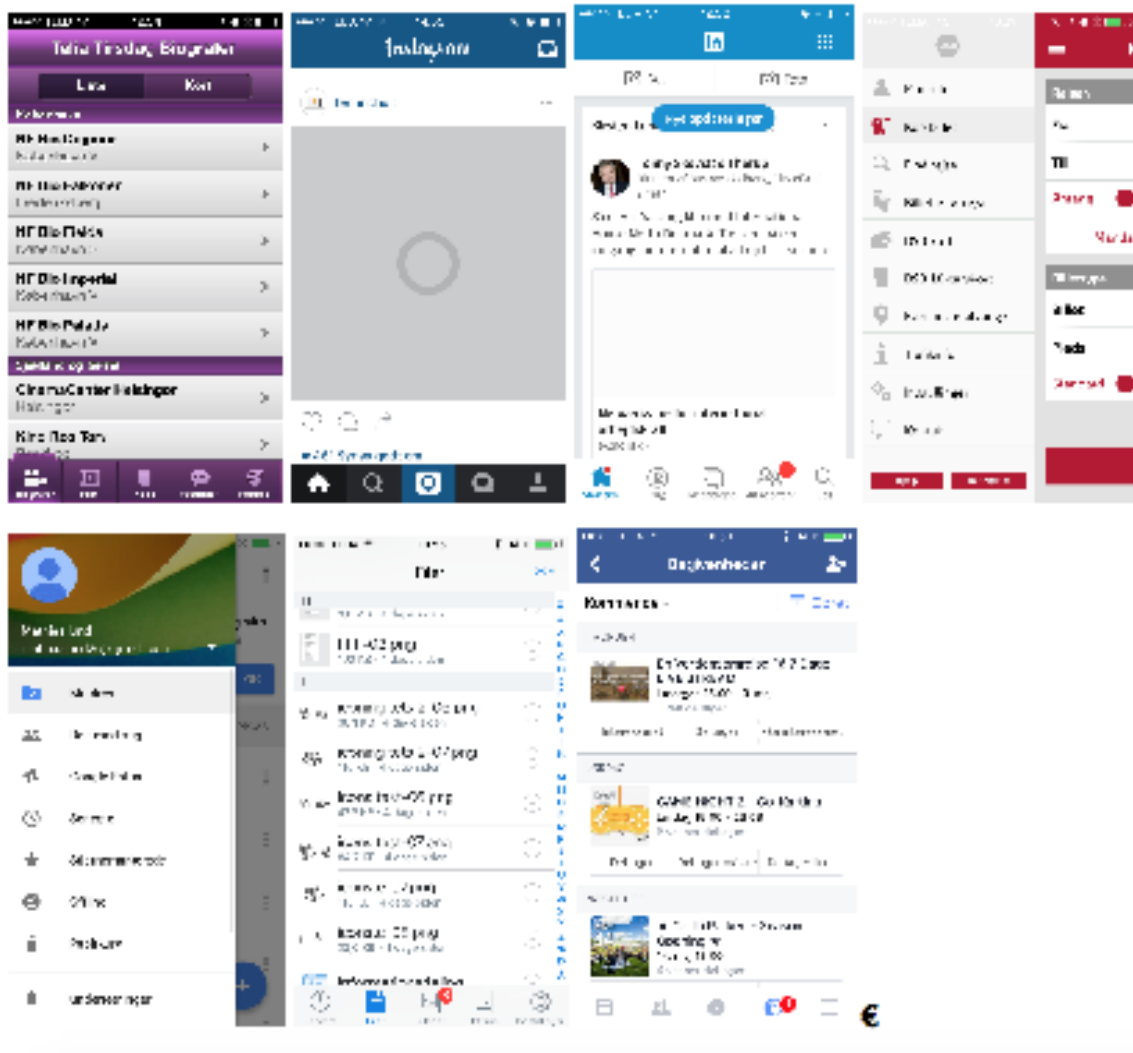
The team found 7 apps with high level of complexity, where different kinds of navigation was use.
The team evaluated these menus by trying them on a smartphone.

Screenshots from the apps is shown on following page.

DSB app - Side menu
 Googledrive - Side menu
 Facebook - 5 mode Bottom + right sidemenu + search bar left
 Instagram 5 Mode Bottom + settings in top right
 Linkedin - 5 Mode bottom + settings
 Telia tirsdag - 5 Mode bottom
 Dropbox - 5 Mode bottom. settings top left.

Results.

A 5 mode menu in the bottom give a fast scroll trough the different mdoes in the app, the side menu gives a large overview but requires 2 actions to access a mode.



EVALUATION:

The 3 different mode described in the scenarios, would be beneficial separate into 5 mode, in order to fast scroll between them, and give a better overview, as experienced with the apps tested.

REFLECTION:

The team should try to prototype the navigation of the app. Icons for the menu should be development

Worksheet name: Concept evaluation with Niels Peter	Worksheet no: 26
Date for data: 04-04-2016	Date: 07-04-2016
Responsible: AJ	Group 9:

OBJECTIVE:

To evaluate the new concept where the phone is used as the scanner and planning device we visited Event technician Niels Peter Lindholdt to talk the concept through and get feedback on our thoughts.

Niels Peter have earlier in the process been involved when developing and evaluation previous concept.

EXPERIMENT/DATA:

Generalt

Den skal selv sige om der mangler noget eller om der er pakket for meget. Og så skal den læse i den store EasyJob database om det ekstra udstyr kan tages med eller om det er booket af andre. (se figur 1 nederst)

Fra kl. 8-16 er der folk i bygningen og så ringer man til dem hvis man har glemte noget.

Når man skal planlægge hvor lamperne skal placeret er det ikke sikkert at alle typer af den samme lampe skal det samme sted hen. Hvis man har 100 rush mh2 lamper skal det derfor skal det være muligt at sige 50 skal derhen og de andre 50 skal der her.

“Jeg synes det ser ud til at fungere virkelig godt”

“Hvis i får Martin eller Clay Paky med på det her, så kommer i til at tjene penge”

“I kan skabe jeres eget job her”

“jeg vil gerne bruge det, og er overbevist om at det vil give mere overskuelighed og overblik”

“Det er meget tidsbesparende i forhold til at planlægge og kommunikere hvor ting skal hen på venue”

Under showet opbevares kasserne enten i lastbilerne eller under scenen, derfor kan funktionen også bruges til at sortere kasserne til de rigtige steder ved brug farverne når der skal pakkes sammen igen og kasserne skal ud på gulvet.

Scanningsfunktionen hvor man kan scannet et enkelt item er især god til mikrofoner, så man lige kan scanne hvor de skal hen. Til lamperne ved man det som regel hvis man er en fra holdet.

Efter tour label er pakket tog siger “ok” på displayet skal den også vise hvilken lastbil den skal pakkes i.

Typisk pakker vi en lastbil til hver position på venue, så jeg for eksempel har en helt lastbil kun med lysudstyr

Det skal være robust for der kan nemt komme til at falde 200 kg oven på hvis der er noget der stikker højere op end kassen

Jeg vil tro at i har 3mm at gøre godt med

Pakning på lageret

Det er vigtig at man kan se hvem der har pakket den enkelte kasse, så det er godt det kommer på forsiden a tourlaveln.. Hvad gør i når der er flere der pakker sammen?

Vi er cirka fem mand til at pakke på lageret og det tager den dag, så der skal være mulighed for at fem mand bruger appen på samme tid

Det ville være en god ide hvis man havde en funktion så man kunne dele picking listen op i de forskellige enheder: Lys, lyd, truss, audio, video ect. Så kunne man tage en enhed af gangen.

Kunne det være en ide at dele det op efter placering på lageret? Ja helt sikkert, det er en god ide. så kan man barer kører hen til en lokalitet og pakke det.

Udstyr til reparation

Det ville være rigtig godt med en sammenfattende liste over alt det der er til reparation. Så kan man afleverede den til chefen når man kommer hjem

Når man pakker sammen kan man fejlmelde på Tour label at der er en fejl i kassen. Når jeg så kommer ind i bilen efter et event har jeg en liste over alle fejlmelding hvor jeg kan gå ind og beskrive hvad fejlen er. Det tager for lang tid hvis det skal gøres mens der pakkes sammen, da dette er en dynamisk process hvor alle vil være færdige så vi kan komme hjem. Det skal gælde både for fejlmelding og beskidt udstyr.

Konkret om App

Niels Peter siger “selvfølgelig” da vi fortæller ham at konceptet er blevet lavet om så vi bruger en app på telefonen til planlægningen

Jeg synes det vil være fedt med en pc version så man kan samme tid med at man booker udstyr til et event så fortæller, man også

hvorhenne på venue det skal places. så sker planlægningsprocessen allerede der. Det kunne foregå som "drag and drop" som i selv foreslog i jeres tidligere koncept.

Hvad synes du om hvis hver havde en mindre udgave af appen og selv kunne scanne alle ting og få at vide hvor de skal placeres? Hvis man skal scanne hver enkelt lampe så kommer der til at tage for lampe tid når man pakker sammen. Jeg vil os komme til at mistænke at de er på facebook hele tiden. De har ikke telefonerne på sig når de arbejder.

Søgefunktionen skal altid være til stede

EVALUATION:

Niels Peter finds it really interesting and means that a lot of companies will be interested.

He want to have a PC version to plan along the booking.

REFLECTION:

Keep the contact with Niels Peter to get feedback during the app development.

Integrate his proposal into the concept.

We need to focus on the scenario when more staff used the app at the same time.

Worksheet name: Icon development	Worksheet no: 27
Date for data: 04-04-2016	Date: 07-04-2016
Responsible: Mathias lund	Group 9:

Objective:

The team needed to develop easy to understand icons for the app.

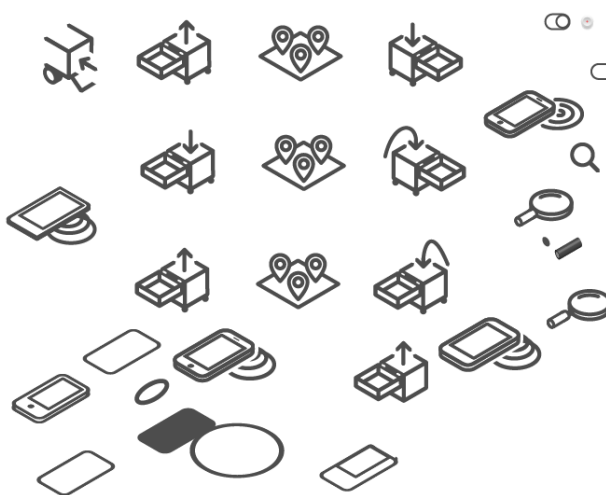
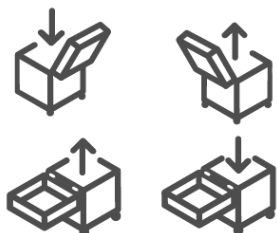
Experiment/data:

Through numerous iteration the app icons was developed. A series of isometric icons was first developed, these was tested with random tests person. They where shown the icon os an computer and asked to decefier what the icons meant.

Comments from testing:

*Det ligner en skuffe, i et køkken?
lågene på kasserne forvirre ens forståelse*

The team tried to improve the isometric icons



The icons was then tested on a smartphone, which made the team realise that they where not well suited for app use.

Comments from testing:

*Det passer overhovedet ikke med det flade design på app.s
Flade vil være bedre!*



FROM THESE TO THESE

The icons was therefore rethough into simple flatter icons

These icons was further developed by testing them and adjusting small details.



<p>EVALUATION: The 2D flat icons worked better on a smartphone, and had almost the same level of recognizing when people was asked t decipher them.</p>	<p>REFLECTION: The app should have the 2D icons.</p>
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Worksheet name: Refraction test	Worksheet no: 28
Date for data: 04-05-2016 / 09-05-2016	Date: 09-05-2016
Responsible: Anders Jelle	Group 9:

OBJECTIVE:

The objective was to test how well the LED's shone through a transparent material, in this case plexy glass, with a frosted surface. We wanted to see if the LED could face upwards from a horizontal plane, instead of facing sideways from a vertical plane, as seen in illu. 1.

EXPERIMENT/DATA:

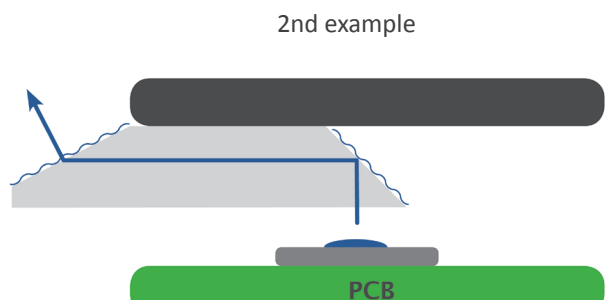
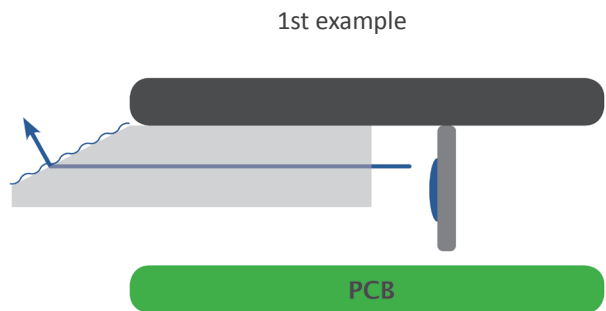
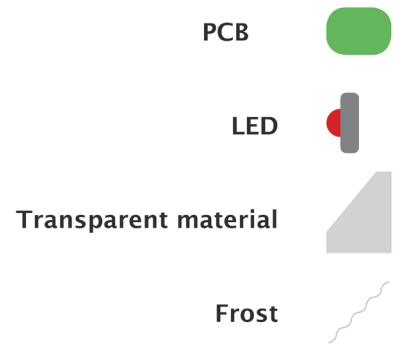
The test was divided in two:

- **Test 1:** A test to see if the LED could be seen through a transparent material with a frosted surface, 15 mm wide and 4 mm thick.
- **Test 2:** A test to see if a slope in the glas, making it a form of prism, could transport the light through the glass, even though the LED points upwards (2rd example), and not directly at the glass plane (1st example). This test was done as an attempt to see how much space could be saved, so that the LED-diode would not need to point horizontally.

The results were positive:

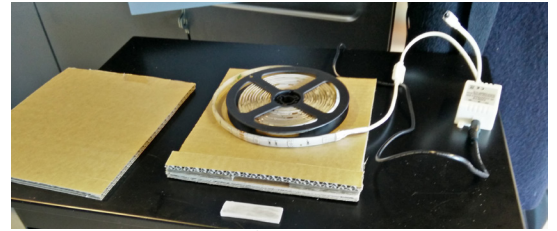
- The first setup showed that the light could clearly be seen on the frosted surface when the LED's pointed parallel with the horizontal plane (as in example 1.)
- The second setup showed that the light could clearly be seen on the outer frosted surface, even though the LED was not pointing parallel with the horizontal plane, but in this case, pointing upwards vertically from the horizontal plane, through the transparent surface and internally onto the inner frosted surface (as in example 2.).

The pictures from the various tests can be seen on the next page:



Test 1:

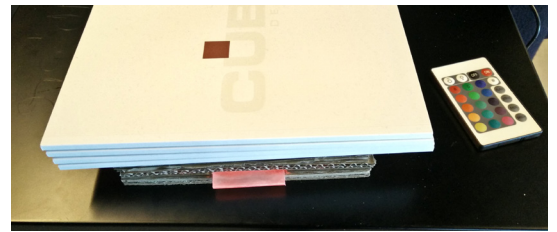
- Picture 1 shows the setup, with an LED strip enclosed in a cardboard box, where the standard plexy glass from example 1 fits the small hole in the box.
- Picture 2 shows the plexy glass placed in the hole.
- Picture 3 shows the red light that comes from the plexy glass when the LED strip is turned ON.
- Picture 4 shows the yellow light that comes from the plexy glass when the LED strip is turned ON.
- Picture 5 shows the purple light that comes from the plexy glass when the LED strip is turned ON.
- Picture 6 shows the dark blue light that comes from the plexy glass when the LED strip is turned ON.
- Picture 7 shows the light blue light that comes from the plexy glass when the LED strip is turned ON.
- Picture 8 shows the green light that comes from the plexy glass when the LED strip is turned ON.



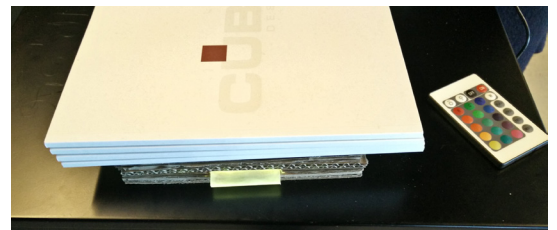
1. Picture



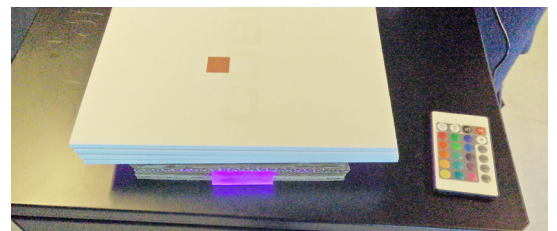
2. Picture



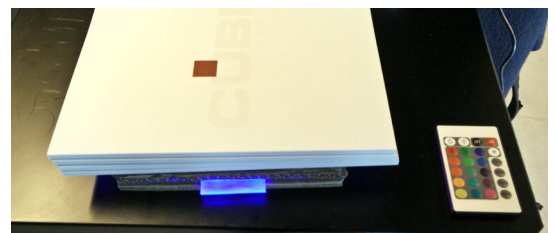
3. Picture



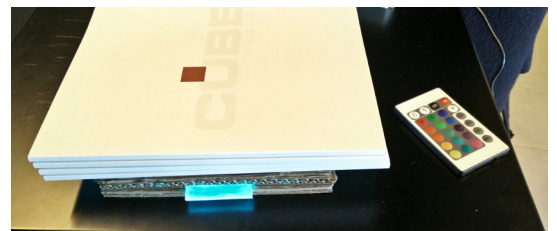
4. Picture



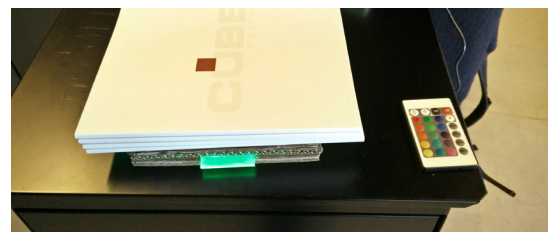
5. Picture



6. Picture



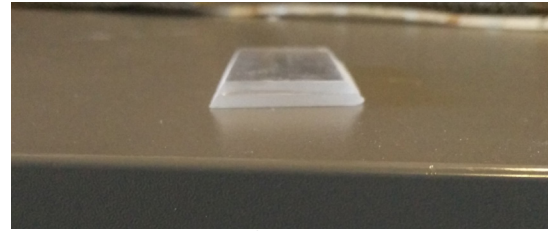
7. Picture



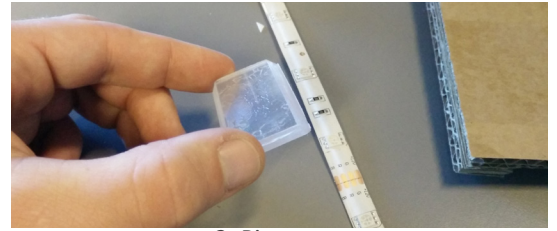
8. Picture

Test 2:

- Picture 1 shows the two plexy glass plates that were glued together, and then the edges were grinded to give the frosted and refractive surface.
- Picture 2 shows the plexy glass how it was put on top of the LED strip.
- Picture 3 shows the red light that comes from the plexy glass when the LED strip is turned ON.
- Picture 4 shows the yellow light that comes from the plexy glass when the LED strip is turned ON.
- Picture 5 shows the purple light that comes from the plexy glass when the LED strip is turned ON.
- Picture 6 shows the dark blue light that comes from the plexy glass when the LED strip is turned ON.
- Picture 7 shows the light blue light that comes from the plexy glass when the LED strip is turned ON.
- Picture 8 shows the green light that comes from the plexy glass when the LED strip is turned ON.



1. Picture



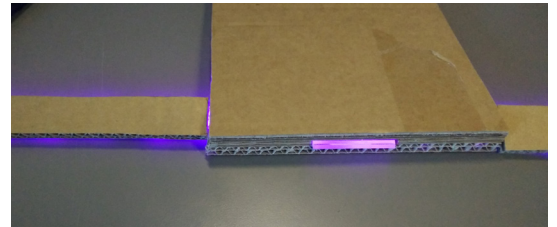
2. Picture



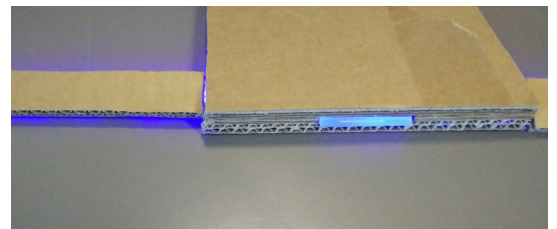
3. Picture



4. Picture



5. Picture



6. Picture



7. Picture



8. Picture

EVALUATION:

We learned that there is a distinct difference between differentiating between red colors, and green and blue color - the red being by far the easiest, followed by blue and green respectively. Proposedly, 3 shades of each color should be sufficient for differentiating between them, but they can also be mixed, which can result in 18 or even 27 various shades, where the red should be used as the 'base color.

REFLECTION:

The test itself did not clarify if the light was more visible with a direct reflection rather than a penetrable reflection.
The test only verified that each individual color could be seen, clearly in daylight.

Worksheet name: Easyjob software assessment	Worksheet no: 29
Date for data: 05-05-2016	Date: 06-05-2016
Responsible: AJ	Group 9:

OBJECTIVE:

The objective was to gain a deeper information about the Easyjob software in terms of, problems, requirements and functions in relation to being compatible with wireless data transfer.

EXPERIMENT/DATA:

The team downloaded the Easyjob Trial version, which has the full list of features, and tried to create an item and a job. Afterwards, easyjob was subjected to an analysis of features compared to input and output requirements of the software and app respectively, which gives an overview of the compability.

The newest Easyjob edition is the 6th. generation and they advocate for several new functions on their website:

- Staff and transportation can be planned more individually for improved resource management.
- Cost planner for quickly checking the cost effectiveness of projects.
- Simplified creation of international proposals with the foreign language and currency tool.

Functions in Easyjob (screenshots of the functions in the program can be seen in the end of the worksheet):

- 1. Easyjob Today** (Projects in progress, check-out today and check-in today)
 - Start/end
 - Number, name and job name
 - Manager
 - Status and service
 - Customer and quantity items
- 2. Address Book** (General, custom fields, invoices, total sales, ressources, jobs, and document.
- 3. Items** (NumberID, name, inventory, sub category, rental price, sales price, stock location, owner, dimensions, power consumption and volume.
- 4. Workshop activity** (Repair and maintenance - Electronic defect, mechanical defect and wear and tear)
 - Attrition
 - Freight damage
 - User error
- 5. Overbookings** (Quantity, sub-hire assignment, start, end, number, job, status, project and manager.
- 6. Reports** (Job/project, Master Data, invoicing, sales, purchase order, workshop, purchase invoice and manufacturing.
- 7. Invoicing** (Create, edit, copy, delete, create credit note, payment receipt, reminders, invoice project and export.
- 8. Master data** (Among other - vehicles, resource status, task types and accounts)
- 9. Business Information Center** (Among other - Top money-makers, Top 10 project types)
- 10. Data exchange** - Easyjob gives the opportunity of importing and exporting data on addresses incl. contacts and items incl. devices.

So Easyjob is compatible with both ID-numbers, inventory and stock data, item status, truck numbers, staff ID which means that it should be possible to extract and insert data from and to the server.

At the same time Easyjob has a WebApp and a iPhone app meaning that they are already cloud compatible. The Mobile iPhone edition's communication takes place in real time via an http connection to the company. Features are:

- Online web application
- View and create addresses
- Use telephone functions from the address book
- View and create projects
- View item schedule
- Book items in a job
- View resource planning
- Book Resources in a job

So the mobile edition is mostly used to create an overview even though you can still create projects and addresses, which is mostly done at the office.

Minimum system requirements for desktop and simple server:

Desktop:

- Microsoft Windows Vista, 7 or 8.
- 2 Gb RAM or more.
- Screen resolution minimum 1280x1024.
- Fast harddisks

Simple server:

- Microsoft Windows 2008, 2008 R2, 2012, 2012 R2, Vista, 7 or 8.
- 3 Gb RAM or more.
- 2 fast harddisks.
- Intel Server Processor \geq 3 GHz

Problems:

- Easyjob do not offer a process-overview, so that you could see how far a warehouse worker is with the packing process.
- They provide an alternative to picking lists, but it is expensive barcode scanners which require repetitive tasks. Frank Søndergaard meant that it would cost 20-25.000 DKK to implement scanners with them, and they are a small firm.

easyjob 6 Trial - [easyjob Today]

File View Item Projects Purchase Order Workshop Invoicing Master Data Statistics Reports Tools Window ?

easyjob Today - 5. maj 2016

Projects in progress

Start	End	Number	Name	Manager	Status	Customer
-------	-----	--------	------	---------	--------	----------

Check-Out Today

Start	End	Number	Job Name	Out	Manager	Service	Customer	Quantity Items
-------	-----	--------	----------	-----	---------	---------	----------	----------------

Check-In Today

Start	End	Number	Job Name	Out	in	Manager	Service	Customer	Quantity Items
-------	-----	--------	----------	-----	----	---------	---------	----------	----------------

Admin 05-05-2016 22:21 NUM 6.2.2.53


1. Easyjob Today

easyjob 6 Trial - [Address Book]

File View Item Projects Purchase Order Workshop Invoicing Master Data Statistics Reports Tools Window ?

Type	Number	Company	Main Contact	Contact Salutation	Contact First Name	Contact Last Name	Contact Phone	Contact Phone Mobile	Contact E-Mail	Street	County	Zip Code	City	State	Country	Phc
Address	1000002.00	Gigantum	Hansen, Jens		Hansen	Jens				Willy Brandts Vej 31		9220	Aalborg		Danmark	898
Contact	1000002.00	Gigantum								Willy Brandts Vej 31		9220	Aalborg		Danmark	898
Address	1000001.00	protonic software Corp								Frankfurter Landstr. 52		63452	Hanau		Germany	+49
Contact	1000001.00	protonic software Corp							info@protonic-software.com	Frankfurter Landstr. 52		63452	Hanau		Germany	+49

General Custom Fields Invoices Total Sales Resources Jobs Document

Number: 1000002.00 Custom Number: 123 Image: 

Company: Gigantum Phone: 88888888

Company 2: Company Phone:

First Name: Hansen Home Phone:

Last Name: Jens Mobile Phone:

Street: Willy Brandts Vej 31 Fax:

Zip Code, City: 9220 Aalborg Notes:

Country: Danmark

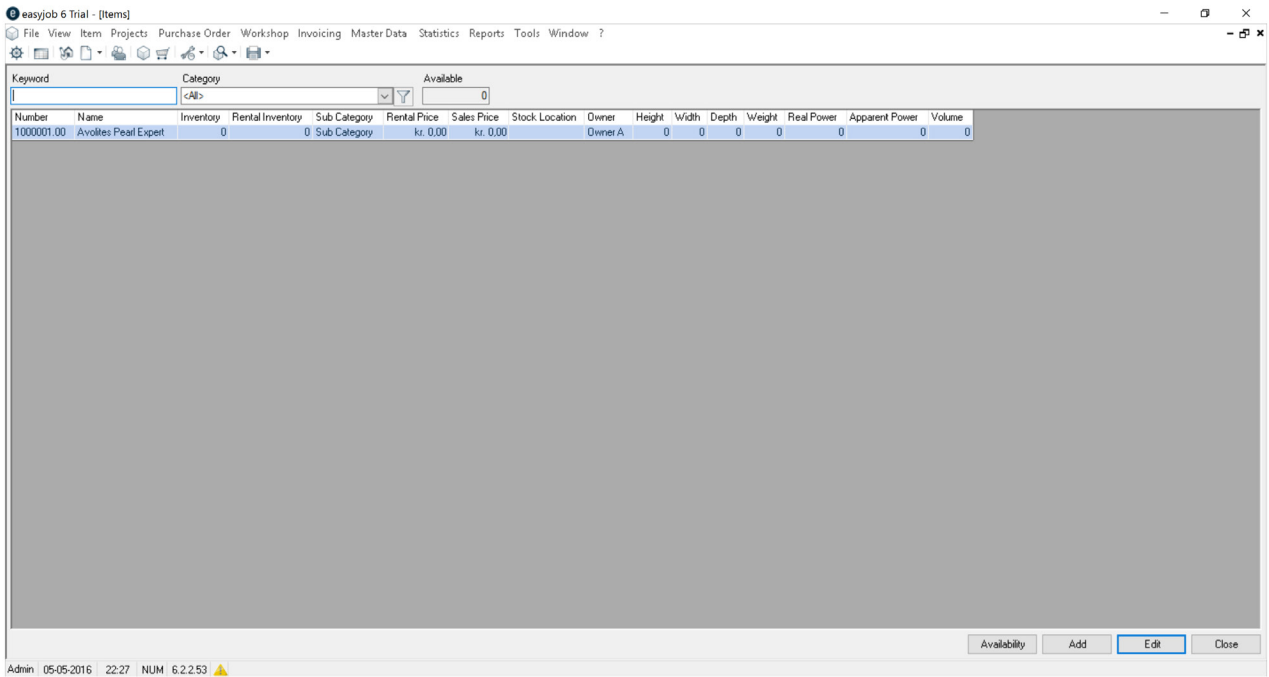
E-Mail: gigantum@aalborg.dk

Web: gigantum.dk

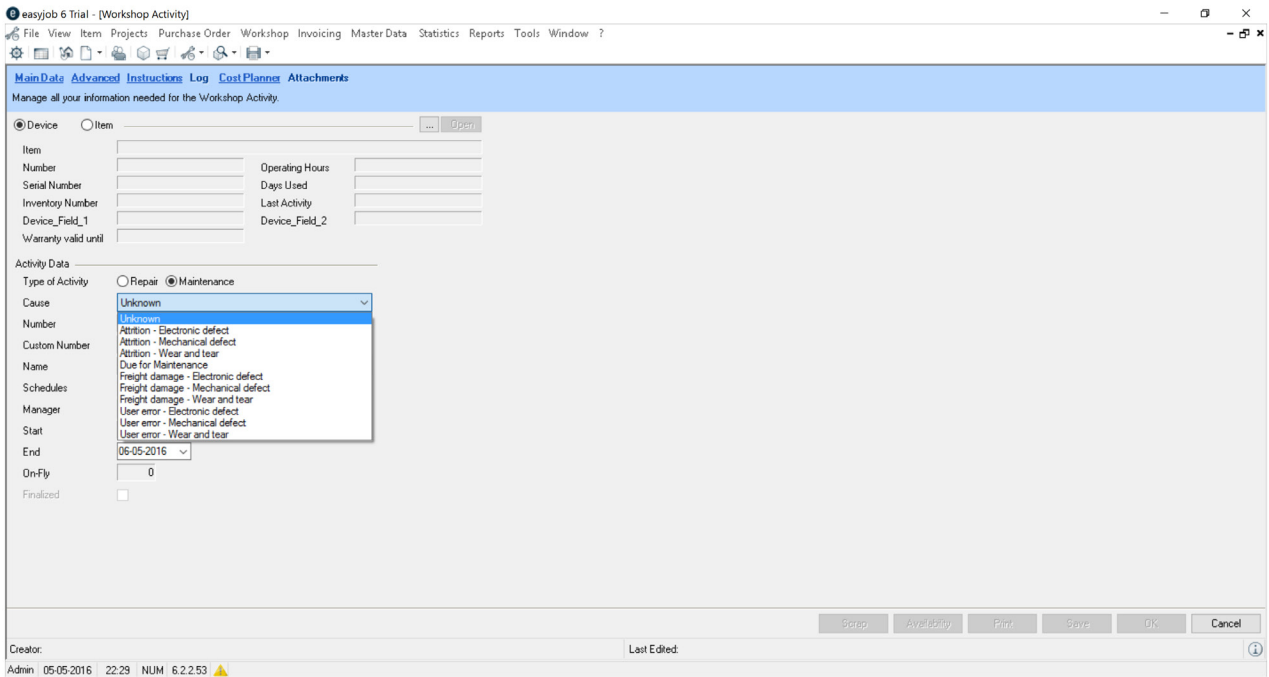
Communication Print Clipboard Add Ok Cancel

Admin 05-05-2016 22:24 NUM 6.2.2.53

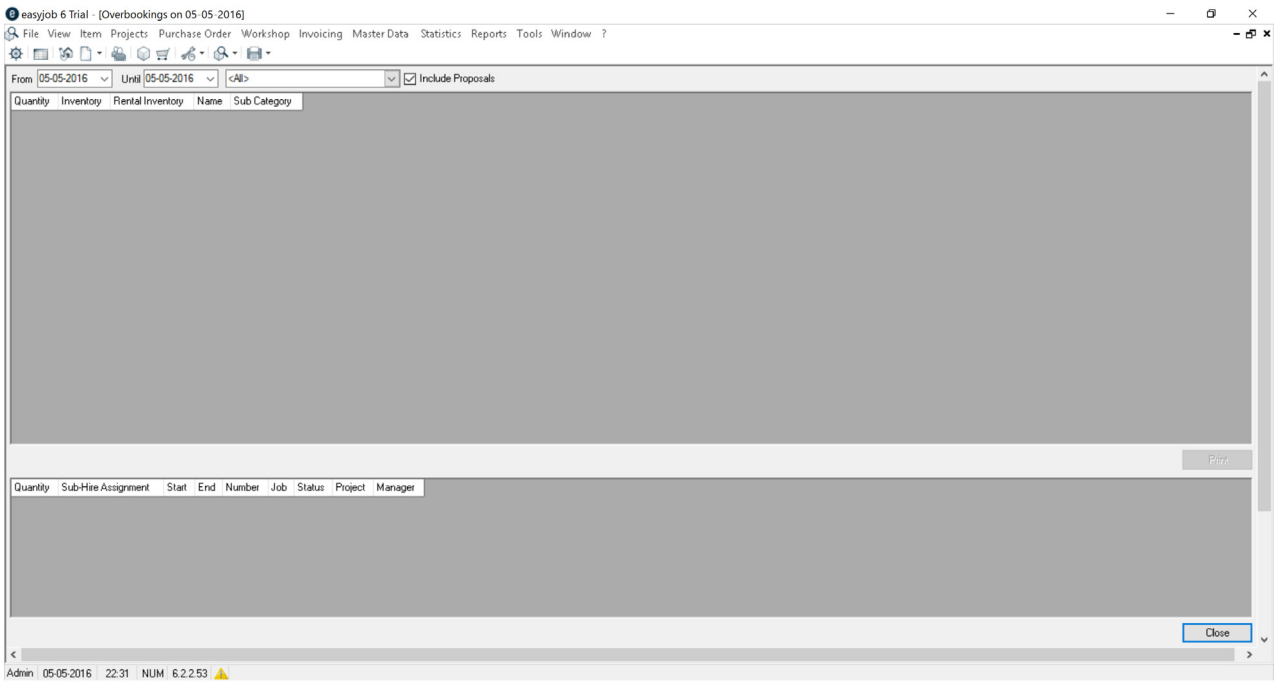
2. Address Book



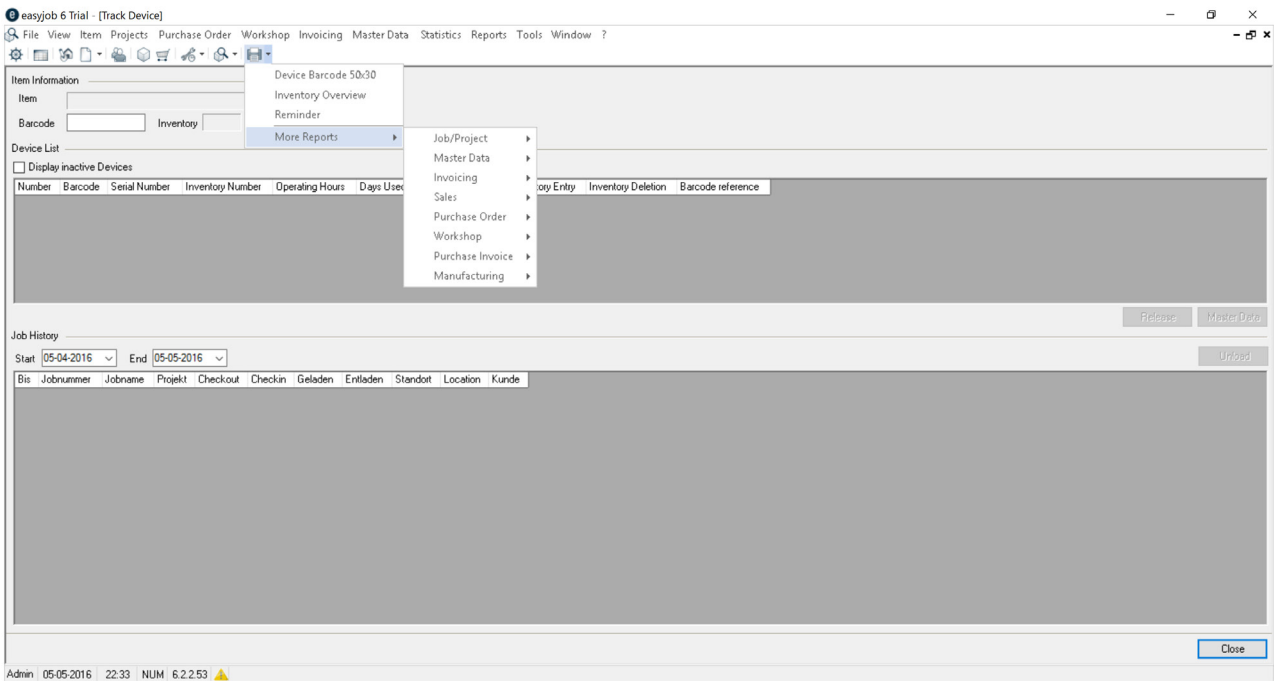
3. Items



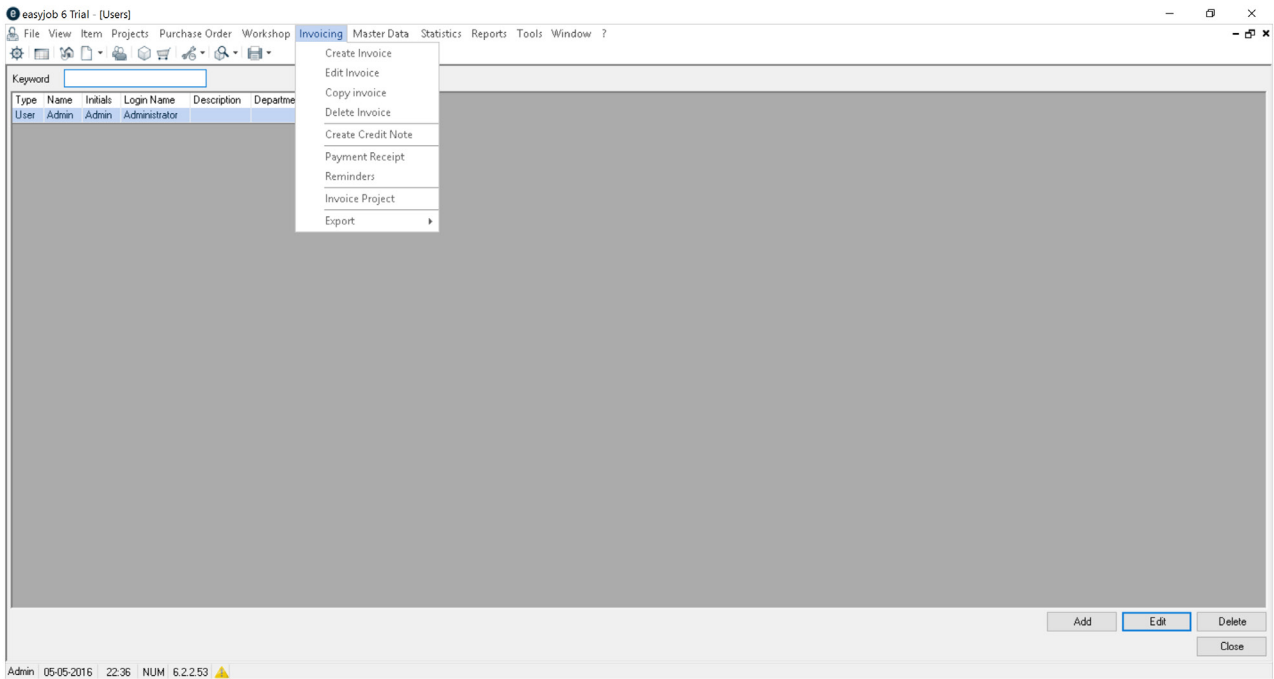
4. Workshop activity



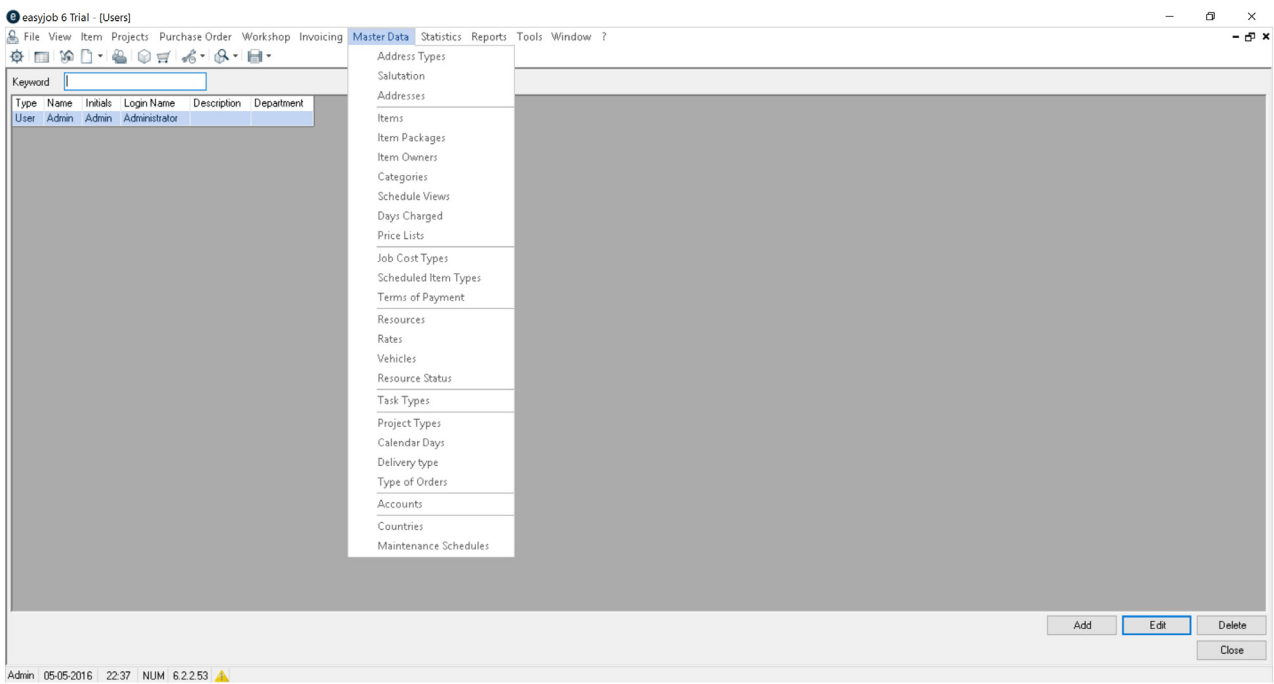
5. Overbookings



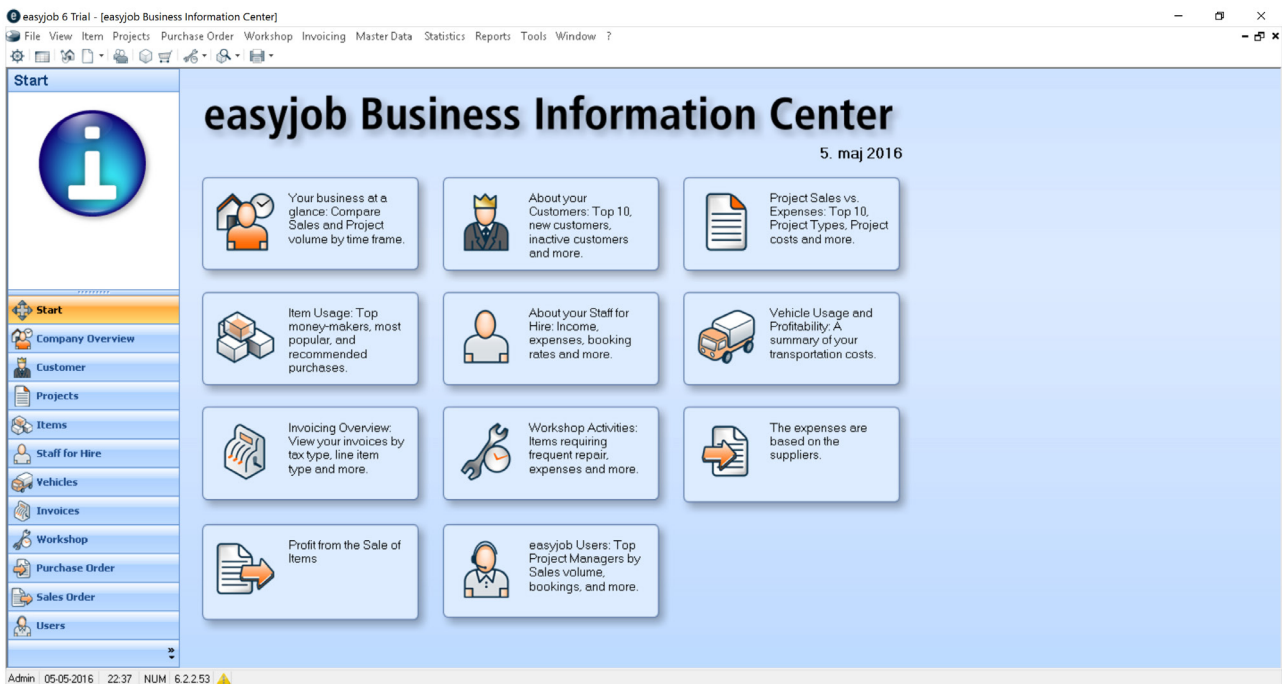
6. Reports



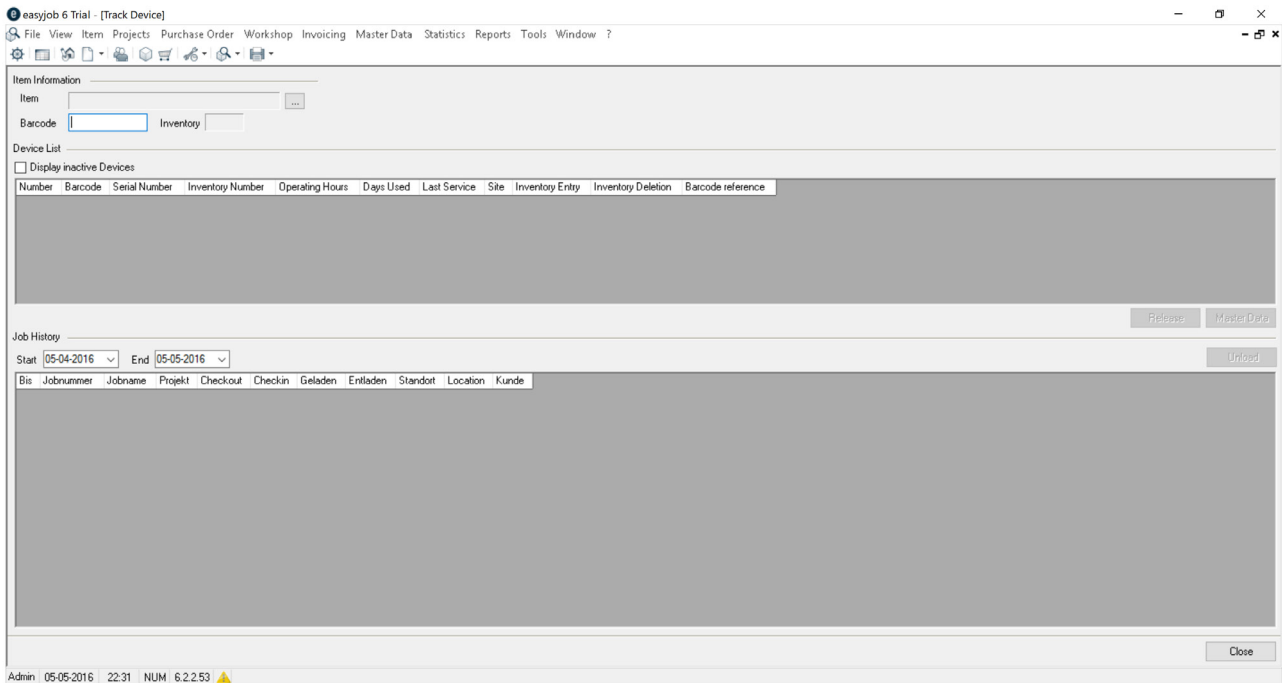
7. Invoicing



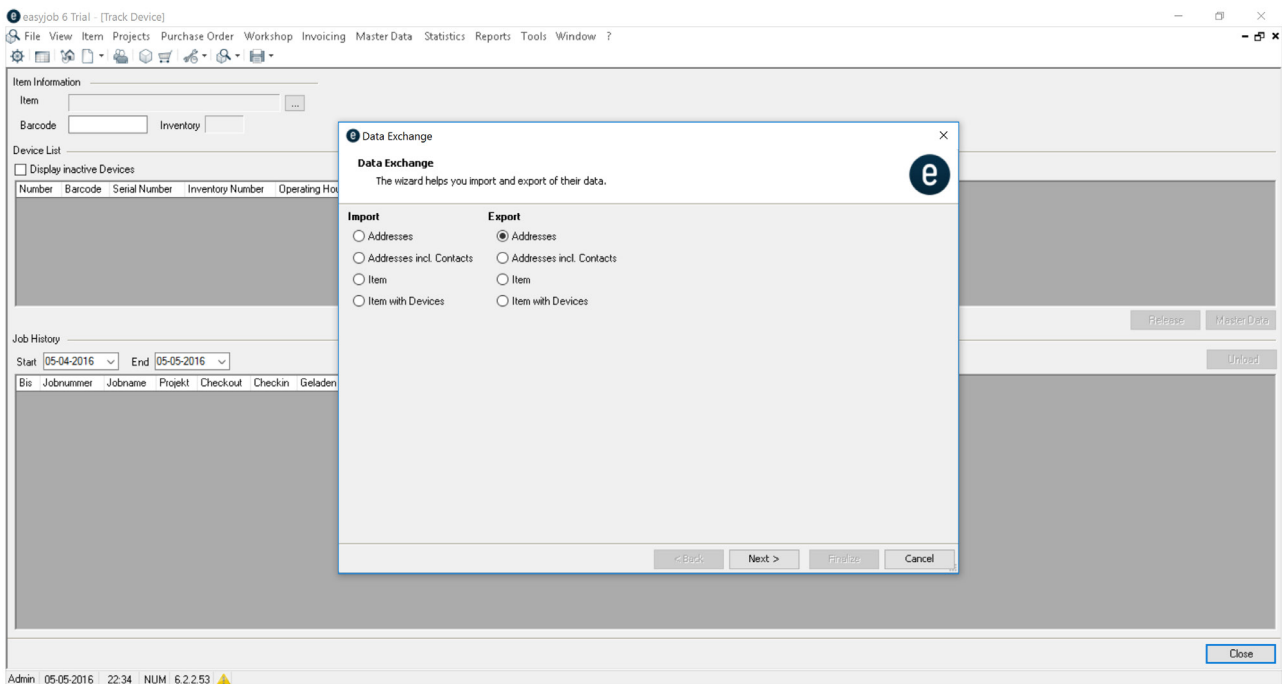
8. Master data



9. a. Business Information Center



9. b. Business Information Center



10. Data exchange

EVALUATION:

Easyjob has a large amount of features, all which does not need to be developed except for the process-overview for packing processes. They are very compatible in terms of both software and connectivity, they offer both a webapp and an iPhone app, even though they are more used for creating an overview. Easyjob do provide an alternative to picking lists, but it is expensive and almost just as repetitive.

REFLECTION:

We need to investigate how we can use the existing features in Easyjob.

Worksheet name: Inspiration	Worksheet no: 30
Date for data: 15-02-2016	Date: 16-02-2016
Responsible: Anders Jelle	Group 9:

OBJECTIVE:

The objective was to investigate state-of-the-art methods of inventory management in order to see if there are any inspirational technologies or processes which could be incorporated in the concept.

EXPERIMENT/DATA:

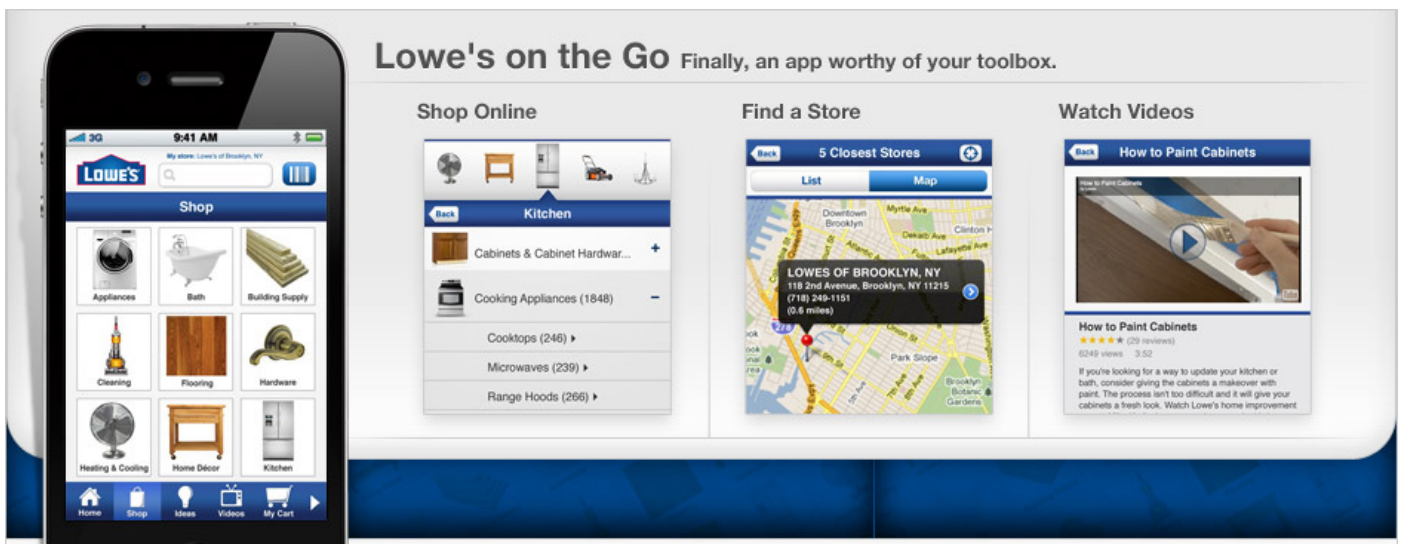
The investigation was a desktop-research which resulted in the following quotes taken directly from the webpages:

- *At Lowe’s in Gaithersburg, Assistant Store Manager Chad Wallace can whip out an iPhone to look up whether any item at the home improvement store is in stock. Gone are the days of heading to a computer kiosk, checking the stock room or calling other stores in the area.*

Newer entrants in retail intelligence are coming up with innovative ways of helping merchants move goods. Annandale-based Lemur Technologies has created an iPad app, Lemur IMS, to connect consumers with stagnant inventory. Stores input a customer’s desired product, then alerts them to sales.

https://www.washingtonpost.com/business/capitalbusiness/retailers-using-high-tech-solutions-to-manage-inventory/2012/06/15/gJQAfFdqjV_story.html

<http://www.apple.com/dk/iphone/business/profiles/lowes/>



- Since it began using parachutes in 1943, the U.S. Army has tracked and managed the equipment via manual methods that are labor-intensive, error-prone and susceptible to malicious tampering. In the early 2000s, the Army reclassified personal parachute systems, as well as other aerial-delivery equipment used by military personnel, and required that these items be managed using individual serial numbers. But serial number management would require an automated solution in order to be effective.

To address this challenge, the Army’s Automated Identification and Movement Solutions (AMIS) division, in Alexandria, Va., created an enhanced Parachute Tracking System (ePTS) that employs radio frequency identification to provide end-to-end, verifiable chain-of-custody accountability, traceability and airworthiness of a sophisticated new family of personal parachute systems in support of global military operations. This enables the Army to view and manage main and reserve parachute processes, such as warehousing, inventory, packing, shipping, jumping and recovery.

<https://www.rfidjournal.com/purchase-access?type=Article&id=12046&r=%2Farticles%2Fview%3F12046>

- The US military has a vast store of supplies and equipment around the world. Keeping track of all that stuff has always been a challenge. In World War II, the US Army kept track using IBM punch cards and electric accounting machines (EAMs). Well today, radio frequency identification (RFID) tags have replaced punch cards and RFID readers and computers have replaced the EAMs. The RFID tags work like “wireless bar codes” that record, track, and manage the supplies and equipment of a modern networked military.

<http://www.defenseindustrydaily.com/rfid-technology-keeping-track-of-dods-stuff-05816/>

- Electronic shelf labels (ESL) as seen in supermarkets are evolving rapidly. With infrared technology you can transmit up to 90 000 updates in 1 hour - that’s 30 000 updates every 20 minutes! Every single update is bi-directional so you know exactly when your updates have taken place. Infrared is proven, secure technology. There are hundreds of millions remote controls in use with IR. Hundreds of millions of electronic devices have an infrared port to support wireless connections, such as notebooks, PDAs, printers, digital cameras, cellular phones. Infrared technology is license free and in use worldwide. Though infrared can needs line of sight connected it does not interfere nor is it disturbed by other radiofrequency devices. - See more at:

<http://www.pricer.com/en/Solutions/Electronic-Shelf-Labels/Electronic-Shelf-Label-System/Technology/#sthash.wB4eyruP.dpuf>
<http://www.pricer.com/en/Solutions/Electronic-Shelf-Labels/Electronic-Shelf-Label-System/Technology/>



With a choice of 3 display technologies (TN segments, E-paper, TFT-LCD), the SES product offering is unrivaled in today’s market. All SES labels are inter-compatible and can be used together in the same store. The SES electronic labeling system guarantees that clear, readable and reliable information on prices and special offers is displayed in front of each product. NFC tags.

<http://www.store-electronic-systems.com/en/content/esl-electronic-shelf-labels>

EVALUATION:

We learned that there are a lot of wireless technologies being used within the inventory management industry. RF technology is powerful since it does not need line of sight connection, and it can send and receive large amounts of data quickly. Smart phones are becoming more and more powerful in terms of both compatibility and battery, and they can be bought relatively cheap in large orders. A relatively new technology, the Electronic Shelf Label, uses the E-paper technology in order to create better readability along with low power consumption compared to LCD screens. The e-label is perfect for displaying relatively static information where animations and high update speeds are needless.

REFLECTION:

The research gave a good insight into state-of-the-art methods for inventory management, though we need to do SWOT assessments on the e-label compared to LCD. The RF technology seems to evolve rapidly, but we need to talk to an expert in order to verify it.

Worksheet name: System- and hardware architecture	Worksheet no: 31
Date for data: 16-05-2016	Date: 16-05-2016
Responsible: AJ	Group 9:

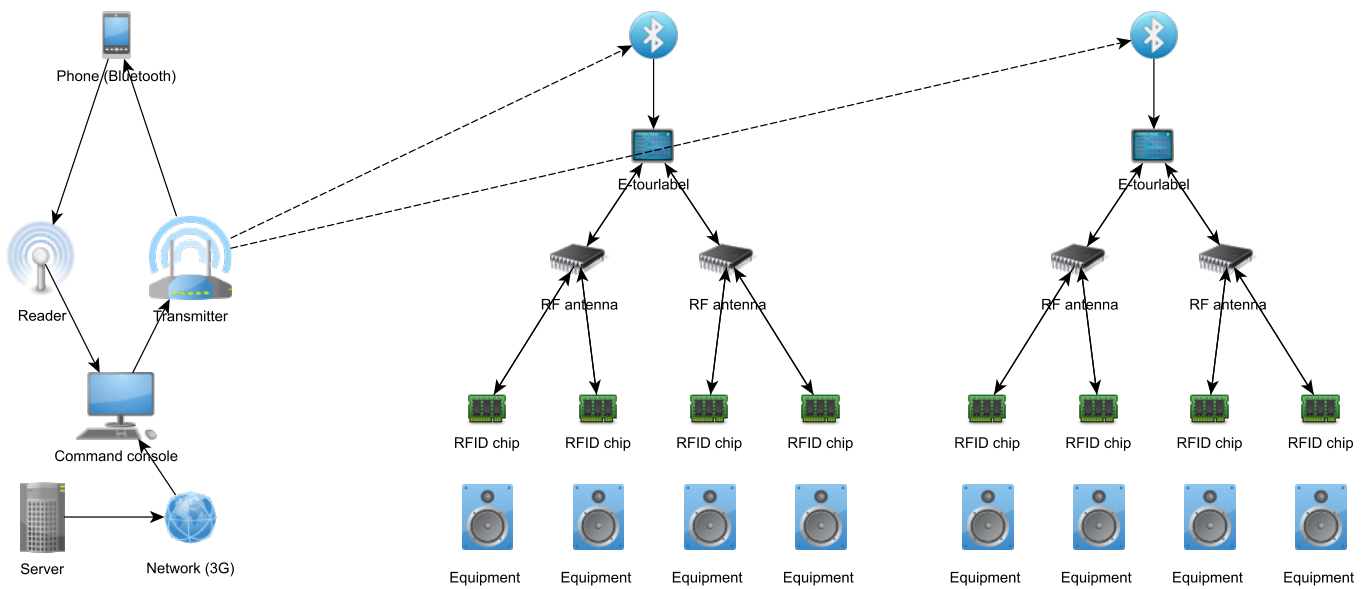
OBJECTIVE:

The objective was to find the right system architectures to fulfill the requirements for the system.

EXPERIMENT/DATA:

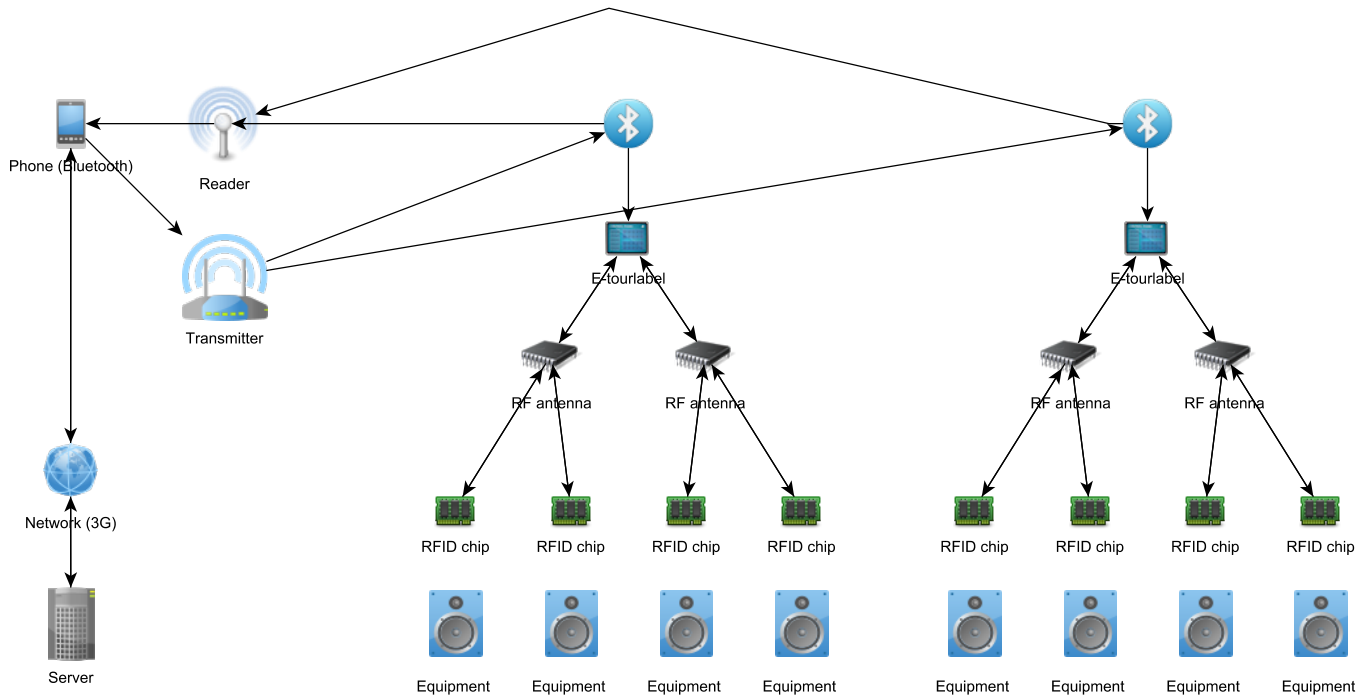
3 possible system architectures fulfill the requirements.

System architecture 1



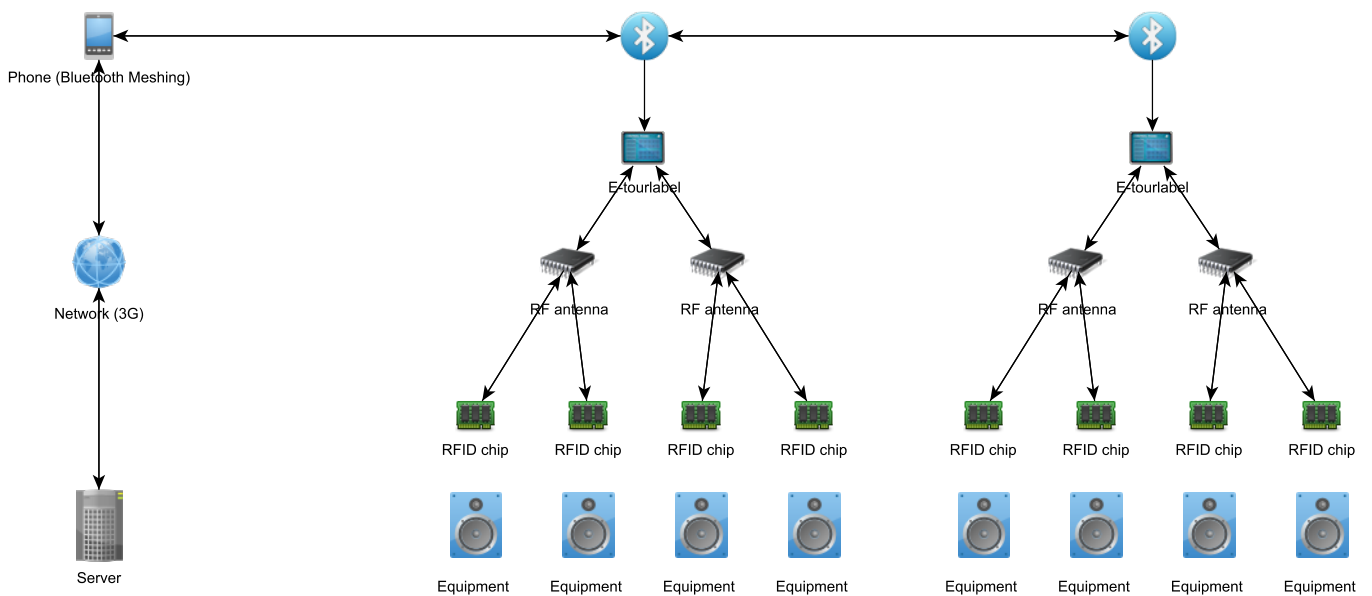
System architecture 1 is a system that is based on using a bluetooth connection and a command console, connected to a 3G network, as a hub between the server, phone and e-tour labels. This architecture requires a command console to be present at all times, in order to update the tourlabels and the phone.

System architecture 2



System architecture 2 is a system that is based on using a bluetooth connection, and a cover for the phone with an integrated battery and antenna, which amplifies the range of the bluetooth signal. The phone is then connected to the server through 3G. The additional device, like a command console, is not needed in this system architecture despite the cover being a form of additional device.

System architecture 3



System architecture 2 is a system that is based on using only a bluetooth connection and the phone as the hub of data. The bluetooth range normally varies a lot depending on the power consumption, but a new Bluetooth Smart technology, called CSR, creates a mesh network for the Internet of Everything, which makes every single e-tour label a hub itself. This means that you do not need to be able to reach the e-tour label which is out of the normal bluetooth reach, if one of the other flightcases can reach it.

Each e-tour label must have a scanner for either cables or equipment. The U-grokit concept utilizes a modular scanner that can be connected to a smart device through a simple audio cable. It proves that you can have a modular antenna with a readability of up to 3 meters and with up to 2 hours of active scanning.

<https://www.ugrokit.com/tech.html>

Ugrokit technology

the technology

the brains

Your smartphone has the smarts. It is already in your pocket with a really nice screen. Plus it connects to the cloud.

the data

Apps (existing or custom) provide the interface to work with data and items in real time at the point of "contact".

the link

Connect via the audio port. Every smartphone has one and it is quick and easy to use.

the cloud

Secure data storage and management in the cloud.

the brawn

U Grok It's engine is the Grokker that attaches to your smartphone, providing the power to write a unique 96-bit number on each tag and then search for and find those tags in a six to ten foot range.

the proven technology

U Grok It is built on RAIN (UHF Gen 2), which is currently used in the supply chain. It operates on the 902-928MHz (US) and 865-868MHz (EU) frequency.

the tags

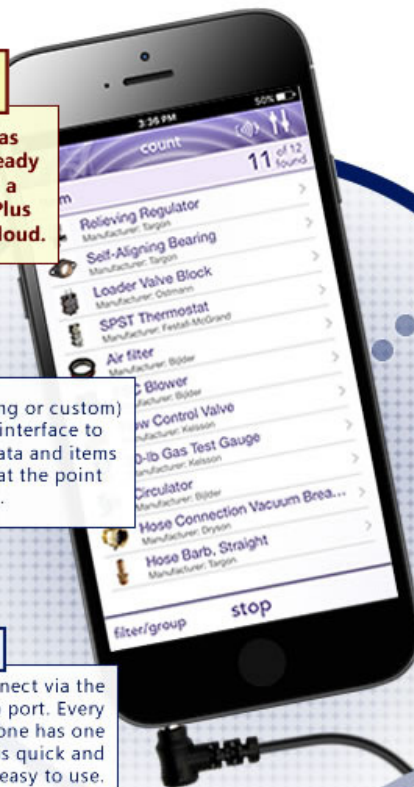
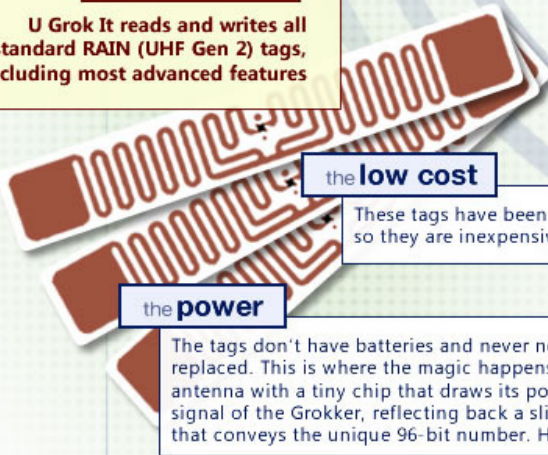
U Grok It reads and writes all standard RAIN (UHF Gen 2) tags, including most advanced features

the low cost

These tags have been optimized by the supply chain, so they are inexpensive enough to tag all your items.

the power

The tags don't have batteries and never need to be charged or replaced. This is where the magic happens. They are mostly antenna with a tiny chip that draws its power from the radio signal of the Grokker, reflecting back a slightly modified signal that conveys the unique 96-bit number. How cool is that?



The scientific article 'Smart Flight Case' [Hennig, Andreas 2014] shows that a modular scanner mounted on the inside a flight case is actually able to read the RFID tags inside the flight case successively. Along with the confirmation, from the expert Lars Jankowski from Lyngsoe Systems (Worksheet 19), we found that it was indeed possible to have successive readings with a modular scanner.

For all other flightcases than houseboxes the powerfull antenna is not needed, since it only needs to read very few and very close tags. The tags themselves ought to be standard NFC tags, which does not use power, but relies solely on the power 'emitted' from the reader. NFC tags are very cheap, small and accessible.

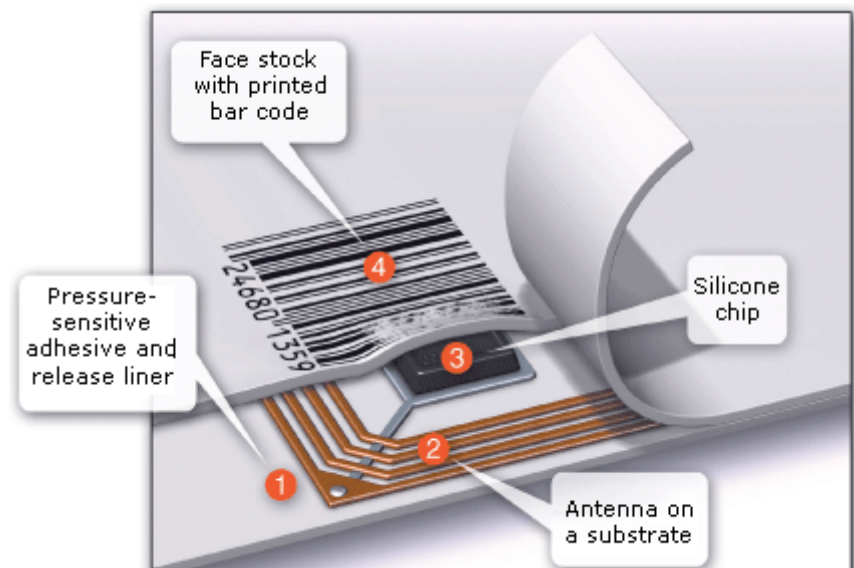
http://www.therfidshop.com/product_info.php?cPath=25_67_223&products_id=1187

NFC readers are almost just as cheap, small and accessible as the tags themselves, almost all new smart phones has an integrated NFC reader, and the technology is rapidly developing. A quick online search shows that readers can be bought of the shelf down to around 10 DKK.

https://www.alibaba.com/product-detail/new-style-cheap-nfc-pay-card_60333244204.html?spm=a2700.7724857.29.237.xBwRvT

RFID are very accessible and cheap, plus they come in a large variety of sizes and shapes [Frick, William]. Labels is the easiest, cheapest and safest solution, especially if you need to implement it on wires. With the barcode or QR code printed on the outside (Pic. 1), you have a 'safety' in case the RFID system malfunctions.

http://skyrfid.com/RFID_Label_Tag.php



EVALUATION:

System architecture 3 is the most promising system architecture since it does not need an additional device, but still has the same reach. This makes the implementation much easier because of the flexibility of not having a needed cover or a stationary device for maintaining the connection. The Ugrokit reader seems ideal for the scanning device in the house boxes, since it can easily be disconnected and recharged, and at the same time does not take up that much space. The 'Smart Flight Case' article along with the confirmation from Lars Jankowski proves that the modular and in-built reader is indeed possible, it just needs some development. Tags are widely available in many sizes and shapes, though the label type is the easiest, cheapest and safest.

REFLECTION:

Worksheet name: E-INK paper display test	Worksheet no: 33
Date for data: 18-05-2016	Date: 18-05-2016
Responsible: ML	Group 9:

OBJECTIVE:

The objective was to test the display type, E-ink, in relation to the information we wanted to display on it.

A small E-reader, with the same display was tested. The screen had 200 dpi, which PDF's with the images we wanted to display was synced and exported to the e-reader.

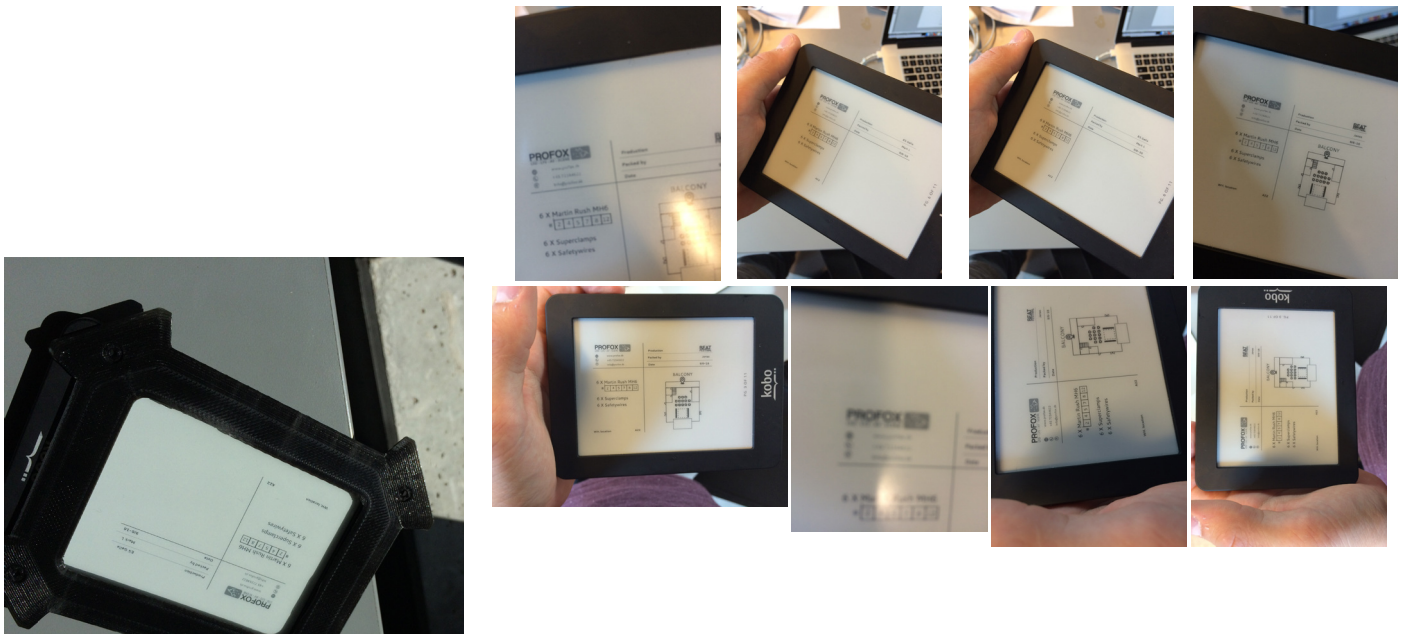
The team evaluated upon

Whether a detailed map, logo, and contact information could be seen on this kind of screen.

Test and find the minimum size, to display the wanted information, by increasing the screen size from 40x50mm, with 5mm each time, until everything wanted was clearly displayed

The team also tested the screen in direct sharp sunlight to see if it was readable.

EXPERIMENT/DATA:



In direct sharp sunlight

EVALUATION:

The team decided from the displayed preview, that the screen should be about 60*85 centimeters, equivalent to a 4,3 inch screen.

Since this was the smallest and displayed information that were readable, with the contact information being the smallest and pivotal information.

The display performed very well in the direct sunlight.

REFLECTION:

The screen should be tested in context on the flightcase and simulated scenario, to verify that the solution

To see if the screen is visible in darkness. The screen should be tested with the Light and LED's connected and lighting it up.

Worksheet name: App prototype test	Worksheet no: 34
Date for data: 10-05-2016	Date: 10-05-2016
Responsible: ML	Group 9

Objective:

To test the navigation of the app, and general user experience, two sessions

Experiment/data:

Comments from mikkell rodkjær.

Nu har jeg jo set den, og jeg må sige jeg synes det ser godt ud1

Opserveret

“vil gerne trykke af på pakke listen”

(fik fortalt at man sku trykke på tourlabel, aahh selvfølgelig)

Jeg synes det er godt arbejde.

Det er selvfølgelig første version her, så der vil altid være noget man kun lave om

Jeg kan ikke forestille mig at jeg vil bruge lysene lige på den måde i sætter det her. (lysene gruperet efter type)J

Logo: det synes jeg fedt lavet.

Jeg kan sagten finde rundt her i. der sikkert hundrede ting jeg ku komme man sku ha mulighed for, fx at man ka bestemme hvor mange og hvilke jobs man vil se i (jobs menuen)

Jeg er nok en del af den generation, selvom jeg er alligevel lidt ældre, at jeg trykker bare lidt, rundt og så finder jeg nok ud af det

det kan sku godt være det skal være lidt større,

man kunne måske fjerne de positioner man ikke bruger (assign.)

Jeg synes det fungere meget godt (indeling)

Jeg har lovet at vise dig 3 koncepter, da vi er i tvivl om hvad der er vigtigst.

MATRIX FUNCTIONEN:

DET HER DET SYNES JEG ER MEGA GODT TÆNKTI

NFC scanner - Smart-

EVALUATION:

The team decided from the displayed preview, that the screen should be about 60*85 centimeters, equivalent to a 4,3 inch screen.

Since this was the smallest and displayed information that were readable, with the contact information being the smallest and pivotal information.

The display performed very well in the direct sunlight.

REFLECTION:

The screen should be tested in context on the flightcase and simulated scenario, to verify that the solution

To see if the screen is visible in darkness. The screen should be tested with the Light and LED's connected and lighting it up.

Worksheet name: Fishbone diagram	Worksheet no: 35
Date for data: 23-03-2016	Date: 23-03-2016
Responsible: JH	Group 9:

OBJECTIVE:

The objective was to map out the tasks and relevant problems throughout the process.

EXPERIMENT/DATA:

1. Locating equipment's on the picking list

The flight case is missing on the location

A wrong flight case is at the location

New staff does not remember where the equipment is placed

New staff does not recognise the different types of cables and take the wrong

The truck is occupied and cannot take the flight case from the position

Warehouse assistant forget where the equipment's is placed

Easy Job is not updated and equipment from the picking list is at service or dirty

Wrong equipment's are ordered to the picking list

Equipment's are missing on the picking list to fulfil the order

2. Updating the tour label's

The touch is out of ink

Out of alcohol to clean the tour label from the previous event information

The area is too small to contain all information

Bad handwriting makes it difficult to read and understand

The high number of boxes makes the writer lazy and the text get worse as he goes

The tour labels is difficult to clean from old text, and makes it hard to read new text

3-4. Register extra equipment to the picking list

Equipment's are not added to the invoice, and rented for free

Extra equipment's are added at the last minute when the truck needs to leave on time

The warehouse assistance does not have access from the warehouse, but need to go to the office to add equipment's

Lazy warehouse assistance

There is a knowledge gap between the warehouse assistance and the Event organizer about what equipment's is needed for an event. Therefore the warehouse assistance add extras

Loss attitude of adding extra on the warehouse, because they don't see the financing consequence

The warehouse assistance analyses the fight cases and adds what is missing

5. Arranging flight cases at venue

The people involved have different knowledge

The event technician needs to have the overview of all other involved

All flight cases look the same

Difficult to read the text written on the tour labels

Info is missing on the tour labels

The procedure is controlled manpower and analogue overview

The venue is different every time

The equipment's are different every time

Internal names of the locations

Very precise information is needed because the people involved have different knowledge

6. Plugin cables and turn on the power

When everything is plugged in and one cable is defect, the whole system is defect

Difficult to identify which cable is broken

6,5. Takedown the equipment's

Equipment is broken and need extra procedure

Not enough hand available

7. Pack equipment's in right flight case

All flight cases are stores together in a big mix match and it is hard to identify which is needed for specific equipment

If equipment is placed in a wrong flight case the staff needs to go through all flight cases to find it again

The staff does not have a overview of the equipment and do not know if something is missing or placed in a wrong box

If dirty or broken equipment is not marked with the tape the equipment will not be fixed at the warehouse

If there is no more tape available the staff cannot mark broken and dirty equipment

Uncritical and tired staffs that just needs to get everything in a box so they can go home and sleep

9. Pack cables in house box

Cables are placed in a wrong house box

Internal understanding of which types of cables that go together

A high number of different types of cables and lengths

Tired staffs that need to leave fast as possible

10. Check forgotten equipment

Staffs do not check because they are tired and want to go home, assume that everything is packed

11. Unpack house box at warehouse

12. Checking all equipment

The staffs does not have time to check the flight cases and then it just isn't done

The season defines how much time they have to control the content. During summer they don't have time at all

It is a time consuming process

The staff de-emphasise the procedure

X. Set aside for service

If the tape falls of the box the equipment do not get service

If the tape falls of the event tech will have broken equipment at his next job

Time consuming and stressing for the event tech to fix equipment on stage

13. Finding malfunction equipment

Even though a flight case is marked with "malfunction-tape" is can be difficult for the service staff to identify the malfunctioning

A box with three lamps can be marked as malfunction, but the service staffs do not know which lamp is malfunctioning

It takes time to investigate all equipment when only one from the box is malfunctioning

A long service

Y. Restock to shelf

The equipment can be placed wrong in the warehouse because the Service assistant has less knowledge

The service assistant can ask the warehouse assistant to but equipment back, but then it takes his time

16-18. Planning a new event

If the stock list in EasyJob is not updated with malfunction the equipment can be rented out without being available

If the stock list in EasyJob is not updated with missing equipment, it can be rented out without being available

If the warehouse assistant receive a picking list with equipment that is not available on the shelf he need to take other equipment for the event, but this can be reserved for a second event

Double bookings

EVALUATION:

REFLECTION:

Worksheet name: Visual expression boards	Worksheet no: 36
Date for data: 16-05-2016	Date: 16-05-2016
Responsible: AJ, JH & ML	Group 9:

OBJECTIVE:

The objective was to find inspiration from products in the context and from products with the desired aesthetics.

EXPERIMENT/DATA:

3 possible system architectures fulfill the requirements.



