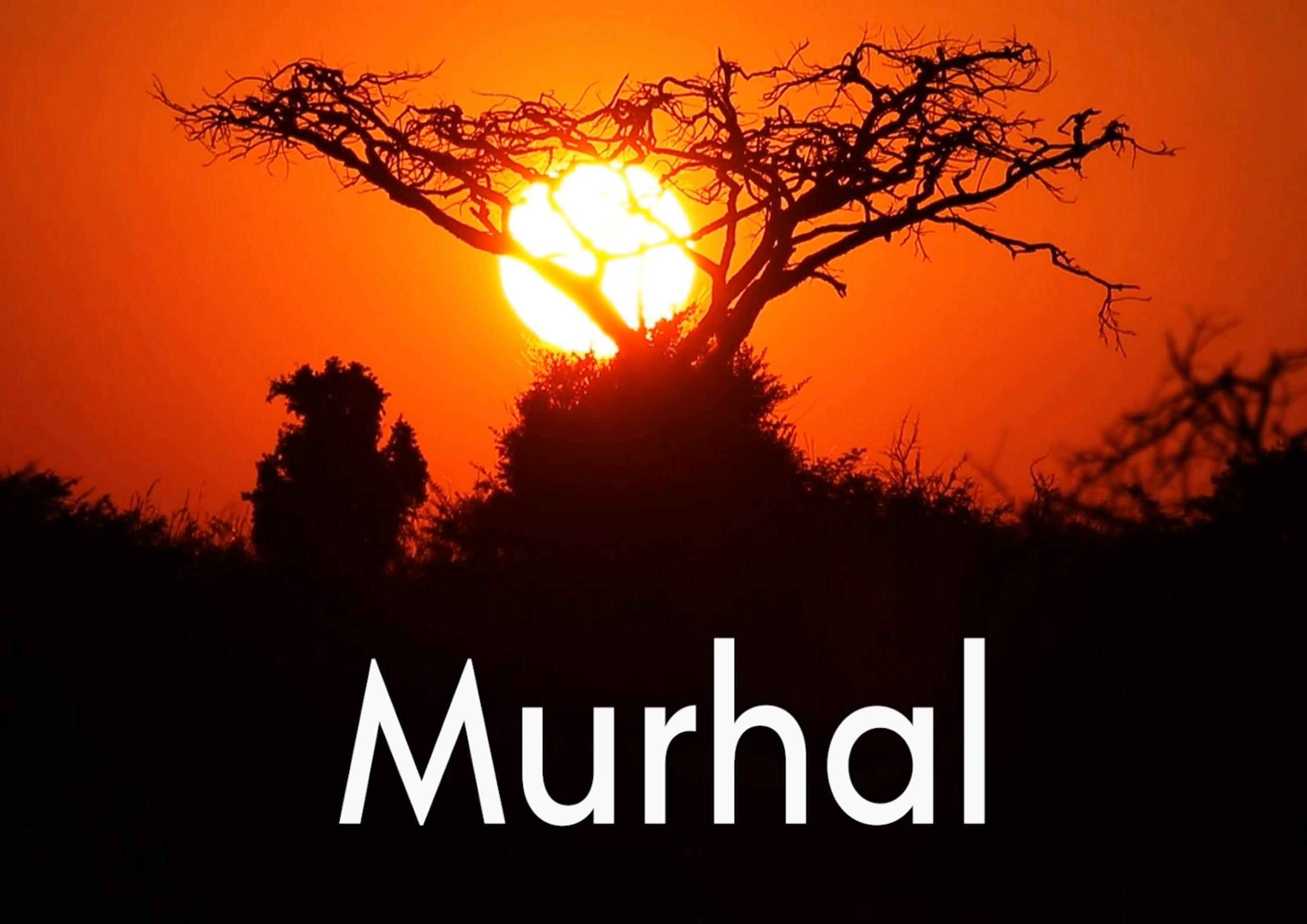


Murhal

Product Design Specification

1. Each section of the pillar must weigh a maximum of 10 kilograms.
2. All handles must have a minimum length of 100mm and a diameter of 40mm.
3. Each individual device must have a simple means of unique identification, identifiable at 1 meter.
4. Assessing whether each component is working correctly should be easily completed by anyone with basic knowledge of the devices.
5. The device must provide reassuring feedback at key stages of its installation.
6. The products aesthetic and impression must be inconspicuous or to not create suspicion, mistrust or intention to steal among 95% of a sample of local 3rd parties.
7. The camera must be located at least 1.8 meters above ground level.
8. The product must gather at least 3 separate types of meaningful data. The selection process will be influenced by interviews and technological viability.
9. Data stored on the device must be inaccessable to the 95th percentile of unauthorized personnel.
10. All information on the device must be conveyed via universal symbols and be easily understood in most languages.

Justification

1. BS ISO 11228:2003 outlines clear equations when calculating the maximum weight a product could be, calculated from carrying frequency, distance and mass.

2. Dreyfuss' illustrations clearly state preferable dimensions concerning handles, triggers and tool grips (1). By keeping to these dimensions, it allows for a more ergonomic design.

3. Many users in interviews expressed a want of "better planning and co-ordination throughout research proects." Journey mapping revealed that there was no way to match the individual devices with location and data

4. ISO 9241-11:2018 states "focuses upon maintenance must enable maintenance tasks to be completed effectively, efficiently and with satisfaction." Providing an easy way to assess circuitry would complete that focus.

5. Providing this feedback would streamline the construction process. Lidwell states "it is easier to recognize things than recall them because recognition on tasks provide memory cues that facilitate searching through memory." (2)

6. BS EN ISO-IEC 27002 states "information processing facilities handling sensitive data should be positioned carefully to reduce the risk of information being viewed by unauthorized persons during their use;"

7. The maximum height of the 95th percentile of cattle is 1.7 meters. Making sure the camera is above that will reduce likelihood of photos being obscured.

8. Previous devices, that fulfilled the same role, used by these researchers could only collect location and time. (3) Thought must also be given to the complexity of circuitry, and failure liklihood.

9. It must be assumed that individual crime prevention features can be circumnavigated. The Design Council states "when designing to combat crime, it is important to act on several fronts at once." (4)

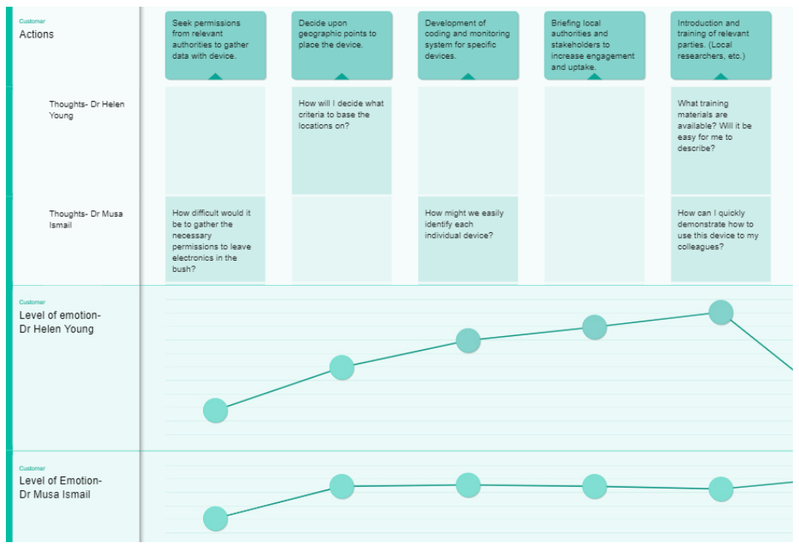
10. Many field researchers operating in the Sahel can't read english, emphasizing the importance of focusing upon design for inclusivity.

Original Design

Journey Map

A journey map was created to help map the positive and negative feelings researchers would have whilst interacting and using this device. Desmet & Hekkert state "In order to understand emotional responses to human-product interaction, one must understand the users' concerns given the context in which he or she interacts with the product." (4) Journey maps place the user in that context, allowing the designer to study their thoughts and feelings in that moment.

4 Sudanese field researchers individually completed this journey map, allowing them to go through the mapping process in their own time. The final journey map, whilst discovering many small problems, outlined two major areas that had to be focused upon.



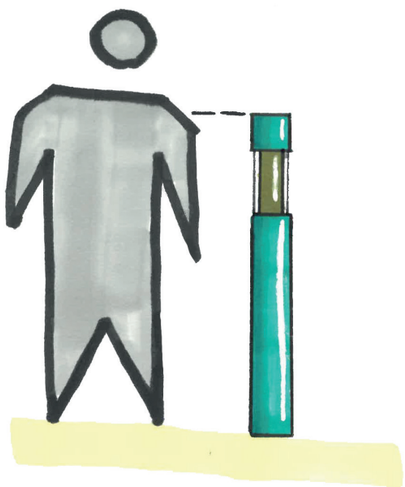
Major Design Concerns

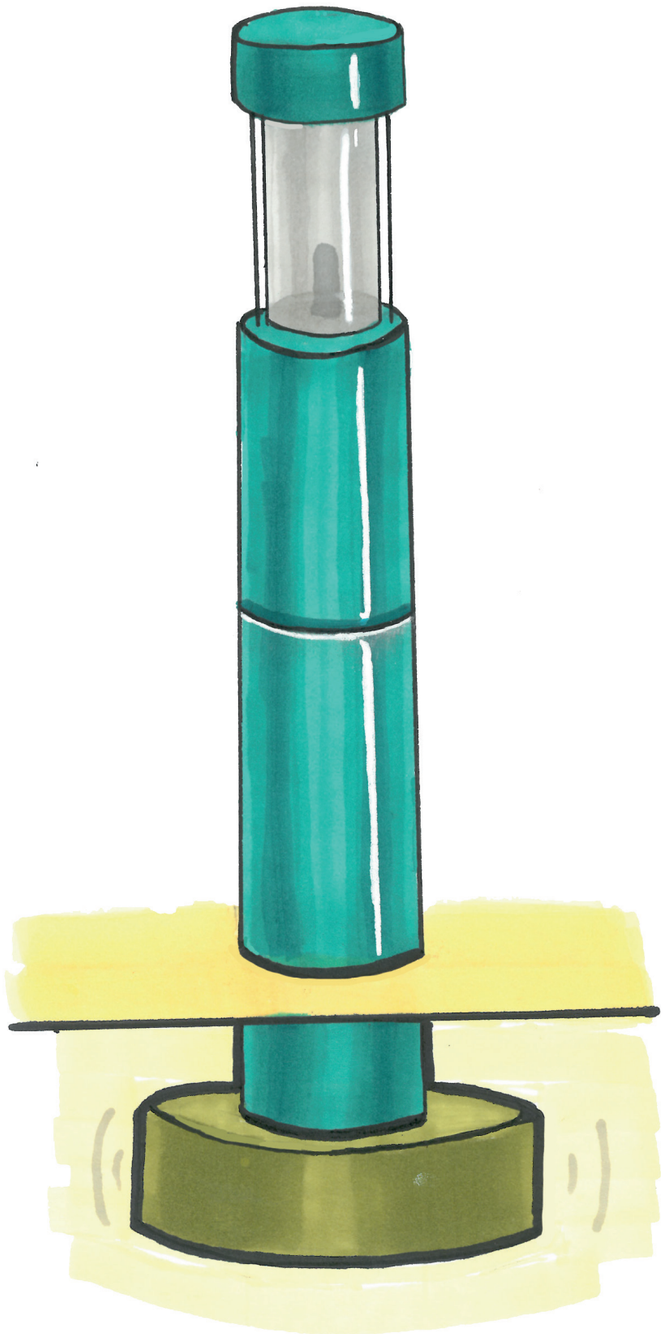
Portability and Installation:

Nearly all journey maps raised problems concerning lack of obvious handles or areas to lift from during manual transportation. Researchers could be expected to install tens of these in a day and BS ISO 11228-1:2003 explains that "unfavourable ergonomic designs create conditions that introduce additional risks to the user."

Crime:

The original designs only crime prevention technique was locking the pieces together. The journey map revealed this caused significant worry whilst they were waiting to collect the data as they were concerned the device could easily be broken into. Wooton & Davey explain "it's important to consider security as a holistic package- for example there is little point in fitting strong locks if burglars can simply kick in the weak doorframe."





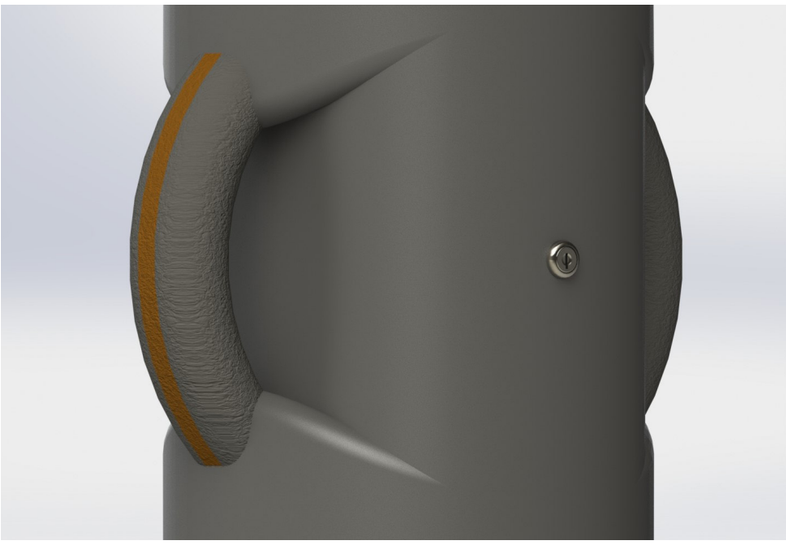
Ergonomic Development- PDS Point: 1 & 2

Handle Development

Theory:
As stated before, one of the main concerns raised in from journey mapping is the lack of ergonomic focus when it comes to carrying and installing these devices. BS ISO 1128 outlines that "an ergonomic approach has a significant impact on reducing the risks of lifting and carrying." The addition of handles is the first step towards improving the ergonomic aspects of this design.

Shape and Sizing:
Each handle has a minimum length of 120mm, to conform with recommendations set by "The Canadian Centre for Occupational Health and Safety" Furthermore, the diameter of each handle is 40mm, which provides "greater force and stability" (7) and a diameter of 40mm. The curved handles also remove risks when screwing the pieces together, allowing the user to keep their wrist relatively straight during installation, removing unwanted wrist flexion, extension or deviation. (7)

Placement:
BS ISO 11228-1:2003 describes the ideal posture when lifting or carrying as "standing symmetrically upright, keeping the horizontal distance between the centre of mass of the object being handled and the centre of mass of the worker less than 0.25m." All handles on located on the device are mirrored, enabling the user to achieve that ideal posture. Finally, the handles are located above device's centre of mass, increasing stability during manual transportation.



Colour:
Two orange stipes are located down the side of each handle. This is based on the theory that "color can be used in design to attract attention and indicate meaning." (8) Often, power tools or manual tools use oranges, or other high visibility colours, to draw attention to these sections of the design. "The bright orange handles are effective at popping out of the invariable clutter of everyday life" (9) By adding these colours, it has reduced the cognitive load needed to operate.

Ergonomic Development- PDS Point: 1 & 2

Tactile Feel & Grip

Theory:
The inclusive Design Toolkit explains that thought must be given to the contact area the product would have with the user as "the products feel and how comfortable it is to use are directly influenced by the contact area between the object and the users palm." In this context, it is important to have a high coefficient of friction, to reduce the chance of it slipping out of the users hands, and focus must be put upon cushioning the devices handles to minimise the contact pressure one the users hand. (9)

This example was made to test the effectiveness of the high friction camo tape. The diameter of the tube was created to the same specification of the handles.

Tools that would be used in standard environments would use rubber as it is exceptional at increasing ergonomic aspects of grips, as well as their coefficient of friction. Sadly, using bare rubber is not an option for this device. These devices would be left to the elements and the suns ultraviolet rays and heat would have a severe detrimental effect upon the rubber.

The solution to this particular problem was actually derived from British SAS soldiers, who would wrap the handles of their pistols with a section of a bicycle inner tube, then cover it in high friction camo tape. The inner tube increases the ergonomic feel of the handle by adding padding between the users hand and the devices hard shell while the tape shields the rubber from the sun and increases the handles friction.

Follow up user interviews highlighted the effectiveness of this development. Dr Helen Young stated "there is a huge amount of waste rubber that can be found throughout Sudan. Repurposing this refuse without having to reform it would actually be quite a simple, yet efficient way of recycling that waste.

Why 10 kilograms for the weight?
The equations I refer to, from BS ISO 9241-11:2018, in PDS point 1 relate to three numerical values: carrying frequency, distance and mass. By inputting these values, the maximum mass each section can be is 15 kilograms. Reducing the maximum allows for a greater number of users being able to use the product.

Carrying distance	Carrying frequency	Cumulative mass			Examples of product $m{:}f$
	f_{max}	m_{max}			
m	min^{-1}	kg/min	kg/h	kg/8 h	
20	1	15	750	6 000	5 kg × 3 times/min 15 kg × 1 time/min 25 kg × 0,5 time/min
10	2	30	1 500	10 000	5 kg × 6 times/min 15 kg × 2 times/min 25 kg × 1 time/min

Design Against Crime- PDS point 6 & 9

Theory:
The second area that the journey map identified as needing significant development was how the device anticipates offenders moves and countermoves to the to the crime prevention features the device has. Making these devices impregnable would be an impossible task, so it was important to ensure that there were a number of defenses in place for different eventualities. This can be seen in other designs such as the "anti-theft handbag". "This innovative bag design has a shorter strap, carefully located zip and thicker leather to increase the effort and skill required by a potential pickpocket." (11)

Camouflage:
Research began into two different camouflaging techniques, both of which can be observed in the animal kingdom. These techniques are Mimesis and Disruptive Colouration.

Mimesis

The technique involves attempting to resemble something not of interest to the observer, or in this case something not of value. "Contrary to common understanding and propagated objectives, it can be called calculated deception." (12) A real world use of mimesis can be observed in a stick insects camouflage.

Theory:
Tribal and community leaders across Sudan practice the system of livestock route demarcation. "It involves delineating the line that organises the seasonal movement of livestock from dry season grazing grounds to wet season grazing areas." (16) In simple terms, these are waypoints that pastoralists follow to stay on their livestock corridors.

Each device would be camouflaged as these waypoints. This would draw very little attention to devices in the field, whilst also being in the perfect spot to gather information. Furthermore, devices could be give to tribal leaders to install, helping build relationships and inform stakeholders of the importance of this information.

Design Against Crime- PDS point 6 & 9

Disruptive Colouration

This technique involves "using disruptive patterns and strongly contrasting markings, such as spots or stripes, to break up the outlines of the animal and provide misleading information about its shape." A real world use of disruptive colouration can be observed in a leopards spots.

Theory:
When applying disruptive colouration, the object must be painted "2 or 3 contrasting colours, applied in irregular shapes. Colours should be similar to the predominant colours in the objects surroundings." (14)

As can be seen in the aerial and landscape photos, the obvious dominant colours in some photos are the pale greens of the shrubs and dry yellows of the dried plants and in other photos it is the lush greens of the vegetation & dark reds of the earth.. This is because "the colour of the Sahel swings from tan during the dry season to dark green during the rainy season" (15) posing a quite a large problem in getting each device to match the predominant colours in the objects surroundings, when the predominant colours will change seasonally. This is where the initial idea of the "sleeve" came from.

Two camouflaged "sleeves", one for the lush rainy seasons and one for the arid dry seasons, were created to test the effectiveness of this technique. Both sleeves were created following the advice recommended by the US field manual, applying 2-3 contrasting colours in irregular shapes.

Colours for dry: #7B745A Light Brown to represent the dry tan of the dried earth and #BAE9A3 Moito to represent the light greens of the parched vegetation.

Colours for lush: #3555E3B Hunt Green to represent the darker greens of the trees and plants, #75311E Rust-Oleum to represent the reddish browns of the earth and #BAE9A3 Mojito to represent the lighter greens of the grasses.

Design Against Crime- PDS point 6 & 9

Camouflage Critical Analysis

Cost:

Each of the disruptive colouration sleeves would cost a fraction of the amount of money it would take design the device that realistically imitates pastoral livestock route markers. Factors such as: where the electronics are housed, ergonomic development and specific colouration to reduce cognitive load would need to be completely re-thought, and most likely worsened.

Camouflage Effectiveness:

In terms of effectiveness, mimesis is the better contender. "Disruptive painting is not a postive preventative against being spotted, however in many instances it can deceive and observer over small distances." (14) Mimesis on the other hand is designed to work at almost any distance. The device hidden inside a demarcation post would be almost impossible to identify.

Ethical considerations:

Ethically, mimesis does present a large ethical problem. Once thieves realise some of these markers are storing this technology, it is highly likely they would actively seek out and destroy more markers for their contents. This could result in whole livestock corridors being lost without these waypoints.

Final Decision:

Despite being the less effective camouflage technique, the ethical implications and costing to create a device that implements mimesis would be too great.

Design Against Crime- PDS point 6 & 9

Encryption:

Ethically speaking, the data the device stores is the most valuable part of the device. It must be assumed that there are possibilities that thieves would be able to access the hard drive, and therefore be able to access the personal data stored inside.

Initial Theories:

Research began into the possibility of installing safety measurements that would automatically wipe the hard drives data if it were to be removed from the device. Dr Ewan Henry, a software engineer with a PHD in computational Biophysics, was contacted to discuss possibilities of this technology, however he stated that "at its core, completely wiping a hard drive is actually extremely difficult to the point where it is a service, in the west, that you would pay for if you wanted it done reliably." Furthermore, the British Standard in Information technology Security techniques says "When confidential information on media is not encrypted, additional physical protection of the media should be considered" This statement, although challenging my initial theory brought me to a new design development considering the encryption of the data. I knew it would not be possible to guarantee the physical protection of the devices hard drives, so I researched into the possibility of guaranteeing the security of its virtual files.

Encryption offers an extremely simple yet effective way to keep data safe. BS EN ISO/IEC 27002 states "Cryptographic controls can be used to achieve different information security objectives. [In terms of] confidentiality: using encryption of information to protect sensitive or critical information, either stored or transmitted;" It has been applied to a huge range of simple civilian systems with great success.

Despite Encryptions positives, there are issues surrounding its implementation. These issues involve the false sense of security encrypting your data could put you in. Strategic Cyber Security (2011) released the startling statistic that "close to 95% of all enterprise networks have already been compromised by external attackers." These attacks were successful in accessing valuable data these networks were storing via both internal and external vulnerabilities. Internally is the most prominent and involves the leaking of the encryptions key.

Critical Analysis:

Although encryption does have its flaws, these flaws tend to all either originate internally or externally via high tech hacking technology. Being entirely realistic, it has to be taken into account the environment these pillars would be in. The resources thieves would have access too would not be enough to crack the data's encryption and the encryption key would only be available to high ranking academics who would only want to see their research come into fruition. To quote a researcher about how they felt before going into the field. "I feel enthusiastic and very motivated to go into the field and meet new people, cultures and landscapes. I love this part of my job as it reminds me of the people we are out here to help." Ms Gwen Luc.

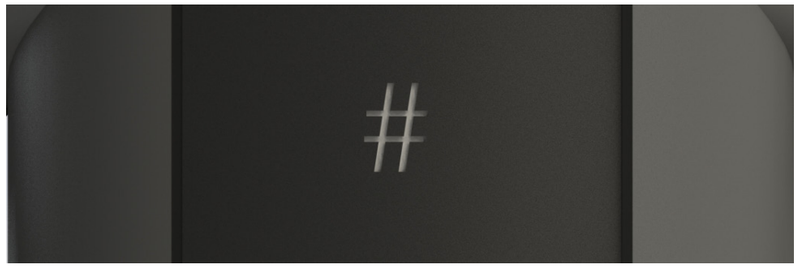
Communication Development- PDS point 3, 4 & 10

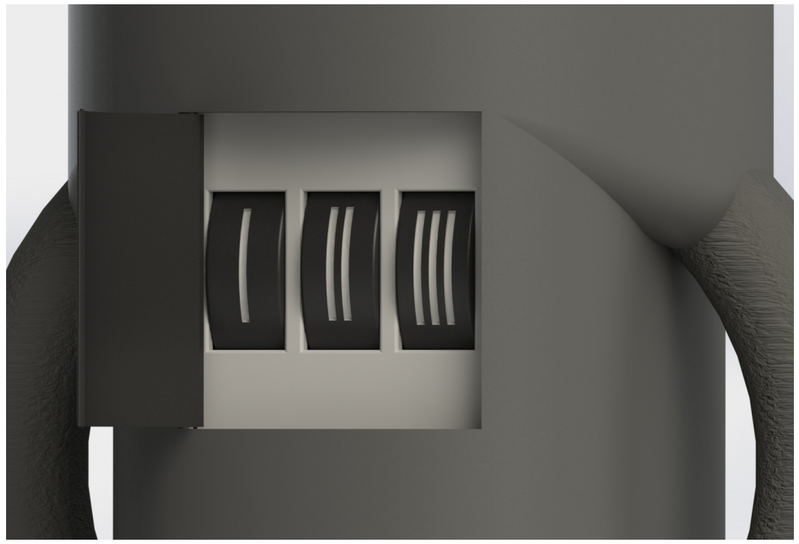
Unique Identification

Initially, a simple mechanical number counter was the solution to solve PDS point 3. These mechanical number counters were chosen as research showed that they would be able to resist the extreme climate the device would be exposed to throughout its lifecycle in the Sahel.

Inclusivity:
This solution was then proposed to to Dr Helen Young, Professor Suleiman and Dr Abdul Monium for critical analysis and their views on how this could be improved. This led to a large breakthrough in terms of the inclusivity of the design. Dr Helen Young summarised the problem as "many of the field researchers that would be checking on these devices can only read and speak Arabic, making the devices identification significantly harder for them if it were to be written in English." Building upon that, McCormick and Sanders states "One argument supporting symbols is that they do not require the recoding that words or short statements do. For example, a road sign showing a deer conveys immediate meaning, whereas use of the words Deer Crossing requires the recoding from words to concept." That recoding from word to concept is a task many of these field researchers would struggle with, thus creating an unpleasant user experience.

Tally Marks:
The Evolution of Modern Numerals states that "The natural way of recording numbers is by tally marks, and it is the universal custom of mankind." Adopting tally marks instead of written numbers when identifying individual devices would increase cross those language barriers, increasing the inclusivity of the design





Font Size & Colouration

Calculations had to be performed to ensure that each tally could be easily read at a distance of 1 metre at which the smallest number identified subtends to an angle of 5 minutes of arc.
This brings us to the equation

TanA=Opposite/Adjacent

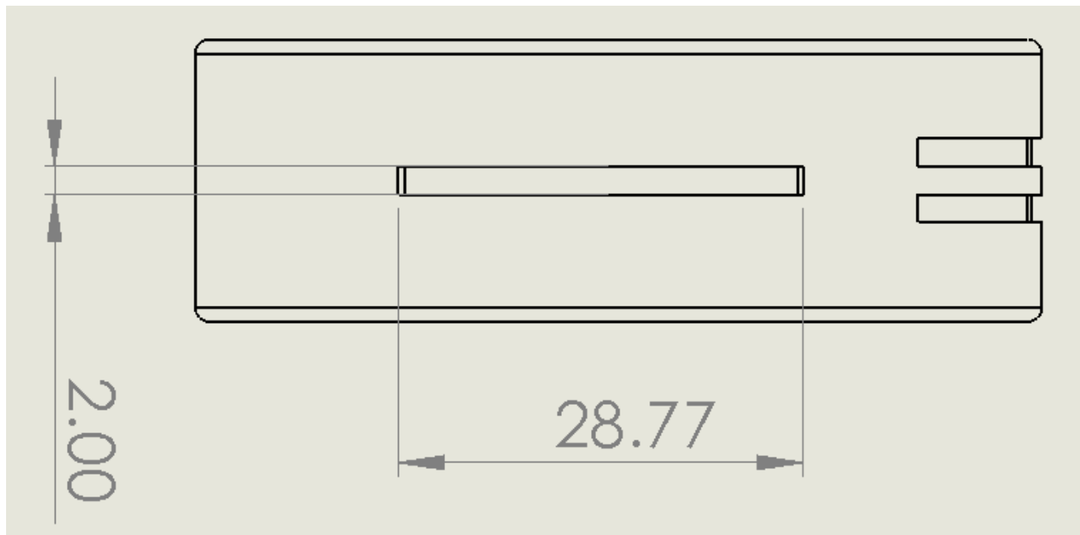
where A is 1 minute of arc, the adjacent is the distance to the text and the opposite is the minimum height of the font.

Tan(0.0166667)=Opposite/.5

.5(tan(0.0166667)=Opposite

Minimum width and height of each tally: 1.45mm

White numbers on a black background was also chosen enhance the contrast between the numbers.



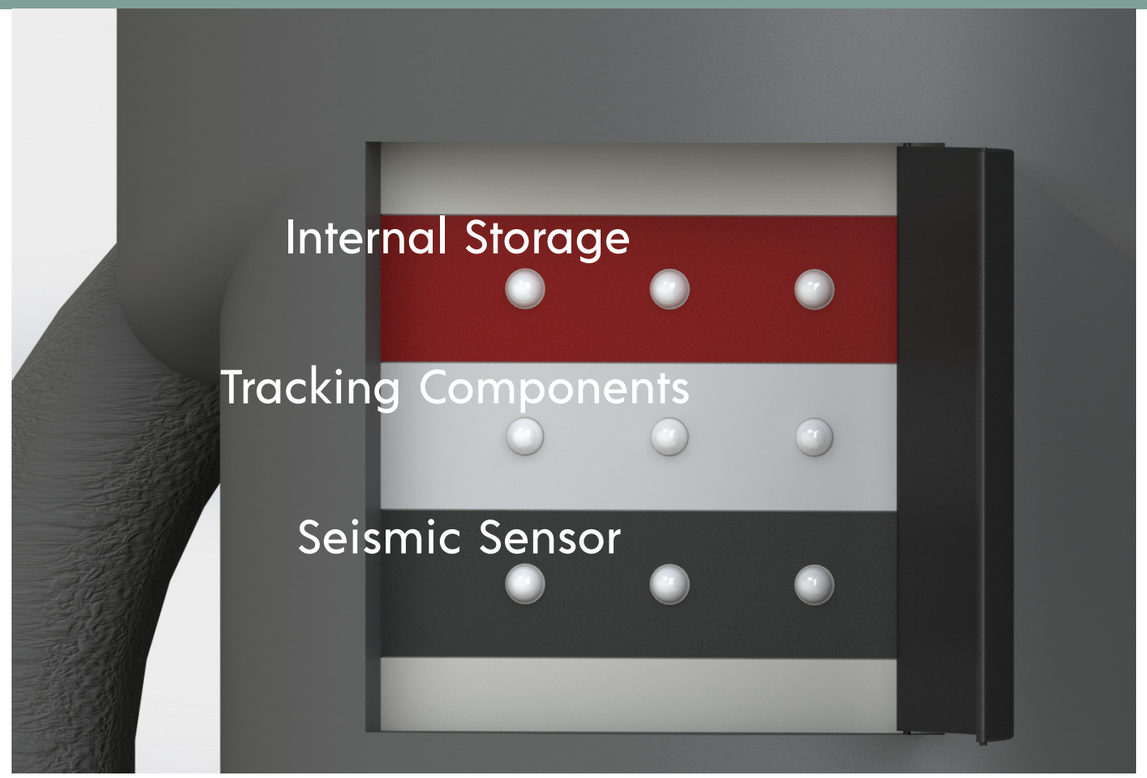
This is an example of each of one of the three wheels located in the mechanical counter.. The width of the tally mark is well over the minimum width

Communication Development- PDS point 3, 4 & 10

Electronic Chunking

Before the description of how the information was chunked, it's important to share this quote from Donald A Norman. "Designers can transform otherwise confusing systems into understandable ones, but if the systems are dealing with complex activities, that doesn't mean that the result will be immediately understandable and usable." (18) This design technique will make it easier to understand information it is presenting, however there is still a burden on the user to understand the theories behind the layout of the LEDS.

Theory:
Chunking is the process of compartmentalizing smaller pieces of information into larger, familiar units. It has been proven to bypass the limited capacity of the working memory (19), therefore applying chunking to designs assists in reducing the cognitive load required to complete tasks.



Application:
As can be seen above, this instance of chunking involves colours and alignment with similar components when splitting up the information. The inclusive design toolkit states to "Group features visually. Use shapes, colours and alignment to assist in visual grouping of features that share some kind of similarity, thereby reducing the time and memory required to locate a desired feature." (20)

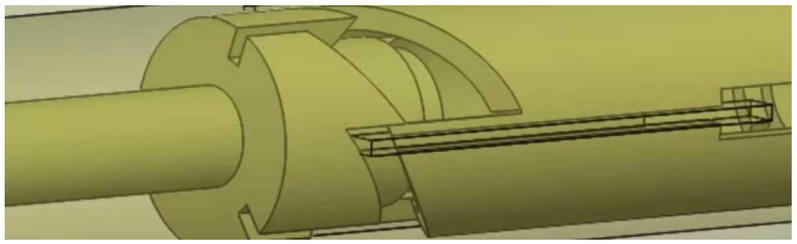
This chunking method has been applied to assist field researchers in retaining information in a field they are, most likely, not well versed in, electronics. This chunking allows them to easily identify which parts of individual components have failed, resulting in a cleaner interaction with the device. Finally, the use of colour and alignment also builds into the idea of inclusivity.

Installation and form- PDS Point

Recognition Memory:

Its well known that recognition memory is easier to build than recalling those things from memory. (17) Researchers could be expected to erect tens of these devices in a day, exposing them to the ins and outs of each device. Concerns were raised in the journey map concerning how the researcher would know whether the device had been installed correctly or not. It was decided to combine that constant exposure to the construction device with low pitch, positive feedback at key stages of the process.

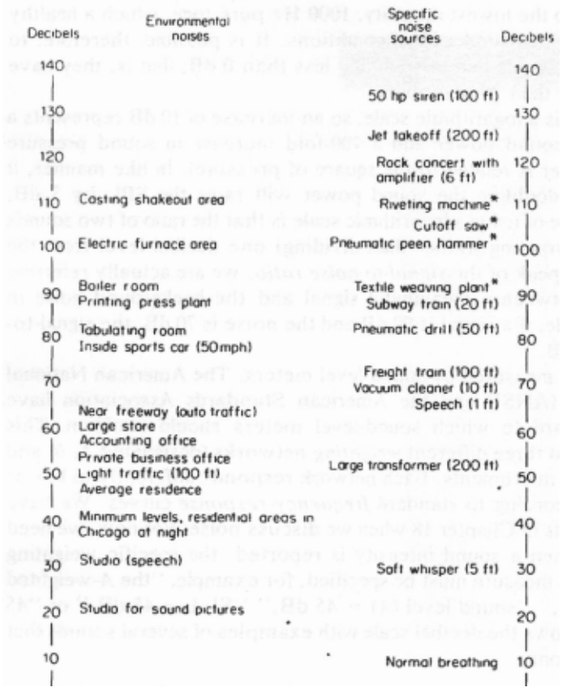
Why Sound?
In truth, its just simpler. The noise created by the device slotted together isn't created electronically, its a simple mechanical function, similar to a clicking pen. The reasoning behind is similar to why a mechanical number counter was used, and not a digital one. Having simpler components reduces the likelihood of components failing in the field.



Frequency:

Much thought has to be given to the frequency of the noise emitted. Similar to touch and feel, hearing a product release a noise will cause the user to make a judgement about that product. This can be seen in car doors, where countless hours are spent trying to perfect the perfect noise that exudes quality. The difficulties lie in that "sound quality has no fixed referents, and the descriptors for sound quality are of ambiguous. Descriptions are based on multiple acoustic properties, some based on the overall spectrum and some based on the temporal pattern of the sound." (21) Because of this ambiguety, its difficult to specify a particular frequency.

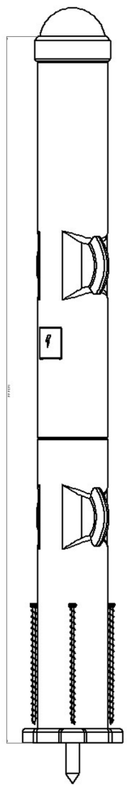
Volume:
The volume of the noise needs to be loud enough to be heard over the background noise, however not too loud as to cause the user discomfort.

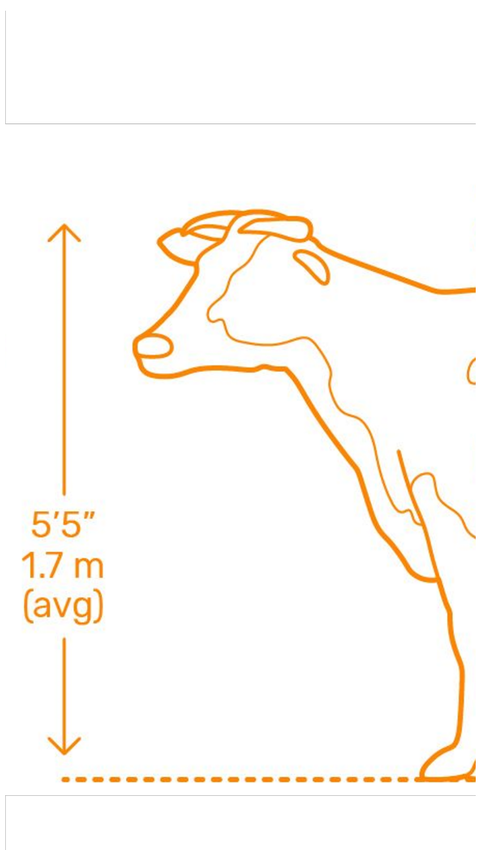


(17)

This graph clearly outlines decibel levels from both the environment, and specific noise sources. These devices are going to be installed in extremely remote areas of the world, meaning background noise would usually be minimal. A decibel level of 55 was chosen, meaning this feedback could be heard over strong winds rustling the plants.

The cattle that pastoralists own grow to an average height of 1.7 meters. (22). It does need to be taken into account however that the average height does not mean maximum. Because of this, the height of the camera was just over 2 meters, reducing the liklihood of obstucted photos.



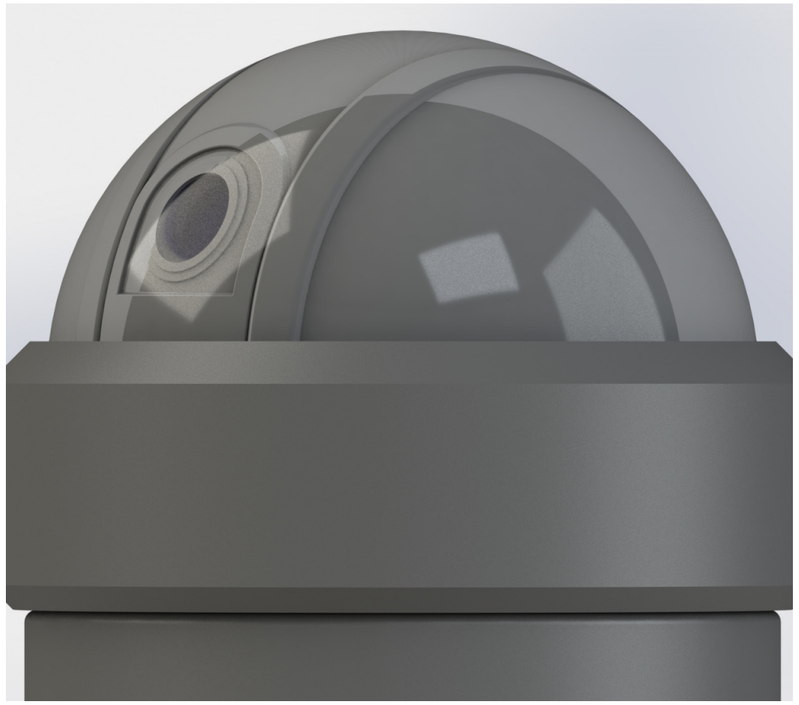


Data Gathering- PDS Point

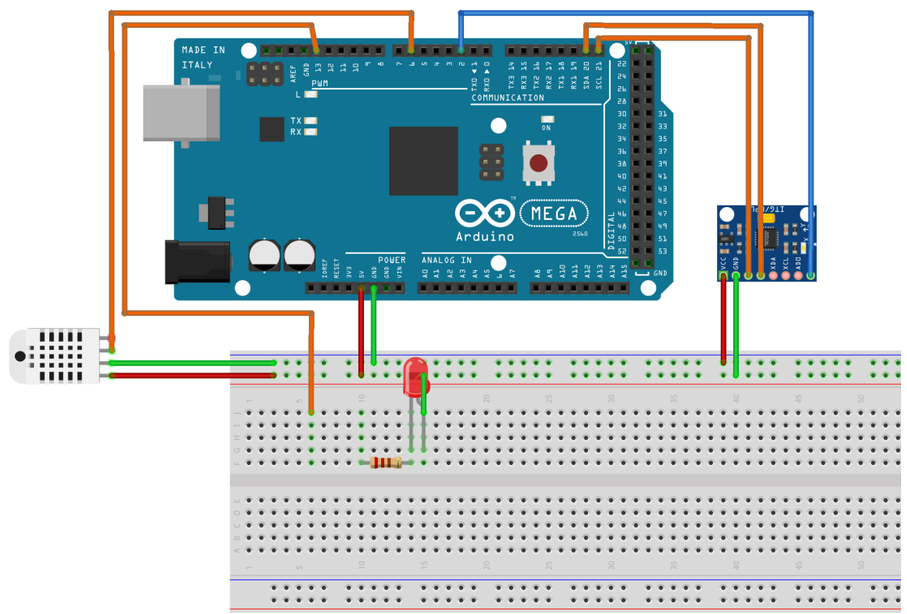
Theory:
This final PDS point was influenced by the current devices that are being used to gather data. Currently researchers attaching devices, designed to track European birds, to collars around cattle's necks. Most of these devices will not survive the year in the field due to the extreme climate. These devices also only capture location and time, meaning that current progression towards informing key stakeholders is being throttled by lack of tangible data. (22) If this device can gather that tangible data, it would increase the desirability of the product significantly.

What data?
Previous research outlined key pieces of data that researchers desired. Some examples are: Number of cattle per herd, grazing itineraries, nutrient content analysis, humidity, temperature and, most importantly, location.

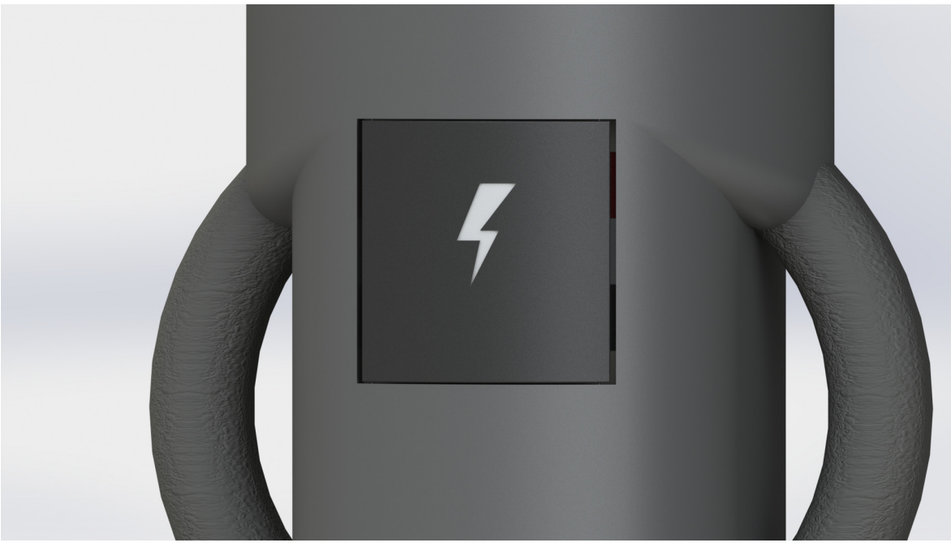
Once interviews laid out important data researchers wanted, it was important to research into the viability of gathering that data. Sadly, things such as nutrient content analysis and grazing itineraries would be too complicated to implement. This is due to the physical nature of that data. The key point of this device is to focus on autonomy.

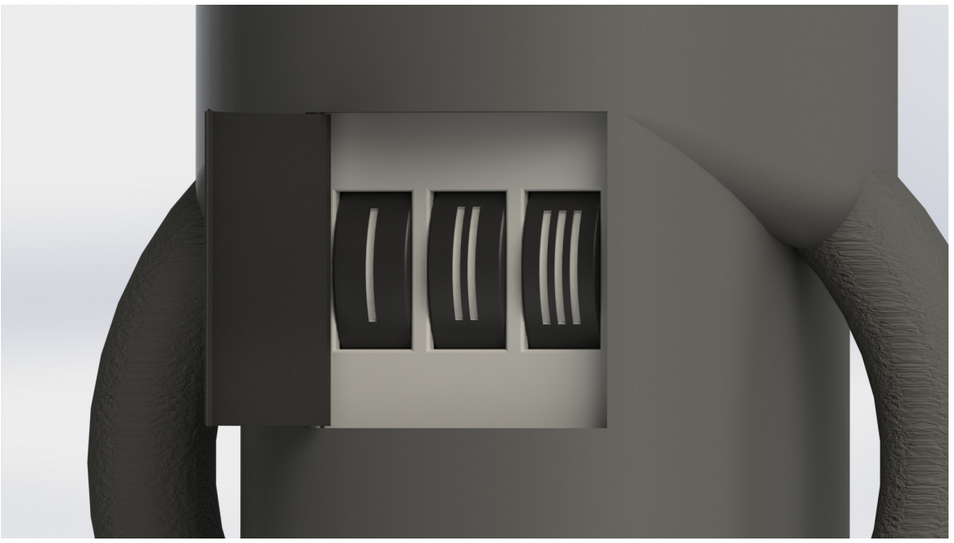


This is the example of the working ciruit that was built that housed a seismic sensor and a temperature and humidity monitor. When the circuit sensed movement, the temperature and humidity sensor would take a reading.



Final Renders





Personal Design Philosophy

I used to believe that, when I am designing, I should design solely with aesthetics and function in mind. Throughout my A level career, every project I would complete would have minimal primary research, however I would always succeed because my designs would theoretically work. Coming to University has drastically changed that outlook. Initially, throughout my first year at University, I felt extremely out of my depth. The entire research stage of the design process was extremely daunting, and I never felt I gave it justice. However, I remember when I started research into my final project of second year, I decided to change. I decided that this time I would wholeheartedly throw myself into primary research, and that decision changed me for the better. That decision made me decide to focus my final year project on an extremely niche topic, pastoralism throughout Sudan, where I would meet some of the most fantastic people I have ever met.

Throughout initial interviews with researchers, it blew me away how intensely appreciative they were that someone would consider their views and needs. This spurred me on to produce more user centred research throughout the research process, requiring me to spend more time interacting and interviewing the people I was designing for. These people had so much energy and passion for their work, they were encouraging me in my work, and wanted to see the results. These interactions finally cemented the change in my design philosophy, from a technical focus to a human centred focus.

Building upon this experience, I have further decided it is vital to gain an understanding into the socio-political climate you are designing for. My last project was a key example of this, where throughout research, I needed to account for the diversity of stakeholders and stigma surrounding the people both the researchers and I are trying to help.

In this context it is inappropriate, and potentially dangerous to develop a product, solely with technology in mind. Broken technology litters Africa, for example broken tap stands, emphasizing the ethical implications when sustainability is not taken into account.

In summary, my outlook has matured, and my understanding has deepened with the experience of directly engaging with a group of experienced researchers, with well defined needs. I am fortunate in that the people I was designing for were highly enthusiastic, and that enthusiasm was passed onto me. I believe that designers should leave their comfort zone, and attempt to empathize with the passion that will meet them when they do. My design philosophy is that any design can be aesthetic and functional, however ensuring that it meets the users standards is paramount.

Appendix

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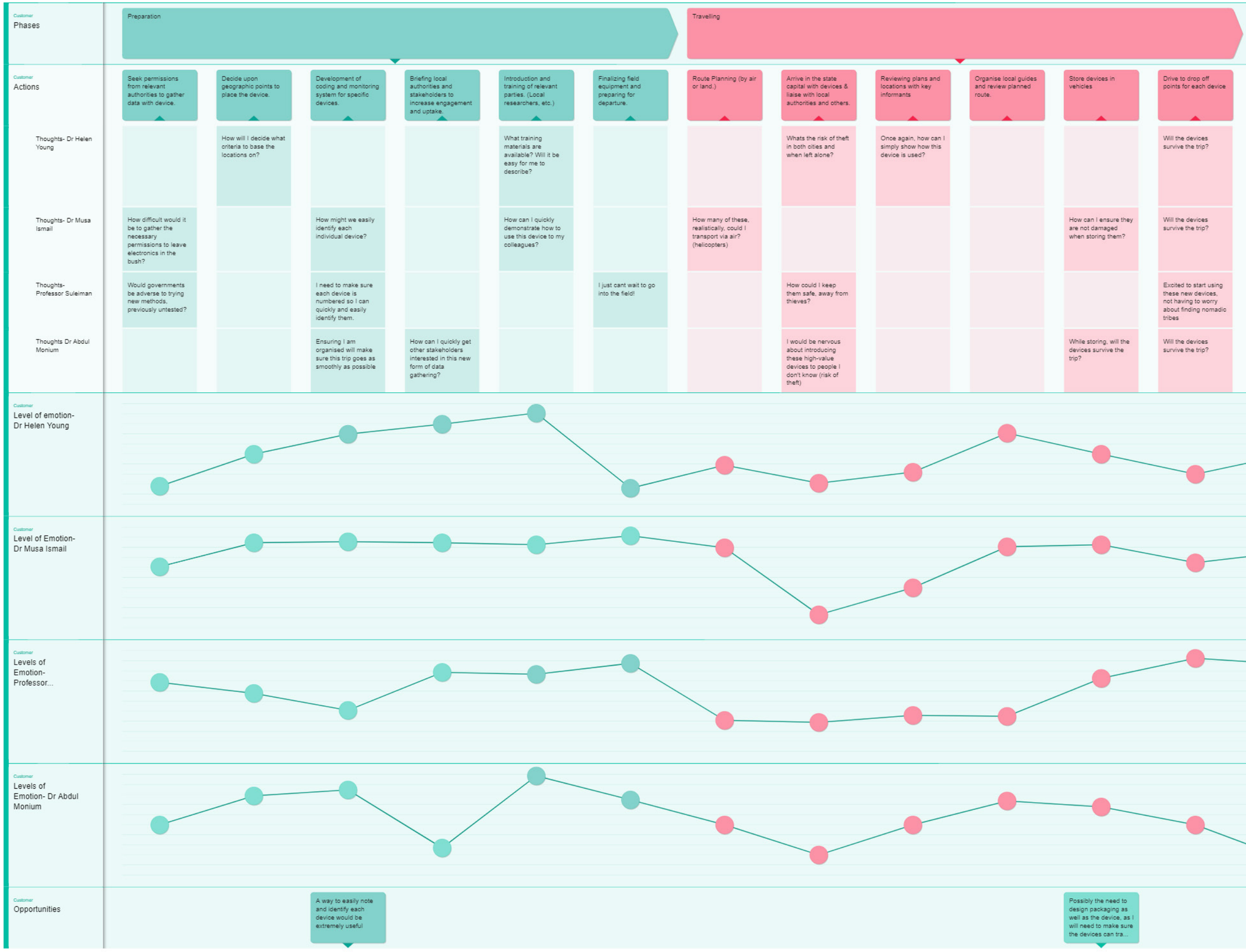
Journey Map


Customer
Phases
Preparation
Travelling
Customer
Actions
Seek permissions from relevant authorities to gather data with device.
Decide upon geographic points to place the device.
Development of coding and monitoring system for specific devices.
Briefing local authorities and stakeholders to increase engagement and uptake.
Introduction and training of relevant parties. (Local researchers, etc.)
Finalizing field equipment and preparing for departure.
Route Planning (by air or land.)
Arrive in the state capital with devices & liaise with local authorities and others.
Reviewing plans and locations with key informants
Organise local guides and review planned route.
Store devices in vehicles
Drive to drop off points for each device
Thoughts- Dr Helen Young
How will I decide what criteria to base the locations on?
What training materials are available? Will it be easy for me to describe?
Whats the risk of theft in both cities and when left alone?
Once again, how can I simply show how this device is used?
Will the devices survive the trip?
Thoughts- Dr Musa Ismail
How difficult would it be to gather the necessary permissions to leave electronics in the bush?
How might we easily identify each individual device?
How can I quickly demonstrate how to use this device to my colleagues?
How many of these, realistically, could I transport via air? (helicopters)
How can I ensure they are not damaged when storing them?
Will the devices survive the trip?
Thoughts- Professor Suleiman
Would governments be adverse to trying new methods, previously untested?
I need to make sure each device is numbered so I can quickly and easily identify them.
I just cant wait to go into the field!
How could I keep them safe, away from thieves?
Excited to start using these new devices, not having to worry about finding nomadic tribes
Thoughts Dr Abdul Monium
Ensuring I am organised will make sure this trip goes as smoothly as possible
How can I quickly get other stakeholders interested in this new form of data gathering?
I would be nervous about introducing these high-value devices to people I don't know (risk of theft)
While storing, will the devices survive the trip?
Will the devices survive the trip?
Customer
Level of emotion- Dr Helen Young
Customer
Level of Emotion- Dr Musa Ismail
Customer
Levels of Emotion- Professor...
Customer
Levels of Emotion- Dr Abdul Monium
Customer
Opportunities
A way to easily note and identify each device would be extremely useful
Possibly the need to design packaging as well as the device, as I will need to make sure the devices can tra...

Setup

Monitoring Ongoing Proceeds

Take specific device out of car.	Locate best place for installation	Dig hole and place the lower third into it.	Connect the next two thirds of the pillar	Turn on	Record GPS co-ordinate	Notify any onlookers and pass over a handout	Leave	Follow up with local contacts to check on devices or any feedback.	See to broken or malfunctioning devices.	Collect final data.
How can I easily identify each specific device?		Need to remember to take relevant digging tools.	Have they been correctly installed?			I need to make sure the handout is to ensure the onlooker knows that this is legal, and provides them with a point of contact for any follow up questions	What is the risk of theft during this time?	Need several steps to check for, quickly and easily	Modularity	What leads are needed? will sockets still be working etc
	How would I know this?			Have I correctly turned it on?						
				There is no indication as to whether it is on?			How often can I return to pick up the data?			
How many times will I need to do this?		If I have to do this 50 times, will it just get as annoying as finding the pastoralists?			I need to make sure i know that this particular device is at this particular location.			How can I know whether the person checking the device knows what they are looking for?		

Examples of emails with researchers

SB Sam Blackburn (student)
Mon 6/8/2020 3:25 PM
To: Saverio Kratli <saverio.kratli@gmail.com>

Dear Dr Kratli,

I understand I was too vague. I am just requesting a short statement, spoken in front of your own camera, and sent to me about how lack of innovation could be throttling research into this field or development more generally. Do not worry about the length as I will be cutting to about 20/30 seconds.

I do understand this is still rather vague. I am planning to use this clip, and clips sent by your colleagues, at the start of my project video to show, from experienced voices, this is a genuine problem.

I truly appreciate your time and effort that you have put into this.

Kind regards

Samuel Blackburn

SK Saverio Kratli <saverio.kratli@gmail.com>
Mon 6/8/2020 8:10 AM
To: Sam Blackburn (student)

Dear Sam,

Good to hear from you. I will help as I can, but I am not quite sure I understand how. Are you suggesting a video interview to be edited down to 1 minute? Or you are suggesting that I speak in front of my own internet camera and I send you the file? The theme seems also somehow vague. Will there be a more precise focus once it is ascertained that I am willing to gelp?

All best,
Saverio

MI Musa Ismail <musa.ismail84@gmail.com>
Sun 6/7/2020 9:47 AM
To: Sam Blackburn (student)

Dear Sam
I am glad to hear from you again and many thanks for sharing the document
It is my pleasure to support you any time so you can send the other document
Very best regards
Dr. Musa Ismail
University of Zalingei - Sudan

Thank you, I will do that. | Thank you! | Thank you for your support!

Are the suggestions above helpful? Yes No

SB Sam Blackburn (student)
Sat 6/6/2020 4:16 PM
To: Musa Ismail <musa.ismail84@gmail.com>

Problem Space Board.pdf
203 KB

Dear Dr Ismail

Thank you so much for your help earlier in this project! It was much appreciated and invaluable. I have attached one of the deliverables that I handed in, to show you what I have been up to, and can send another if you are interested. I created two posters that adopt infographics as a method to help summarise problems faced by researchers.

I am indebted to you for your help, and sincerely appreciate the time you took to reply.

Kind regards and best wishes

Samuel Blackburn

HS hussein sulieman <hmsulieman@yahoo.com>
Wed 6/10/2020 10:21 AM
To: Sam Blackburn (student)
Cc: Young, Helen <Helen.Young@tufts.edu>

Dear Samuel,
I am glad and exited to see the deliverables of your project. Congratulations!!!

For sharing the short video you are requesting, I would like to suggest to send it to you through Whatsapp number if that is work with you.

Looking forward to see more deliverables.

Best wishes and stay safe
Hussein

Prof. Hussein M. Sulieman | Director, Centre for Remote Sensing & GIS | University of Gadarif | Gadarif, Sudan | Tel.: +249 916882390 | Skype: hussein.m.sulieman

SB Sam Blackburn (student)
Sat 6/6/2020 3:58 PM
To: hussein sulieman <hmsulieman@yahoo.com>
Cc: Young, Helen <Helen.Young@tufts.edu>

User Needs & Translation Boa...
17 MB

Problem Space Board.pdf
203 KB

2 attachments (17 MB) Download all Save all to OneDrive - University of Brighton

Dear Professor Sulieman,

Firstly, thank you so much for your help earlier in this project! It was much appreciated and invaluable. I have attached one of the deliverables that I handed in to show you what I have been up to, and can send another if you are interested. I created two posters to adopt infographics as a method to help summarise problems faced by researchers.

Next, I would like to produce a short video displaying the positive effect innovation could possibly have on fieldwork on pastoralism, which would only be used on my University course and will not be distributed further without your permission. I have emailed you, and 3 others, requesting a short voice or video recording (30 seconds to a minute) in your own words describing how innovation and new technology could help address problems you face in your field of work.

SB Sam Blackburn (student)
Tue 6/9/2020 2:27 PM
To: Osman, AbdalMonium (PSE) <AbdalMonium.Osman@fao.org>

Dear Abdal Monium,

Your message made my day! You are more than welcome to share my work, and I am extremely thankful for your comments.

I am just requesting a short statement, spoken in front of your own camera or voice recorded, and sent to me about how lack of innovation could be throttling research into this field or development more generally. Do not worry about the length as I will be cutting to about 20/30 seconds.

Many thanks and kind regards

Samuel Blackburn

YH Young, Helen
WOOHOO!!!!!
Mon 6/8/2020 1:34 PM

OA Osman, AbdalMonium (PSE) <AbdalMonium.Osman@fao.org>
Mon 6/8/2020 11:41 AM
To: Sam Blackburn (student)
Cc: Young, Helen <Helen.Young@tufts.edu>

Dear Sam

I'm glad that you have successful finalized your project and thank so much for sharing with me the infographics poster. I believe it has captured well and in a very easy way, the problems faced by researchers in pastoral settings. With your consent, I would like to share with colleagues and students who are now undertaking research as part of Master and Ph.D programmes.

I will be happy to contribute to your next project and the production of the video. I'm currently teleworking from Boston. Please feel free to contact me any time good for you.

Thank you

Abdal Monium