

Sampl

Everybody can be a sound creative.
#wheresyoursound



LUND
UNIVERSITY

Master Thesis by Axel Hjertman, School Of Industrial Design,
Lund's Faculty of Engineering, Lund's University



Sampl

Everybody can be a sound creative.
#wheresyoursound

Degree Project for Master of Fine Arts in Design,
Main Field of Study Industrial Design,
from Lund University, School of Industrial Design, Department of Design Sciences

Examiner:

Prof. Claus-Christian Eckhardt

Supervisor:

Lec. Andreas Hopf

Author:

Axel Hjertman

2016

ISRN No.: LUT-DVIDE/ EX--16/50343—SE

Acknowledgments

First of all, I would like to thank my examiner **Prof. Claus-Christian Eckhardt** and my supervisor **Lec. Andreas Hopf** for all through my education been offering their help and interest in my projects, listening and trying to understand what skills I personally want to develop and supported me with guidance. In this project in particular, their guidance has taken my sometimes very abstract ideas and concepts into the light of reality, resulting in a conceptually strong and feasible product.

In addition, thank you Anna Persson, Karl-Axel Andersson and Despina Christoforidou for attending my Presentation and the following critical review, adding ideas and good points for the next-coming implementation processes.

Thank you product-Designer Johannes Lohbihler for inviting me to organize and participate the DADA-Machines Workshop where some of the most valuable insights were acquired.

Thank you teachers Marie Adaktusson, Josefin Siljeholm and Pelle for letting me attend some music ensemble classes at Viktor Rydberg's Gymnasium Jarlapan, accepting interviews and introducing me to the students.

I would like to acknowledge FabLab-Berlin for their support of workspace and use of machinery through the rapid prototyping process and manufacturing of the model.

Sound Engineer Olle Bergqvist, for helping me out with understanding the physics of how a microphone works and suggesting working with a directional microphone to facilitate direct sound capture.

Sound Engineer Carl-Johan Holden, for showing and walking me through in analog mixer-tables and how to reroute live-sound through filters and back into the real-time loop.

Music-producer and DJ Alexander Berg, for valuable insights in what features of field-recording that are interesting in a rapid process.

Designer Bruno Everling, for user testing the mock-ups and for feedback along the project.

Christiana Burcea, for lending me a Camera for shooting the movie and questioning the complexity of the application.

Caecilia Pohl, for assisting me as an actor in the movie presenting the project.

Last but not least, I want to thank my fellow classmates for inspiring discussions and encouragement throughout the process.

Abstract

The most important factor in a creative mind, is the confidence in that you can create. When I talk to people about music and creativity, many often reject the topic or excuse themselves by explaining that “They cannot play the piano...?”, “they aren’t good at reading notes...!” or that “they just simply aren’t the creative person!”. People are afraid of failure and of being judged by others, hindering them to curiously explore a new creative area.

This project is about enabling people to initially bring something of their own interest into the process and explore their own creativity and expression at first hand. It proposes a way to create something unique and personal and develop one’s own musical expression, without needing any pre-knowledge in either musical arrangement or instrumental know-how.

Sound is everywhere and for everyone. By choosing and simply recording a sound directly from the world around you with a simple and playful recording device, cropping it and applying one of the pre-set effect-filters in a “Instagram”-like application for sound. Finally, you share a unique sound which you have created.

So, Instead of asking “What is good music?”, we should be asking the more important question; “What is interesting... to me?!”.

When talking about music and creativity, many people seem to disclaim their opinion feeling uncomfortable because they do not see themselves as musically talented, they cannot read notes nor play the piano or they excuse themselves with that they “just aren’t the creative type”. However, they know exactly what music that pushes their buttons.

If you recognize this, you might also have lost one of the most important ingredients in general creativity... your creative confidence.

We cannot imagine but variations of what we already know, however, we can choose from what we have never heard before. You do not have to know anything about music to be able to choose from sounds that surround us everyday.

Grab a sound that interests you, put some effects on it (or don’t!) and share your unique contribution to the world of sound !

Summary

Sound is a wonderful and very powerful tool, with which we can experience and communicate emotions that cannot be described in words. As with myself, I feel like improvising on my piano is the only way I can truly show how I feel.

My project is about creativity and sound creation, and in particular about the fundament of an individual creative mind... The creative confidence. As I talk to people about music or any other expressive art form, many reject the topic by saying "I'm not a musician", "I cannot play an Instrument" or something as far from the truth as "I'm just not the creative type". Many seem to think that creativity is something magical and equal to the inherited genius of artistry, which is the worst prejudice. We are all creative. We just haven't had the encouragement, nor been in the right environment to experienced it first hand, so how would we know...?

Sound is everywhere and for everyone. We are all equally eligible to perceive sound as long as our senses can record it. We just have to break down our mental barriers and prejudice towards what music and sound is.

Learning an instrument as I had to do before I could use it, by default places you in a hierarchy, in which you will be judged of your performance from the beginning. I think this is the underlying issue with trying to understand the language of "music" and the whole misinterpretation of what "good music?" is, is that you have to learn an instrument first. The interest fades away as the absence of emotional investment and pursuit of interest is neglected in the process of understanding the interface.

Instead of asking the question "Is this good music?" we should consider asking "Is this interesting... to me?"!

There should be a possibility to invest yourself emotionally from the beginning, and step by step explore your interest while creating something out of it. Maintaining and nurturing your interest while developing something out of it, builds not only creative confidence but a stronger relationship to the sound/music you create. Nurture your own expression while learning a useful framework which develops a personal gateway into the industry of music production. Build an initial interest high enough to transcend into using the commercial interfaces that are supplied by Native Instruments and other companies, without "fear of failing", being judged whilst having a better idea of what you want to express and pursue with the new addition of hardware or software.

If you are also able to start with something of your own, a sound or something that you know, the relationship to the process will be more personal and you may feel a greater responsibility and emotional reward when achieving something with it. It is easier to believe in what you're doing, if you are personally invested and passionate about the subject and process.

Become the expert of your sound, and you will automatically claim ownership of your expression and what you put out there!

The final proposal is suggesting an opportunity for people to share a unique sound of their own through an application-based platform. The software enables people to cut a part out of a recording, applying pre-set effects to it, creating a personal and unique sound-sample which is shared on a discovery-part of the app. Here the aspiring sound-creator connect with other "Samplers" and with music-creators whom long for unique sounds to develop their music-pieces into something new.

The proposal consists of two parts, a hardware and a software. The software is the application where people actually handle the sound. The hardware, is an affordable, small and easy-to-handle high-quality recorder, which serves as a sound-flashlight to explore the unique hidden sounds in our everyday life. It enables you to listen and explore the world around you in a new way with real-time effects and making sure you are never more than one click away from getting that incredible sound you just found!

The recorder then sends the sounds wirelessly to the application, where you create the sample. Once you think the sample sounds interesting, you share it and your contribution "pops up" on a scrollable globe in the "Discovery"-part of the app. Get inspired by other people's sounds, connect and add them to your stream to stay updated with their new creations.

Content Index

4-5 **Abstract / Summary**

8 **Topic Background**

10 **Initial Brief**

Research

People:

14 Workshop with DADA-Machines prototypes

18 Meeting Aspiring Creators At Viktor Rydberg's Music Gymnasium

Inspiring Voices:

20 Ge Wang - The DIY Orchestra Of the Future (Ocarina)

22 Mark Applebaum - The Mad Scientist of Music

24 Rolly May - Courage To Create

25 Selena Soo - You Don't Need More Experience. You Need More Courage.

26 Elizabeth Gilbert - Your Creative Genius Comes When You Least Expect It.

27 Tony Fadell - The first secret of design is ... noticing.

28 IDEO's Design Thinking + Music Creation = Solution ?

30 We don't create things anymore, we create personal profiles of opinion.

32 **Concluding Insights:** How do we approach the first brief?

Brief 1

Concept Development

38 Early Ideas: Design-thinking with randomness as a creative catalyst

39 Make It Physical: The Wheel-Button. Push to engage, Rotate to Change.

40 Remembering a life-changing experience brings clarity...

42 Why not just **REC** it ?

44 Sound is a totally personal experience when you close your eyes.

46 We need a platform of exchange.

48 Brief 2: Final Concept - Recorder + Social Sharing Platform

Form Development: The Recorder

- 52 Overview
- 54 **A.** The accessible medallion of awareness
- 56 **B-F.** The all-in-one recorder & remote controller
- 60 **Re-considering:** Technology isn't a hurdle... so why consider it now?
- 62 **G.** The Flashlight Analogy
- 64 **G.** The X/Y "Maglite" recorder with a feeling of quality.
- 66 **I.** Stereo to Mono. Tool to Icon.
- 68 **J.** The Maglite Mini. Directional one-axis design. Point & catch.
- 70 **Re-considering:** Still too much of a tool.
- 72 **K.** The accessible urban ear !
- 74 **K.** Parts + Materials + Technical Overview.

Form Development: Social Sharing Platform

- 78 Inspiration and Methods
- 80 Add Effects to your sound to make it even more your own. Reverb + Delay + Filter
- 82 Frictionless storage, manipulation, sharing and exploration of **Sampl's**
- 84 **The story** of an everyday commuter... who became creative inbetween.

The Final Proposal

86 The *Sampl* Selector

- 90 Basic Function
- 96 Material
- 98 Construction and Measurements
- 114 References

Topic Background

As for now, the music industry is a phenomenon of more and more people getting virtually connected. People are having access to music, software and learning/getting inspired to create their own sound and upload it online for others to digest and recognize. The music industry has due to digitalization become very democratic, however, in our present society we are constantly judged and forced to compare ourselves with the increasingly transparent and saturated market/social environment. Our economic system which creates a race towards being the most productive and creative person, discourages people to try and believe in themselves to take a step into something new and unfamiliar. We excuse ourselves with saying, **“I’m just not the creative type”** because we are insecure in our own ability to manage this new setting.

We are afraid of being judged and taking the first step into the messy unknown, because we cannot know if the time we put on exploring the curiosity we have... is worth it in the end. However, there is no way we can reach creativity and personal innovation if we only work with what we already know. Working in established systems assures an acceptable outcome, but never a truly great and innovative invention. It is a squirrel wheel... We need people to bring their own personal opinions into the loop, to inspire and create diversity of thought and action. It is also important for people to open up for the uncertain, in order to get inspired by something they could not imagine themselves. How can free exploration and play with sound be used as a catalyst of creativity, whilst encouraging personal participation and emotional investment?

When making sounds or arranging sounds into music, “mistakes” are many times regarded as a positive mutation. As when the synthesizer-developer Roland released their new analogue bass-sequencer TB-303 and it was a “total fail” from the company point of view, people started playing around with the distorted bass-sound and realized that the sound was something completely new and far beyond anyone’s imagination at the time. This “failure” gave birth to a new genre of music, Acid-Techno. This is the perfect example of how a non-intended outcome with no “hand-book” available acts as a creative catalyst and encourages people to explore and find their own relation to it. We “fail”, to *prevail* !

Music and sound is a very perceivable matter, which is abstract enough to give us all a personal subjective opinion about it. In sound there are no rights and wrongs. When I personally have a “writers block” when playing piano, I just hit a series of random keys on the piano and see where I end up and departure from there. This is how sounds work, your input gives a direct output/feedback as inspiration which you may act upon. Then, just keep climbing the ladder as you passively choose out of a quantity of uncertain elements to develop into a quality production. You had the interest and the courage to play it, chose it, create it and develop it!

Most of us seem to need a very high initial interest to motivate even the first step of getting into a new “creative” area. We need to believe in ourselves, which might seem difficult as we compare ourselves from the beginning with the increasingly saturated and competitive commercial market. As we buy a digital MIDI-interface for music production, they are designed with a relatively low threshold of engagement and learning already. Nonetheless, they are “forcing” people out on the internet to self-educate, where the user becomes exposed to the infinite possibilities of how to handle this product, as well as comparing themselves to the “most liked” professional youtube-videos. There is an emerging trend of simple analogue sound interfaces (synthesizers and drum-machines) which works on the concept, *limitations create possibilities*.

This means, the less buttons, the more creative you tend to become. Because you have better visual and haptic control of the interface and it is easier to grasp and iteratively learn with fewer inputs and instant feedback. Limited possibilities, creates understanding for what the actual possibilities are. Creating is simpler and the feeling that you are productive and creative gives an added emotional value to the process and many times boost your interest in developing your skills. The statement by the participants of the workshop (*DA-DA-Machines p.14*), was the experience of not having to know anything in before-hand but just get down with hunting the sounds, and how fascinating it was to iteratively develop the sound-elements together with an ongoing instant feedback from the pre-made arrangement.

Looking at our behaviour on social media, which was confirmed in the workshop, was the importance of social recognition for what we have proudly created. Once all the participants feel that they are on the same level, or anonymous enough to be able to express themselves without fear of social repercussion, they wanted to share their inventions and creations of sound elements. When everybody started sharing, their ideas inspired each other and the development continued with combining and rebuilding together, iteratively trying to find new expressive ways to share with each other and enjoy together.

At this stage I was curious when, why and how people take the first steps towards exploring and producing sound?

What is the motivation for people to make the effort to freely explore sound creation and their relation to it, without fear of taking the first step and being judged?

Allegro molto.

7

16

24

32

39

49

60

69

77 **B**

86

93

Initial Brief

How might we enable people to freely explore their own initial interest in music and develop it in order to improve their creative confidence and self-expression?

The Aim

The aim of this project is to make people believe in their natural ability of being creative and making them confident in their possibility to create and share their personal ideas. In its core, it has to do with enabling people to feel creative and regain their natural creative confidence. To break down pre-judice, open up peoples eyes for new unconventional possibilities. Make them not only courageous enough to take a step into the unknown and develop new ideas, but to make them believe that they can act upon their ideas and create.

The Objectives

The objectives of this project is to establish an understanding of what limits and discourages people to take a step into and exploring an unfamiliar but personally interesting area.

Methods

Primary research:

Workshops with DADA-Machines digital-to-analogue drum-machine prototypes created by Johannes Lohbihler. The aim of this method is to try how people react, adapt and work together around a yet unknown interface and sound.

Observation of music and non-music students between 16-20 years old, practising music-ensemble at Viktor Rydberg's Gymnasium Jarlapan, Stockholm.

Secondary Research:

Reading scientific and qualitative research-papers about creativity and treatment of phobias.

Reading "Creative Confidence" by David & Tom Kelley

Looking at talks and seminars online about topics related to music / sound-creation, tools for ideation, how to increase productivity, design thinking, different tools for innovation, creative processes, increasing personal creative confidence, creative workshops.

Making conversations with friends and people involved and not involved in the music scene in Sweden/Helsinki/Berlin about the topic.

Self-immersion in sound-hunting with recorder in the city and continues observation of how people express themselves in the city and online.

RESEARCH

...the first of these is the fact that the ...

...the second of these is the fact that the ...

...the third of these is the fact that the ...

...the fourth of these is the fact that the ...

...the fifth of these is the fact that the ...

...the sixth of these is the fact that the ...

...the seventh of these is the fact that the ...

...the eighth of these is the fact that the ...

...the ninth of these is the fact that the ...

...the tenth of these is the fact that the ...

...the eleventh of these is the fact that the ...

...the twelfth of these is the fact that the ...

...the thirteenth of these is the fact that the ...

...the fourteenth of these is the fact that the ...

...the fifteenth of these is the fact that the ...

...the sixteenth of these is the fact that the ...

...the seventeenth of these is the fact that the ...

...the eighteenth of these is the fact that the ...

People: Workshop with DADA-Machines prototypes

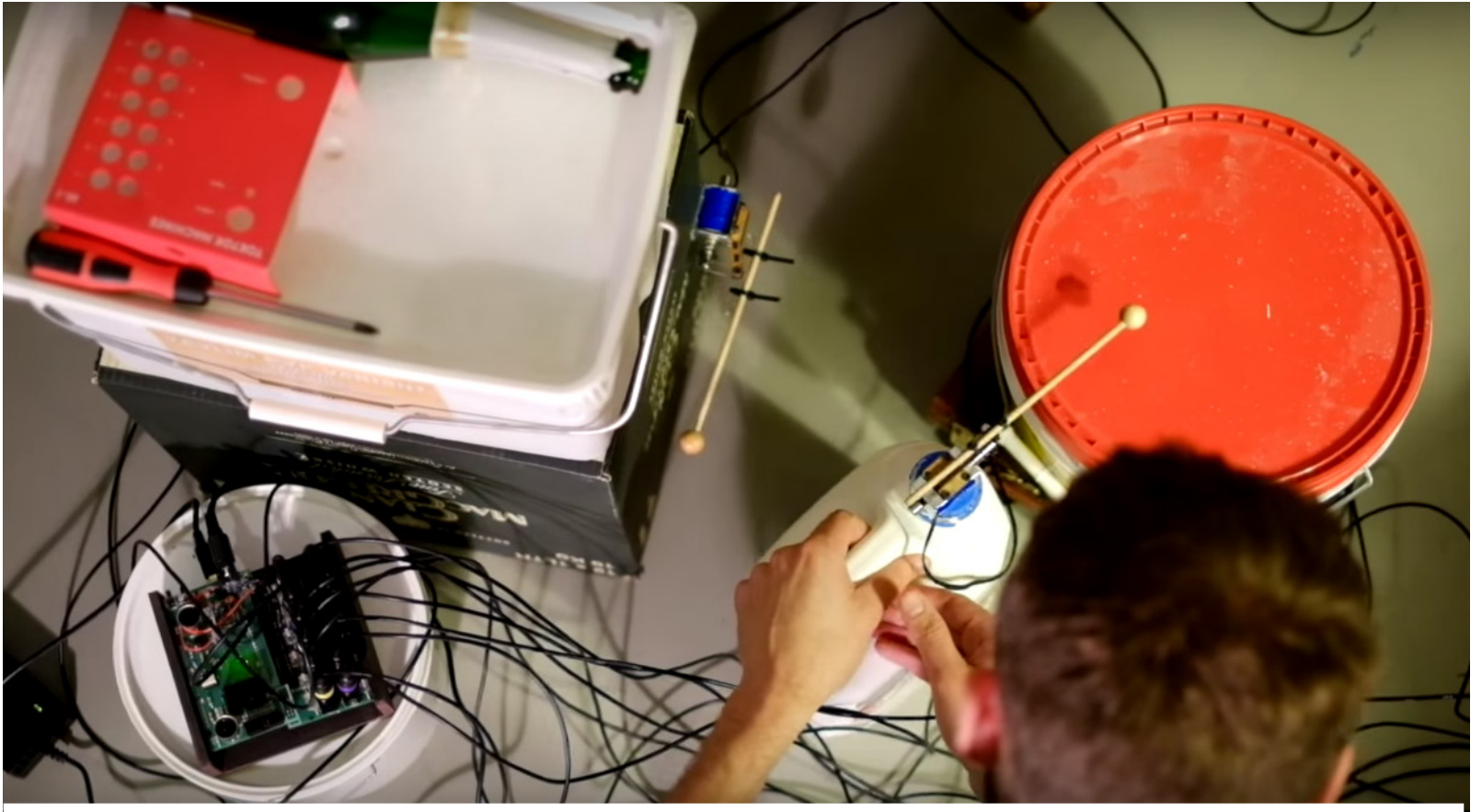


As the initial primary research, it seemed relevant to search for qualitative data, since our perception of and relation to sound is very subjective. An appropriate way of getting first-hand observations is to arrange a sound-exploration workshop whereas a group of participants will collaborate around a new non-commercial, digital-to-analogue sound interface-prototype (Created by Johannes Lohbihler, Germany). Simultaneously getting introduced to a new product, the participants will all automatically have the same starting-point in an attempt to diminish any previous relations/associations to the setup and how to use it.

The workshop is about bringing people together around this prototype, which translates computer MIDI-signals into the actual movement of a drumstick. People can simply attach this device to ordinary everyday objects in their close proximity, and create sequenced arrangements of the sounds. The prototype has been developed with the idea of inspiring people to try, play and explore new sounds, to open peoples eyes for the sound around us!

The people asked to join the workshop will come from various backgrounds and from all corners in the spectrum of musical interest and engagement. Having varying workshop-participants is crucial to get an as complete picture as possible of how different people act and react on each other when building and exploring the sound-setup.

The aim of the workshop, is to participate, observe and pursue an understanding about how people work with sounds together as the need of pre-hand experience is rather diminished. The expectations of the workshop is to get an idea of; How we are collaborating in the scenario? What hinders us from engaging with sound or with the group, and what really drives us to explore something new? The data will be collected through video, self-immersion and ongoing discussions of upcoming questions during the workshop. Questions will be asked fluently as they arise during the workshop, to not disturb the flow and to not make the participants too self-aware.



People:

Workshop with DADA-Machines prototypes (cont.)

The Research Study:

The research study was carried out with a group of eight people between the ages 23-30. Their backgrounds in music varied a lot, and differ from zero experience in music creation to people with high experience.

The set-up used was a digital-to-analogue interface which connected a music production-software called Ableton 9 Live to a set of 12 drumsticks which could be controlled and sequenced in the software. This means that a sequence, e.g. pattern, could be created in the software and translated into physical movement of the stick. These drumsticks then orderly hit whatever was put under them and an arrangement of sounds taken from the immediate environment (a friends apartment) in which the workshop was created.

Information about the concept of the technology and workshop was briefly communicated in the invitation of the participants to prepare them. The workshop started by assembling the digital-to-analog interface together. People were a bit puzzled in the beginning, however, as the technology became more familiar some instantly started setting up the drum-sticks. Everybody joined in the discussion about how the sticks should be attached to a common platform elevated about 50cm above the ground. Leaving a greater space underneath allowed height-adjustment of the everyday objects, the sound-sources.

Some people that did not participate in the actual handy-work of the product setup, started hunting down and hammering objects they found in the apartment to find “cool” sounds. Everybody joined in the hunt for the weirdest objects and bringing them to the table, comparing and combining. The most inventive material combinations were uncovered. Some new sounds, very distant from any conventional drum-sounds and some close to an actual “snare drum” for example. There was a great sense of creative spirit.

The sequence in the computer-software was programmed and altered by me in the beginning of the workshop, to diminish the need for experience in production-skills amongst the participants. The homemade drum-elements were placed under the sticks, exchanged, developed and re-built to change the musical arrangement. People enjoyed the iterative process, which seemed to continuously bring new inspiration into the development.

Result and Conclusion:

Some participants that had never thought about creating music were now eager to try their personal sounds. As beer-cans, wine-bottles and glasses were emptied or half-full they were either placed in the sequence or simply hit upon manually. An interesting insight was that even though the actual workshop was focused on using the interface, people started playing manually on other materials, or even making harmonic sounds by for example rubbing the top of a wine glass with a wet finger. There was an obvious encouragement to experiment and involve oneself even further than just adding materials to the drum-sequencer. Some even started making sounds or singing with the rhythm.

After a while some of the participants started mixing with the computer software and with the MIDI-pad interface with which one could “drum” with the assigned drumsticks, which they had never used before. The inexperience led to the creation of sequences that were not necessarily auditory pleasant, nonetheless, very interesting. And most important of all, everybody seemed to become inspired and successively engaged themselves with increasingly complex tasks, creating new sounds and inspiring each other. The inexperience, once again seemed to erase boundaries and advocated free collective and individual exploration.

One major conclusion drawn from this qualitative research-study, is that a social experience where the focus is not on the actual arrangement of the sounds but on the sounds itself and where exploring sounds deriving from everyday objects really encourage people to engage and explore together. Other conclusions were that if the initial activity is simple and playful, the participants soon want to develop and engage further. Although the workshop was only held in a four-hour period, the participants showed increasing interest and clearly developed their skill and learned from each other. Also, working with your hands and having physical objects that made sound seemed like a strong motivator because it was easier to grasp how the sound behaved.

So, yes it does support the research-question; diminishing the requirement of pre-knowledge in music production or about how to handle an instrument, seems to ease people to engage with lesser hesitation to freely explore and develop a personal sound together.

Discussion and implications:

The outcome of the workshop supports that a big hurdle to overcome, as for myself in my musical career, is the way we tend to compare ourselves to the end result of our heroes, before we actually take the decision to engage. I think the process and the exploration of our curiosity which eventually may lead to innovative uncertain outcomes must be emphasized. To change the focus from developing what has already been created, and play around with sounds departing from an unbiased starting point where the target is not to reach a predestined goal but where the real reward lies in the uncertain developments of the process. Enjoy the ride... and the destination will be an additional experience!

To answer the question about “Who” would benefit from freely exploring a new way of understanding and communicating something abstract individually and interpersonally, one could pose the question;
... Who wouldn’t?

However, there has indeed emerged a more accurate target persona in this study. This person enjoys perceiving music in various ways, nonetheless, has never thought about engaging him/herself with manipulating sounds/creating music due to the feasible barrier of having to put time and effort into understanding the available interfaces. Although there has been a vast development in the market for midi-interfaces and music-related computer software, the workshop and informal discussions with people (20-30 years old) about music production indicated that the pre-hand interest in music has to be very high to motivate learning a new interface-software/hardware.

Therefore, I believe that there has to be a more graspable, intuitive way of working with sounds and understanding that sound is actually a very common and perceivable matter in our surrounding. Sound is everywhere and for everyone, it does not have to come from a sample package or be approved by the big corporations, be coherent with the great composers, or resemble the productions of our favourite producer/DJ... It is, as it once was for these early ground-breaking producers, a continuous exploration for the unknown and synthesis of their feelings, their time, their surroundings and the technique available at the time. We are all equally available to perceive and interpret it, but we cannot find it if we are not looking.

When acquiring a commercial MIDI-system today, although there is some room for individualizing the internal setup, many people nowadays self-educate themselves on youtube where you come in contact with people that are way better than yourself. Since it is an integrated system (if you buy one controller), it is inevitable to prevent people from comparing themselves. In an initial phase, this could either motivate increased effort to learn or to make something different. However, from own experience and mentioned by people I have talked to during the duration of the study, it might scare them off and discourage further engagement.

Another issue that I assume, is that whenever working with a commercial integrated system and comparing yourself with others through social media, there is in the beginning a notion of what is “right & wrong”. This steers you in a direction which might be adequate for learning the interface, but it also might decrease your level of self-expression and emotional reward. In the workshop there was instantly a feeling of being rewarded for thinking out loud and iteratively developing personal ideas in a “trial and error”-fashion.

Putting effort into something, creates an emotional bond and a closer relation to whatever you are customizing/creating (*Mugge, Schoormans, Schifferstein 2009*).

Nevertheless, as concluded in the article, the problem is often motivating the effort of customizing, because of the obvious problem of demanding the “inexperienced user” to decide the quality of the product. This could result in an awkward and unfavourable situation for the user which actually discourages further effort. Therefore, as mentioned in the article, the designers should provide the user with an intuitive tool-kit where the design has to do with pre-defined choices and put together individually, in order to become a personal representing high-performance product. It is also suggested that the most preferable and easily recognizable part of the product to customize whilst keeping the function intact, is the appearance. I think this applies to creating music; the appearance would be the sound and the function of the song its arrangement. So letting people creating and customizing the sounds which do not acquire any musical knowledge, while keeping the arrangement automated to assure a pleasant outcome.

An obvious implication of the workshop; Although the workshop did record that people seemed to feel comfortable of getting creative with the sound-setup, it did not put it in comparison to the opposite scenario. To get a better and more legitimate conclusion, it would be necessary to have a similar workshop with the same participants and 4 hour time-limit, whereas the prototype was exchanged with traditional instruments in a predefined space. The outcome of this comparison would show more accurately how people are affected by the “professional” musical establishment, the varying pre-knowledge about the instruments and self-judgement.



People:

Meeting Aspiring Creators At Viktor Rydberg's Music Gymnasium, Stockholm, Sweden

From observation of 1st / 3rd year students of the music-programme and Social science students having music classes at Viktor Rydberg's Gymnasium in Stockholm, I learned how important it is to have responsibility and being able to exercise your own interest. It is especially interesting when comparing the 1st and the 3rd year when they were playing instruments together, practicing some songs for the next concert. As they started of in the first year, the teacher played a very central role in the class room. The teacher told everybody exactly what, when and how to do things. Maybe because the instrumental knowledge was yet too low to be able to improvise. However, as soon as the teacher had a short break sorting the notepapers or giving personal advice to one of the students, the other students started playing own songs like "The XX-intro" or the classic "Final Countdown". As one student was courageous enough to start playing the notes of final countdown, the drummer came along and then the bass started finding out the chords. Unfortunately, as they got the groove going with smiling faces, the teacher told them to start playing the classic pop-song that they were going to perform.

In comparison to the 3rd year students, the teacher removed themselves from the middle of the group and had a dialogue with them about the arrangement of the song and time distribution of the lesson. Once they started playing the rather simple pop-song, the guitarist made a small solo-excursion in the song and was instantly encouraged by the teacher to keep doing the solo in the next versions of the song! After a while into the lesson, the teacher suggested that they keep practicing a certain very basic "loop" (part) of the song, and that everybody had some time each to play around a little bit of the very simple pattern. This they did for quite a while and as time was a luxury for this exercise, people started iteratively developing their own small solo's while the beat was going on and on and on. The teacher was really emphasizing that they shouldn't look at the notepapers but play with their gut feeling, as well as that if you fail the worst thing you can do in front of an audience is to stop playing. This have the students the responsibility to improvise their way back to the song if they eventually missed a note. As we took a break, the students chose to remain in the class-room and were still playing the very song they were supposed to practice as we came back to the rehearsal-room.

What I learned from this very experience, was that if you give people the opportunity to participate in building the frame and encourage personal excursions while following the schedule since there is a time-buffer allowing it, they feel responsible for contributing their own expression. So instead of teaching people how to play the instrument right, give them the opportunity and encouragement to as early as possible follow their own interest, nurture and pursue this until they understand what instrument/what way they feel comfortable in expressing it. Also it is very important to emphasize that there is room for mistakes, and that learning from unintended contribution often may lead to something more interesting and yet unknown.

It is also easier to re-arrange something already existing and make it your own, instead of starting off from scratch without any knowledge or inspiration. Once you set the wheel of inspiration in motion and input/output relieve each other, the process goes smoother and you may keep tweaking it and re-arranging it as you go along, just as the students did when refining their iteratively improvised solos while repeating the same notes.

If you then also are able to start with something of your own, a sound or something that you know, the relationship to the process will be closer and you may feel a greater responsibility and emotional reward when achieving something with it. It is easier to believe in what you're doing, if you are personally invested in and passionate about it.

If people get the opportunity and responsibility to bring something of their own into the situation. If they are invited and encouraged of sharing it because there is no obvious right and wrong since they are exploring, discussing and establishing a new framework together with the help of the teacher, their personal interest and motivation of developing their creation and involving themselves seem to increase. The teacher was the catalyst of freedom and diversity.



Inspiring Voices:

Ge Wang - The DIY Orchestra Of the Future (Ocarina)

https://www.ted.com/talks/ge_wang_the_diy_orchestra_of_the_future#t-740978

<http://www.smule.com/ocarina/original>

Ge Wang is one of the designers of the application-based musical instrument and sound-sharing community Ocarina on Iphone. The whole concept builds on the traditional Ocarina-instrument, which is rather easy to learn and use. By merging a traditional instrument and new technology like this, the Iphone-application uses the accelerators and GPS in the Iphone to affect the tone from the instrument. The result is a very intuitive and personal experience when playing, since one has to learn how to handle the relationship between your movements/input with the sound/output.

“This was designed for you to take your time to figure out where your expressive space is”

He thinks that we should strive to create musical instruments, which are having a conversation with the user. You put input, and you get output. The relationship to the object grows in time, as you learn how to use it. It becomes something personal.

We have to take away the exact measurements, etc. and think more about how we move and how it may be translated into music. Like the golf-exercise equipment turned into a playful instrument (figure .1). You stretch the string and the sound instantly changes. This is a perfect example of how you intuitively, and most importantly playfully, will learn how it works. Your muscle memory will adapt, you feel the sound and become a part of it.

This might create a feeling of that its more about exploring how it works, rather than learning how it should be working. The goal is to try out and play until you eventually find something that you like, you find your own space for self-expression...!

“The interesting thing about this Ocarina is that, is it a toy...? or is it an instrument? Maybe, it is both. But for me the most important question is, is it expressive?”

Ge Wang believes that creating these kind of instruments shed light on the question and role of technology in how our way of making music is today. He says, that not too long ago, maybe a 100 years or so, we used to make music together as a common form of entertainment. Although we have instant and unlimited access to music, making music together isn't happening as frequently anymore. I believe, our world-wide access and connection encourages a greater intake of inspiration, however, discourages participation and personal and creation in a sense. In general, we might have forgot that we do not only have to make music in order to get recognized by others but to actually recognize ourselves and our expression.

“While listening to music is wonderful, there's a special joy of making music that's all its own!”

Therefore, a very interesting feature of the Ocarina-app on Iphone is that people may stream other people playing real-time around the globe. Connecting people, that are constantly streaming what they play by default. Experienceing it, thinking, *“Hey, there's actually somebody out there playing this music right now...!”*, Bring people into the picture. Be a passive and anonymous listener / streamer. Take away the pressure of performance and level of experience.

“The real-time stream is perhaps a small, but important connection for people, which the technology affords”

Final thought from Ge Wang: What is computer music? “Computer music” is not really about computers, its about people. The catch here is that, Its about how we use technology to change the way we think, do and make music. And maybe even add to, how we may connect with one another through music.”



Inspiring Voices: Mark Applebaum - The Mad Scientist of Music

https://www.ted.com/talks/mark_applebaum_the_mad_scientist_of_music#t-212975



Mark Applebaum is bored with music. However, he uses his boredom as a “catalyst for creativity and invention”. He shows one example in which he takes a “boring” Beethoven production and drums the song on the piano, simply changing the way in which the notes are emphasized. In this way, he added his own expression. To make the music more appealing and interesting for him. He did it for himself, to enjoy it more. To stay passionate.

He then continues, showing the audience the “mousekateer”. An instrument far from anything anybody have ever seen... because, he made it himself. It is a framework, where he has numerous possibilities to attach cool-sounding stuff he has found in his everyday environment.

“... and the coolest thing about the Mousekateer... is that I am the best Mousekateer-player in the whole world. However, it also means that I am the worlds worst Mousekateer-player...!”

By creating your own setup / instrument, with arranged sounds from your own liking... You have created something unique, which has iteratively grown from your own playful process. By exploring in a Trial&error-fashion! An arrangement which cannot be compared easily, to any other setup. Simply, since there is no other.

This creates added value to the process, creating and being able and encouraged to show your personal work for an audience who cannot judge yet be inspired to build upon their own expression. When one sound through an open platform leads to a reaction, development and emphasizes multidisciplinary connections between individuals, who knows what can come out of that?

If you like lego, use lego as your starting point! If you like art, find a way to transform art into sound. What is your interest, what is you? How can these personal interests refurbish an instrumental frame? Framing a unique self-made instrument consisting of “conversations” between you and the many things (sound elements) you have relations to.

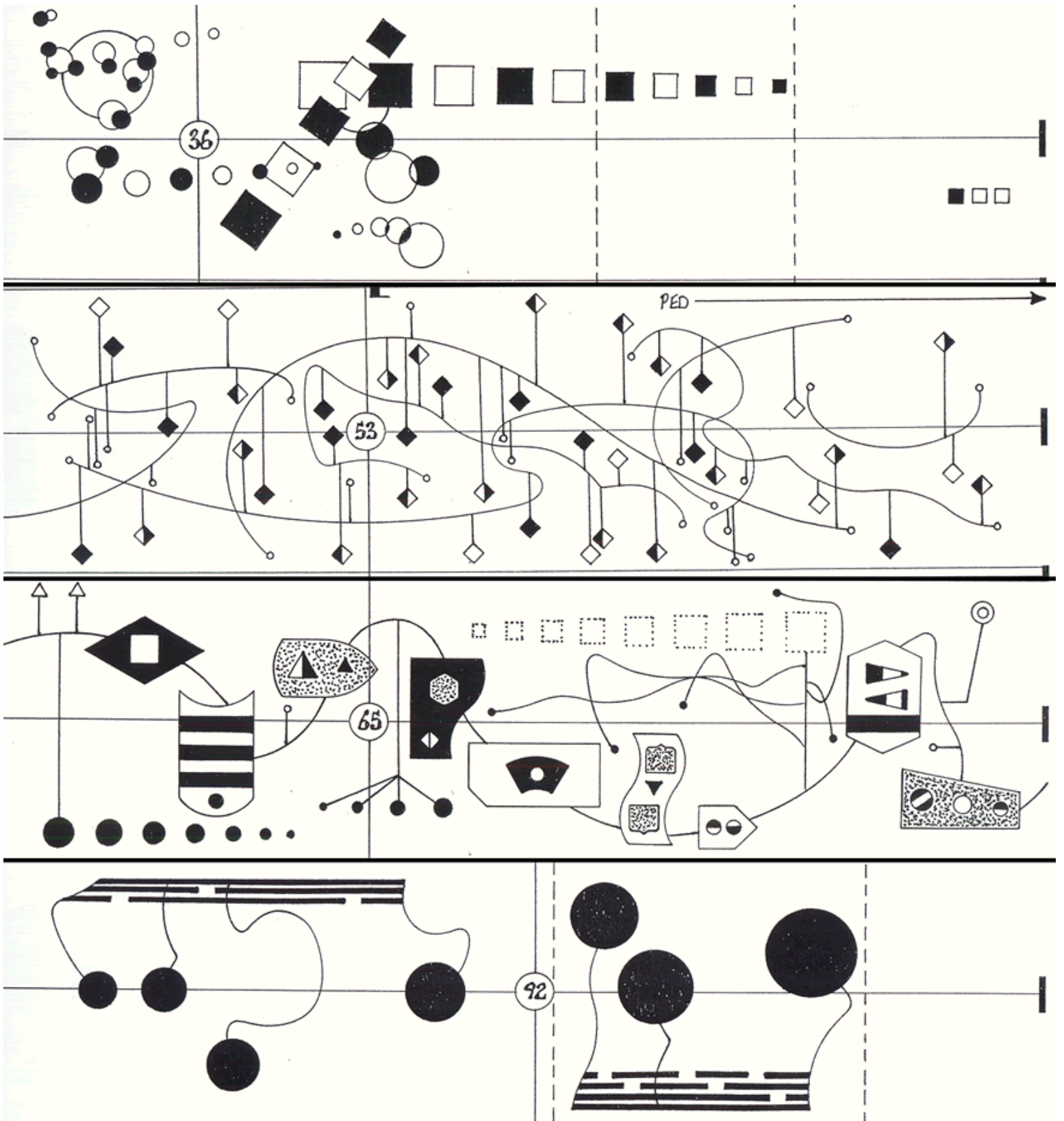
“Is it music?” is the wrong question. The important question is... “Is it interesting?” !

Weird is unconventional, unconventional is something new, something new is interesting.

As this instrument is unique and exists outside of the traditional system of music-instruments, it requires a notation-system of its own. However, the immediate question is “how will anybody ever be able to play this instrument/or replicate songs created on this instrument, with other instruments?”

Therefore, Mark Applebaum created a new pictorial notation-system which is supposed to be freely interpreted by the instrumentalists. This results in new totally unique sound-scapes, that play by its own rules and lures out the traditional instruments into a totally new set of boundaries... or no boundaries?

By creating a framework, which allows or more correctly requires personal interpretation, creates a whole new game-field. Here the relation to the sound through a notation system that relies on the instrumentalist’s own associations, is created.



Inspiring Voices:
Rolly May - Courage To Create

http://moe.machighway.com/~cliffor1/Site/EXSupplementalReadings_files/23692564-ROLLO-MAY-Tthe-Courage-to-Create.pdf

**“THE OPPOSITE OF COURAGE IN OUR SOCIETY IS
NOT COWARDICE, IT IS CONFORMITY.”**

ROLLO MAY

We need to be courageous, to move ahead in spite of despair and contribute with something which is true to our own being. Because, “if you do not express your own original ideas, if you do not listen to your own being, you will have betrayed yourself. Also you will have betrayed our community in failing to make your contribution to the whole.”

What Rollo May is saying probably makes perfect sense to most people when hearing it, nonetheless, when in the situation where you are supposed to perform or air a personal contribution in a large group of people and where you are held directly responsible for your opinion it requires some courage or strong belief in what you are about to say. Unless of course... you are a very self-confident type of person that aren't afraid of an argument but see the argument as the means of getting further. In which case, you have already had the opportunity to experience your own creativity or been lucky enough to have people around you that encourage diversity of thought.

Contributing is the most essential ingredient in the evolution of society. Thinking and expressing different and personal ideas and thoughts should be rewarded... not rejected. So how do we create this atmosphere within a competitive environment... such as, the commercial music production industry!

“Thinking and expressing different and personal ideas and thoughts should be rewarded... not rejected.”

Inspiring Voices:

Selena Soo - You Don't Need More Experience. You Need More Courage.

<http://www.positivelypositive.com/2013/01/20/you-dont-need-more-experience-you-need-more-courage/>



Its often not about having the most experience... but having the most courage! Courage to believe in yourself and share it with others. The courage to take on new assignments. Listen, adapt and learn by challenging yourself. Make choices. Learn from the consequences. Take what you learned and put it back in the process.

Selena Soo talks about an interview with GigaOm, where entrepreneur and start-up mentor Steve Blank said, "Do you know what we call a failed entrepreneur in Silicon Valley? Experienced." You cannot have success without failure. The two are inextricably linked.

"Do you know what we call a failed entrepreneur in Silicon Valley? Experienced."

So if you're afraid to act because you might make a mistake, stop and think again. Roadblocks and setbacks provide us with the information we need to grow, change, and make a move in the right direction.

That's why we should be thanking our failure. After all, it's through our failures that we gain experience. So move forward with courage and know that you are headed in the direction of success."

How might we develop a tool-kit that would allow people to feel courage and motivate them to believe in whatever they are doing? To feel confident, that whatever result that will present itself after the interesting process will be a personal-success ?

Inspiring Voices:

Elizabeth Gilbert - Your Creative Genius Comes When You Least Expect It.

https://www.ted.com/playlists/131/carlton_cuse_6_talks_that_hel



Elizabeth Gilbert suggests that the creative genius comes to you, when you least expect it. As you expose yourself to things that inspire you, or explore without constraining your mind into that you have to create, that you have a deadline, will make the ideas come to you without you chasing them down. Stay open, and do not judge your own creativity.

Ancient greece believed that a genius was not the artist itself, but a second party that inspired the artist with creativity and ideas. So when an artist created something which was considered ingenious they did not get all the credit and became narcissistic. As the artists failed to create, it was partially blamed on the “lame” genius-spirit. With this established common way of judging the work of the artist without putting all the responsibility on “one single weak psychic” (Elizabeth Gilbert), lifted off the weight of the artist. Whom, continued to work hard and wait to “get inspired”.

Distance yourself from the “genius” and the responsibility of being creative, and it will come to you. You cannot know what you do not know, but if you “do your part of the deal” and work hard, it will appear! So play around, create unexpected output and get inspired by the process.

However, there needs to be methods, to create quantitative output to iteratively select and develop to get inspired and end up with a creative product.

How would these encouraging methods look like?

Inspiring Voices:

Tony Fadell - The first secret of design is ... noticing.

http://www.ted.com/talks/tony_fadell_the_first_secret_of_design_is_noticing



Our everyday habits get in the way of experiencing the world around us in new interesting ways. We start ignoring things in our surrounding, and get numb to everyday input.

Lets stay beginners, and look at our world with fresh eyes every morning. maybe, our everyday journey to the bus-stop is full of inspiring details that we have become numb to. These details are what fills our everyday with diversity, something new that we haven't seen or experienced before.

If we are aware and prepared... we see. When we have a camera around our neck, we see potential and beautiful pictures around us. In the same way, we would probably hear all those wonderful sounds around us, not as noise but as something with value. A bicycle's wheels screaming and throwing up that spring pebbles that keep on rolling down the street, "blip-blopping" as they bounce into the gutter and splashing as they hit the water in the bottom of the sewer.

Try listen, and you will see that the most ordinary and everyday journey to the bus-stop, is filled with inspiring sounds that will root you in the moment and give you yet another way of perceiving the world around you. Start choosing.

Inspiring Reading: IDEO's Design Thinking + Music Creation = Solution ?

An important, if not the most important ingredient in creativity... is our creative confidence. In order to overcome the hurdles of creating that have been discussed this far, we need to feel confident in that our possibilities are unlimited, in the methodology/process and that whatever the result may be, it will bring us further.

David Kelley has after surviving cancer, made it his life-mission to help and guide people to feel creative. Because this, he thinks, is one of our most important human needs. To feel that you are able to create and contribute something of your own to our common societal development. To make a mark.

The whole concept is called "Design Thinking" and is taught world-wide at D-School, originating at Stanford. It is a thorough process applying many different design methodologies which help people turn a project in new and unconventional angles to shed light on the full spectra of opportunities.

Our fear of being judged on our poor performance in a new area, to take the first step and believe in that our efforts won't be a waste of our precious time, is a phobia. "Design Thinking" builds upon the methods of World leading phobia therapist, Albert Bandura.

The classical example which David Kelley brings up on every occasion, when explaining his fundamental ideas of design thinking, is the story of how Bandura cure people's phobia for snakes. One starts with making people understand the circumstances and make them comfortable with looking at the snake. Later they are able to be in the same room as the snake and after many encounters, bringing the person mouse-steps closer to the snake by building a relationship, they touch the snake. And eventually, the phobia is gone. The wonderful thing about curing your phobia for snakes, as in this example, is the confidence of that you can overcome your fear. Overcoming one phobia, makes you confident that you can overcome the next!

It's about making people experience their fear in small portions at a time. It's not about climbing Mount Everest in one day, but to take one step at a time and believe that the next step is within reach. The feeling of success from overcoming every small advancement, will grow your self-confidence towards taking a bigger leap of faith the next time.

Just as in design, it's about making people comfortable and confident in the process. To Experience their creativity first hand. To take a leap of faith, surrender oneself to the process and believe that innovation is within reach.



Serious Play - Play to learn to relate and create.

People Online:

We don't create things anymore, we create personal profiles of opinion.

Looking at the internet and our extrovert behaviour on social media, it is interesting to see how we instead of creating things, bring products made by others together, remixing, shaping and creating our own personal profile and opinion. We show who we are by putting together a selection of stuff that represent our taste, or more importantly who we aspire to be!

Whenever we have internet and the briefest moment to spare, we re-post, tweet, share multi-media, #hashtag, "like", comment existing posts creating opinion and making sure people see what we support and dislike. We make thousands of public choices a day, which in its diversity create a rather "accurate" picture of who we believe we are.

Its nowadays, more about who finds the information first and shares it first, than who thought of it first or even created it. We act as filters, whereas we are the filter-profile. We create opinion by re-posting somebody else's opinion and adding our own touch to it.

The enormous and rapid flow of data, instant access to diversity of thought and connections, make it possible for everybody to get involved and gain feedback from like-minded individuals/groups.

It is rather anonymous, due to us creating a "phantom-profile" distancing ourselves from being directly involved. The feeling of responsibility also fades, since we share something from our profile which somebody else already shared or created. And you know instantly know if it is a hit or not, counting the likes and re-posts.

It is accessible, fast, up-to-date and effortless, whilst it makes us feel that we contribute and become a legitimate part of the stream. That our opinion matters.



New creative group emerging: The Selector

Concluding Insights: How do we approach the first brief?

Without fear of social repercussion, we are more eligible to take part and we feel encouraged to share our ideas with others.

We have forgot what it means to play.

There should be a humble relationship between an instrument and its user. Input creates output, and the personal relationship to the instrument grows in time.

Unlimited possibilities restrain our creativity. Limited possibilities creates an understanding for what the actual possibilities are.

Sharing through a virtual profile, means knowing you are out there, that people listen to you, without fear for personal negative social feedback.

Having influence on the framework or bringing something of your own into the process, makes you feel responsibility and a stronger relation to what you are creating.

Is it a toy... or is it an instrument?
Maybe it's both! But the most important question is, is it expressive?

Exact measurements in use and tone, discourage exploration and play. The more exact, the more talent you need to use the instrument "Correctly".

The big music industry establishment and the saturated market discourage beginners to engage with music, because there is a high competition and clear notion of what is right&wrong.

"Is it music?" is the wrong question. The important question is... "Is it interesting... to me?"

We are afraid of taking the first step into the messy unknown, because we are not sure if the time we put into the process will be worth it in the end. Problem of economical system.

“Random” is a tool to uncover the unexpected.

Learning instruments require a very high level of initial interest and dedication, and it takes a long while before you are able to invest yourself personally and explore your own expression.

Working in established systems assure an acceptable outcome, however, never a truly great personal innovation.

We cannot think of a sound we do not already know, nonetheless, we can choose from amongst sounds we have never heard.

We fail, to prevail. Mistakes bring us information we couldn't even dream of.

People working together only with undefined sound, when there is no need for pre-knowledge in instrumental know-how or in musical arrangement, they feel encouraged to curiously explore and share their creations without fear of social re-percussion or negative judgement.

Remixing existing productions, is easier than creating them from scratch. However, it gives more or less the same feeling of reward.

Creating your own setup, makes you an expert of that sound, makes everything you create something personal and unique.

Creative genius comes to you when you least expect it.

Weird is unconventional, unconventional is something new, something new is interesting.

Bring people in the picture. Instruments are tools for people to express themselves.

Brief 1

I'm looking for an open platform in which people are able to bring in a personal contribution disconnected from instrumentalism and traditional music theory and arrangement. This needs to be a meeting point which encourages diverse thinking and brings a lot of diverse quantity to choose from and react to. It needs to work with a heavy flow of individual contributions, which aren't arranged in this instance, but the next.

Concept Development

...the first of these is the fact that the ...

...the second of these is the fact that the ...

...the third of these is the fact that the ...

...the fourth of these is the fact that the ...

...the fifth of these is the fact that the ...

...the sixth of these is the fact that the ...

...the seventh of these is the fact that the ...

...the eighth of these is the fact that the ...

...the ninth of these is the fact that the ...

...the tenth of these is the fact that the ...

...the eleventh of these is the fact that the ...

...the twelfth of these is the fact that the ...

...the thirteenth of these is the fact that the ...

...the fourteenth of these is the fact that the ...

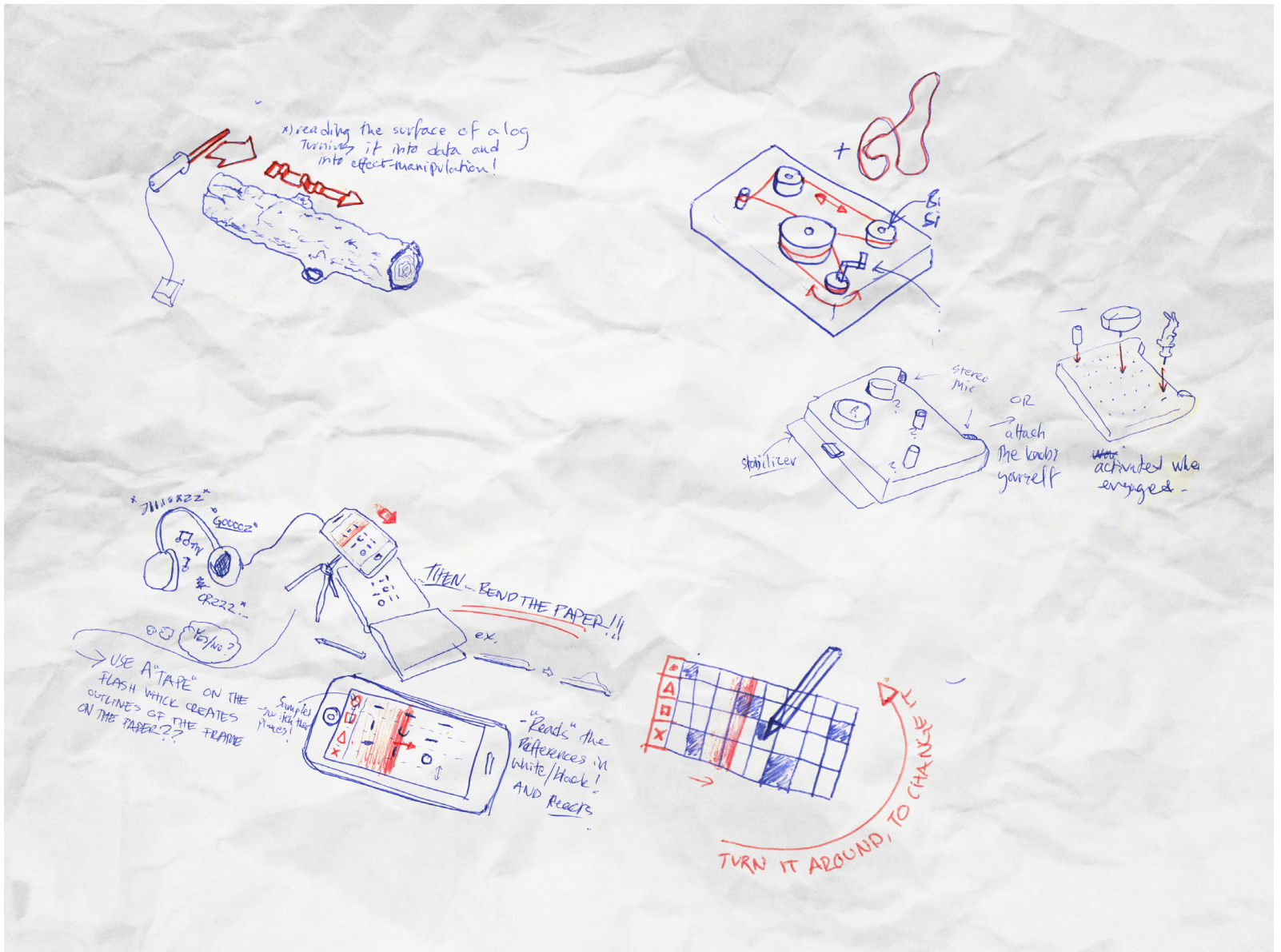
...the fifteenth of these is the fact that the ...

...the sixteenth of these is the fact that the ...

...the seventeenth of these is the fact that the ...

...the eighteenth of these is the fact that the ...

Early Ideas: Design-thinking with randomness as a creative catalyst



An idea in the early stage was to study the principles and workshops in a design thinking-approach, the experiences and observations gathered while studying students and workshop-participants and explore different workshop-scenarios where sound was explored in a social / individual way.

Through these workshops, the most successful approaches would be documented and put together into suggestive workshop-guidelines that could be implemented in music teachings. The goal would be to re-define how music is taught in an early stage, to bring the individual and their interest into the centre.

From this, the conceptualization moved from guidelines towards creating a product, which the workshop was going to be centered around. Gathering data and experiences from the process-workshops and translating the findings into a tool with which the participants got to explore different scenarios and sound.

Make It Physical:
The Wheel-Button. Push to engage, Rotate to Change.



A screen is good for arranging information, but it is working against genuine interaction in an instant trial/error-process.

Imagine comparing increasing the volume on your smart-phone-screen versus, slowly screwing up the volume on a 90's amplifier, or tuning through all the radio frequencies trying to find that one good sounding channel. It is the full control of every physical small movement in the knob in relation to how the signal is affected, which makes it such a sensual and present experience.

Another very important aspect is the way we are able to fully commit to listening while we have a knob which performs a simple action with immediate input/output-feedback. It connects the user to a present and personal experience, in which they are dependent on their own judgement and preference in a much more extensive manner than looking

at a screen with additional information. A screen may be first considered as the raw sounds are to be organized into an index, and may add pedagogical features while re-listening, cutting and adding effects to a sound, to facilitate the understanding of what sound-frequencies are and how they are affected physically during additional modulation.

However, the research conducted in this project while observing music-students and workshop participants, suggests that a screen is unnecessary. Involvement of this kind of visual feedback during the earliest moments of the sound-explorative process, may only disturb people's intuition and add an unnecessary layer of information.

Concept Development:
Remembering a life-changing experience brings clarity...



I came to think about an experience for a couple of years ago, that changed my perception of sound and music forever...

I was standing in my apartment in Lund, listening to a track I've heard a thousand times. All of a sudden, there is a part of the song that I cannot recognise. It is an evolving white noise that lifts up the whole sound until it disperses in a massive climax and the bass drum kicks in perfectly. I was so intrigued by this new experience so I ran to the cd-player to reverse the track and hear it again. The problem was... the sound wasn't there. It was until later when it happened again, as I realized that the amazing uplifting climax was actually the bus I take to school every morning, passing outside my window.

As I remembered this, I realised that we are surrounded by unique everyday sounds. Sounds that if noticed and put in the right context, can make one sound / one person claiming and sharing this sound, an important and unique part of a greater symphony. We can all appreciate a sound our own way, and since there is no other sound like that sound, we can feel comfortable and excited to share this in a greater context.

It's impossible to imagine sounds that we don't know, but we can always choose from what we have never heard before...

Why not just **REC** it ?

As Tony Fadell said, the secret to design is noticing.
We are surrounded by opportunities to be creative.

I went out with a recorder and started exploring the sound world around me and soon found myself in one of my favourite coffee shops in Berlin, drumming on my coffee cup and the table, until my coffee was cold.

Just walking outside with a recorder made the everyday journey I do to the U Bahn (Subway) incredibly fascinating. Being able to increase volume and zoom in on sounds that you would never hear with your ears... bringing the recorder close to objects that you would never approach because they simply are situated so inaccessible.

Just like having a camera around your neck and passively seeing pictures around you in the city, the possibility to capture a sound in a moments notice would make us aware of yet another dimension to discover and explore.

This is how the rather obvious idea of developing an opportunity to facilitate people to embark on an exploratory and inspiring everyday journey.





Concept Development:

Sound is a totally personal experience when you close your eyes.

If we hear the same sound of the wind blowing through the trees, somebody starting an engine or a car passing by... will we see the picture as we close our eyes? Please, try this with somebody. Play a sound and listen to it together, then close your eyes and tell each other what you see... It is pretty amazing when you stop and think about it.

We all have parallel universes of our own that we can travel to or share with others. If we just try to...

Just as with abstract art, we perceive sound and try to make sense of it applying our own personal references. The sound-journey becomes a completely subjective experience and can take us anywhere.

No-one can have the same experience than you, and people will find their own mirrored image in their mind as they hear your sound. It will be a personal output, giving thousands of people a personal input. In this regard every sound that is framed by somebody and put out there, a sound that in some way matters to everybody.

“...every sound that is framed by somebody and put out there, a sound that in some way matters to everybody.”

Your sound matters... But how can you reach others with it ?

Concept Development: **We need a platform of exchange.**

A picture of your breakfast on Instagram can show a lifestyle choice and describe the aspiration of a person. A single sound... cannot. So how can we convey ourselves as being sound creative and our personality in sound? With plenty of sounds put together. We need a way of creating live sound profiles, with which we are able to understand and realize our interest in sound. That communicate who we are and whom we aspire to be.

One sound gives one impression. Thousand sounds can show a personality. Quantity leads to quality. Imagine that you can click through a 100 sounds/second. "Liking" two sounds of those hundred, means that these two sounds really matter. In 5 minutes on the daily commute, you have not only chosen 10 interesting sounds from across the world, but also discarded 490 sounds that doesn't appeal to you. You are building your own opinion about "your sound" and what interests you, by excluding what you do not find interesting. Meanwhile, you are creating a list of sounds, accessible by others that together with the sounds that you eventually upload, will give them an impression of your sound-profile.

We need a way of both accessing what we record, assessing what we want to manipulate, sharing it in a moments notice and then listening to all of the other sounds that are there. The platform is a community where the samplers and/or listeners may contribute and be inspired. But most importantly, to be seen by others.

We need an organic network, where sounds can be shared across our globe. Where the seeds of real world music can be grown.

Exploring the world of sound.

Access an infinite library of unique and personal sounds from all across the globe that you have never heard before, but that by one click become a part of your own sample library, downloadable online and ready for use.

Contributing to the world of sound.

There must be no friction between recording and accessing your sounds. On the platform, you may directly re-listen and access what you've recorded but also go a step further and create a sample that you can contribute with and share with the rest of the world. Your sound matters.

Platform... *Instagram* and for sound.

The more impressions/minute. The more inspiration. The more accurate liking.

Inspiration from Instagram.

Instagram is a wonderful and powerful tool with which you can share your aspiring personality and lifestyle in a moments notice on-the-go. It becomes a fluent part of your expression.

What inspires me the most, and what I think is applicable to sharing sounds, is the way we have our own profile with which we categorize the pictures with #hashtags, geo-location and creating an up-to-date virtual map of who, how and where we are.

Inspiration from Tinder

Swiping is ingenious. Quantity leads to quality. Creating your opinion by discarding options, rather than rating every option, is way more effective, instant and intuitive. You need no more than a millisecond of a sound to know if it interests you or not.

BRIEF 2

Create an open platform in which people feel encouraged to share and explore sounds that they themselves and others record and upload. It has to be fast, intuitive and portable and give you the feeling of that you are contributing and that your sounds can be appreciated. Regard features of instagram for sharing and tinder for collecting impression. Quantity for quality.

Create Recorder + Social Sharing Platform

Final Concept:
Pocket-recorder + “Instagram” for sound.

It seemed pretty obvious to develop a platform where your sounds could be uploaded in a casual manner, listened to, liked and downloaded from. This is also the place where you are able to scroll around the world, looking for sounds you have never heard before, from the wet-log off a street in Tanzania, the subway in New York stopping at The Freedom Tower and the whirling sound of a roller-skater passing by alongside Miami Beach.

Claim your sound, change it and inspire others by uploading it amongst many others.



Form Development: The Recorder

...the first of these is the fact that the ...

...the second of these is the fact that the ...

...the third of these is the fact that the ...

...the fourth of these is the fact that the ...

...the fifth of these is the fact that the ...

...the sixth of these is the fact that the ...

...the seventh of these is the fact that the ...

...the eighth of these is the fact that the ...

...the ninth of these is the fact that the ...

...the tenth of these is the fact that the ...

...the eleventh of these is the fact that the ...

...the twelfth of these is the fact that the ...

...the thirteenth of these is the fact that the ...

...the fourteenth of these is the fact that the ...

...the fifteenth of these is the fact that the ...

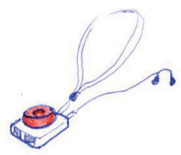
...the sixteenth of these is the fact that the ...

...the seventeenth of these is the fact that the ...

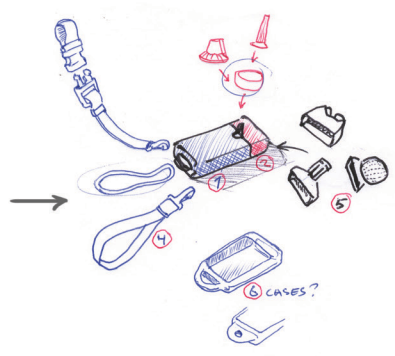
...the eighteenth of these is the fact that the ...

Form Development Overview: **The Recorder**

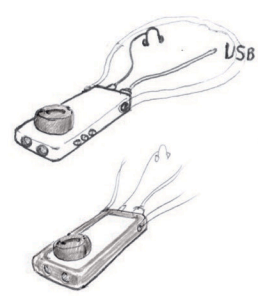
A - MEDALLION OF AWARENESS



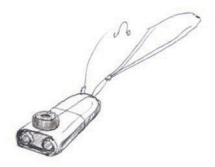
B - MODULAR



C - REMOTE CONTROLLER



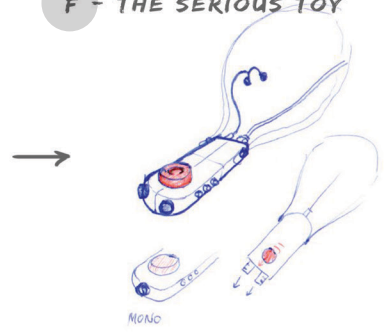
D - EMOTIONAL



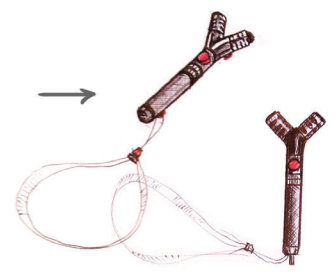
E - THE VACUUM CLEANER



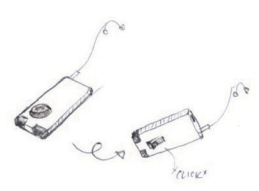
F - THE SERIOUS TOY



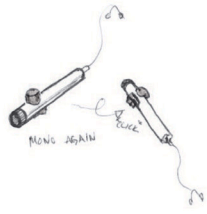
G - THE MAG-LIGHT ULTIMATE



H - THE APPLE CONTROLLER



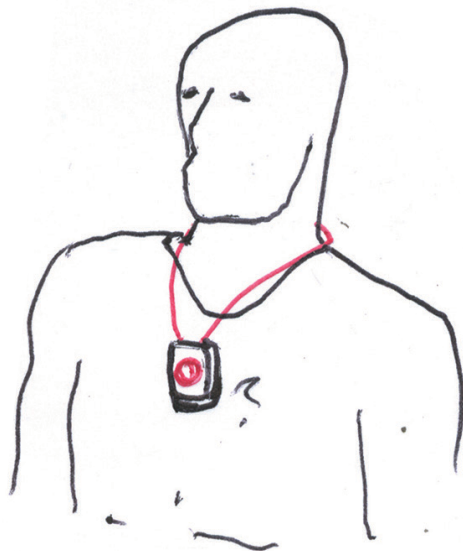
I - THE FLUTE



J - THE MAG-LIGHT MINI



Form Development - Recorder: A. The accessible medallion of awareness

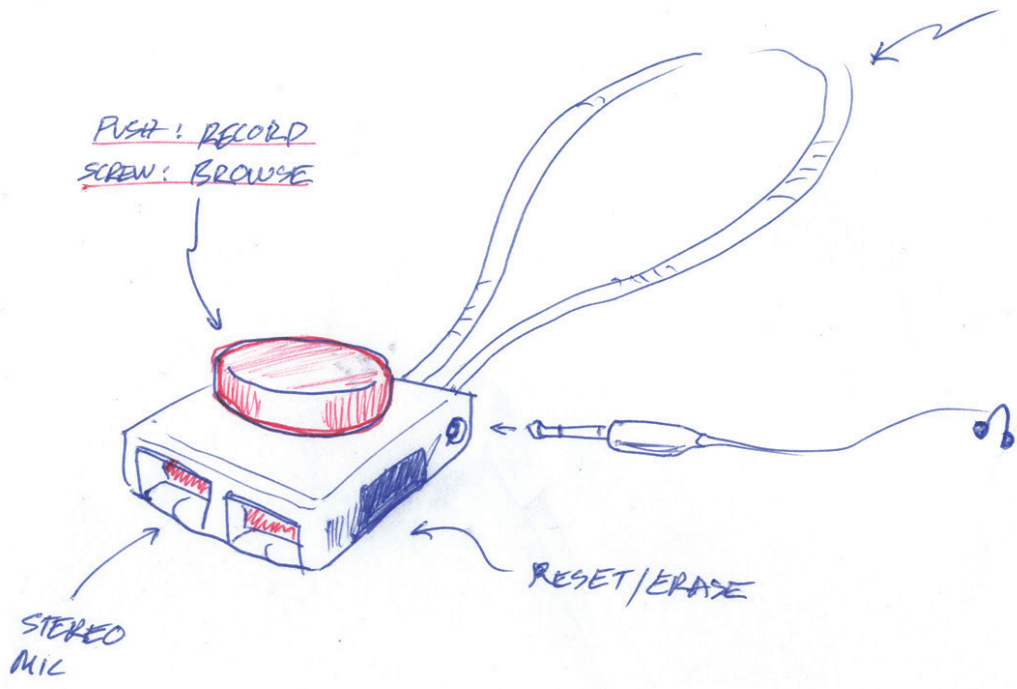


The simple and accessible record-button hanging visibly around your neck, wrist or from the hook on your backpack. Expressing that you are a creative explorer and aware of every moment.

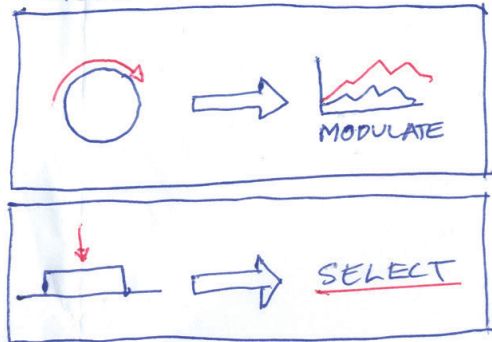
But, in this early stage of the form development the relation between the application and the actual recording experience was not yet completely clarified. Here, the recorder played a role of being a small stand-alone recording-device, with which you were also able to control the software and manipulate the sound in a physical sense.

The idea of the physical interface to the application (Which will be explained later), was to make the transformation of the sound, e.g. adding effects, a very physical experience.

I strongly believed that turning something while the sound changes in full relation to the turning, creates a very strong understanding and personal relationship to whatever you create.



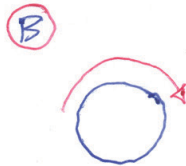
PHYSICAL INTERFACE
-CREATE WITH YOUR HANDS!!



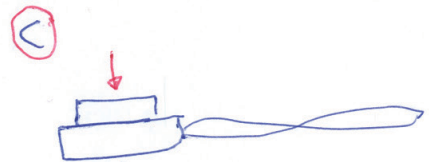
- CREATE



INITIATE



MODULATE



CHOOSE

Form Development - Recorder

B-F. The all-in-one recorder & remote controller.

The first long journey in the form development was rather influenced by the technical components already available, such as the Teensy, Arduino PCB technology, trying to create a working prototype.

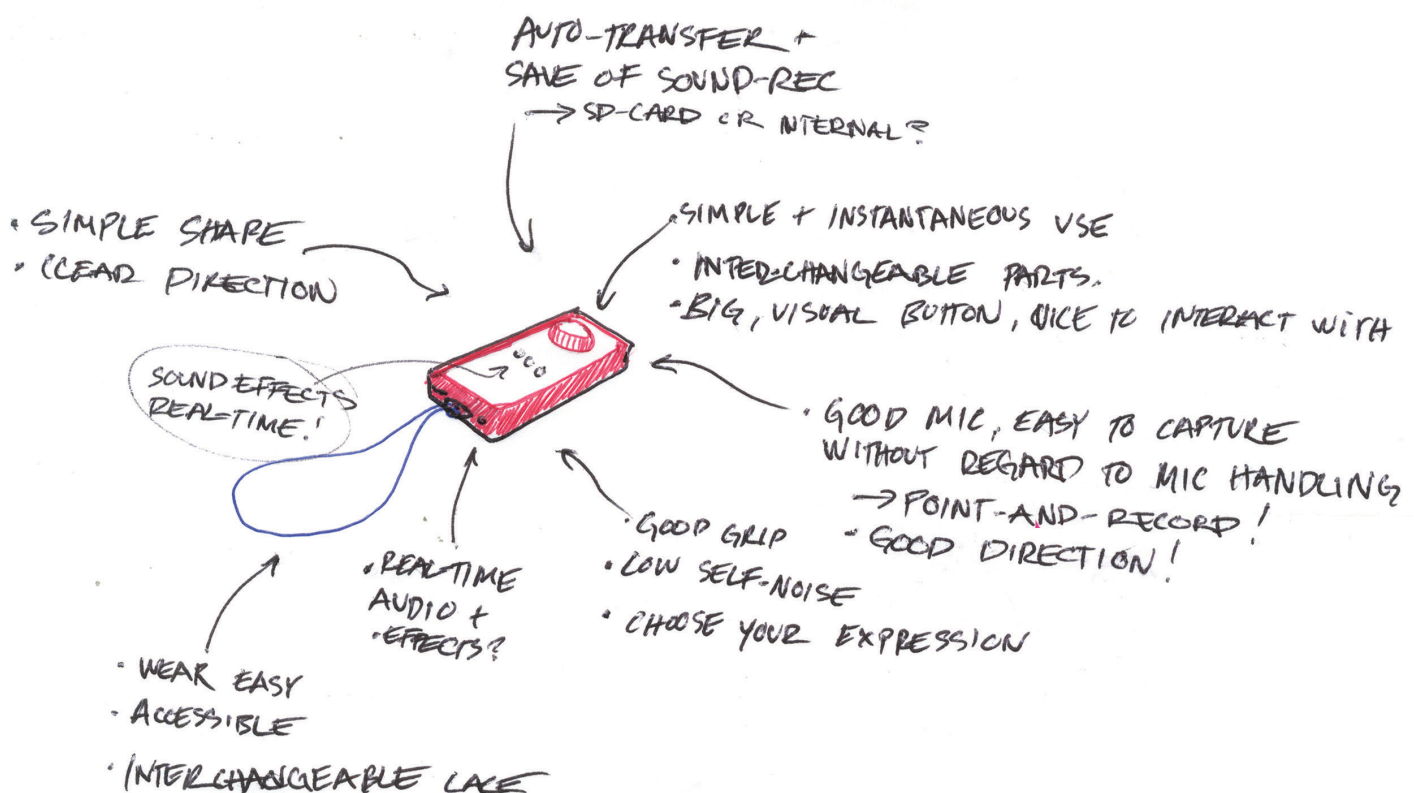
another perspective that led to the multi-button and squarish design was trying to create possibilities for the user to apply multiple real-time effects to enhance the exploratory phase and instant inspiration, playback features and a physical-interface between the application on your mobile device and the knob on the recorder.

The idea was also to keep it a stand-alone product, which could store, play-back and arrange the sounds in it before you chose what sounds that would be transferred to the application.

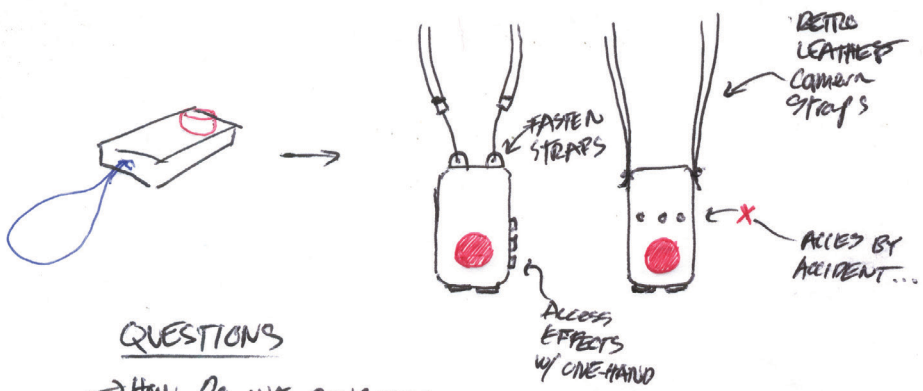
It was at first when I got the 3D-print in my hand as I realised that the squarish and rational shape, was rather irrational as I compared it to the way I imagined the user to wear, display and use it.

However... this made it a competitor to all the other existing bulky recorders out there!

DESIGN CUES: THE CONTROLLER



EXTREME FUNCTION $\xrightarrow{\text{X}}$ RETRO LIFE-STYLE



QUESTIONS

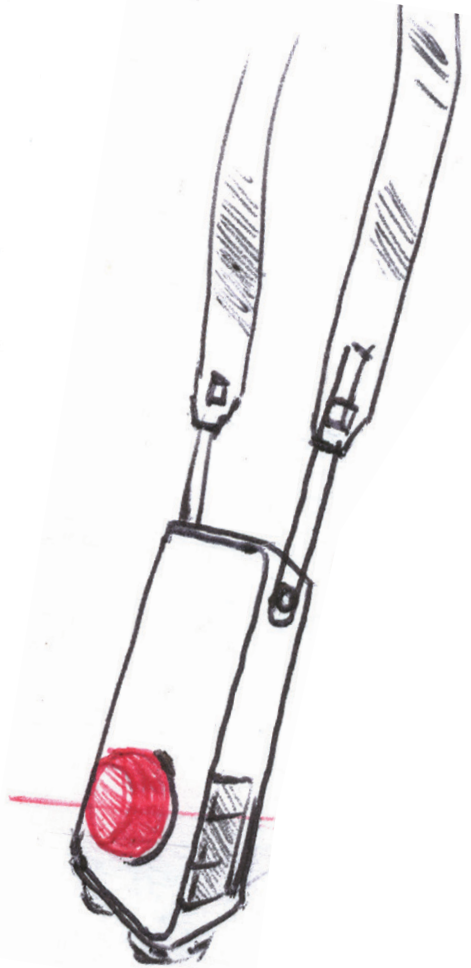
→ How do we consider... THAT'S A

HIGH QUALITY RECORDER FOR PROFESSIONAL USE

WHAT IS IT?

AFFORDABLE LIFE-STYLE PRODUCT FOR THE EARLY ADAPTER-HIPSTERS

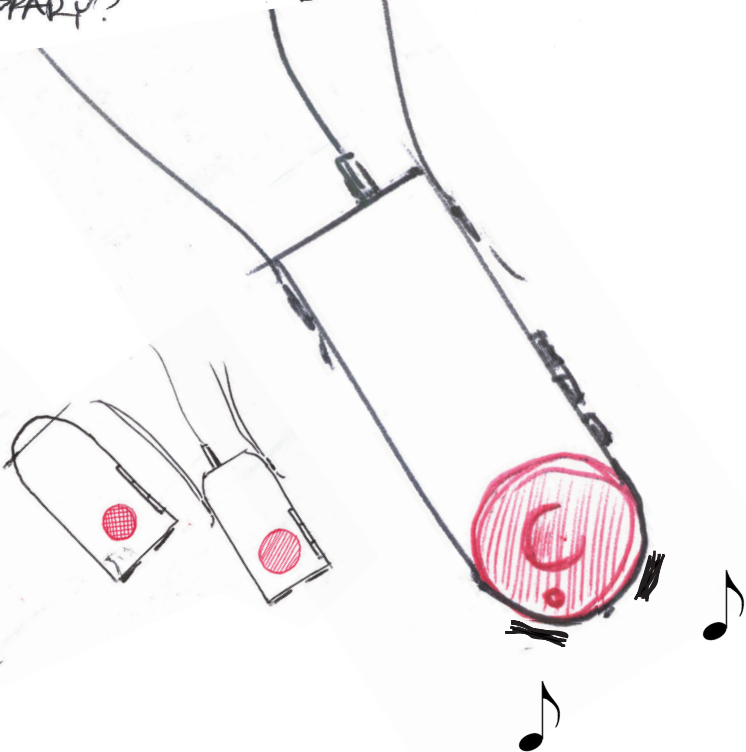
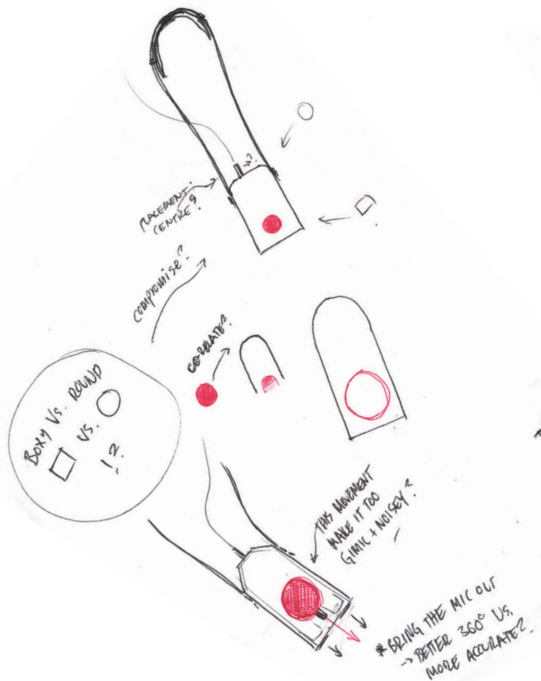
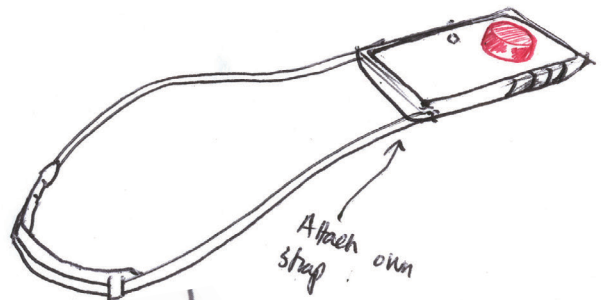
MAKE IT LOOK HIGH QUALITY... THEN IT HAS TO PERFORM... SINCE PEOPLE WILL KEEP USING IT AS THEY DEVELOP!



FEATURES WITH THE CONTROLLER

KEY-FEATURES

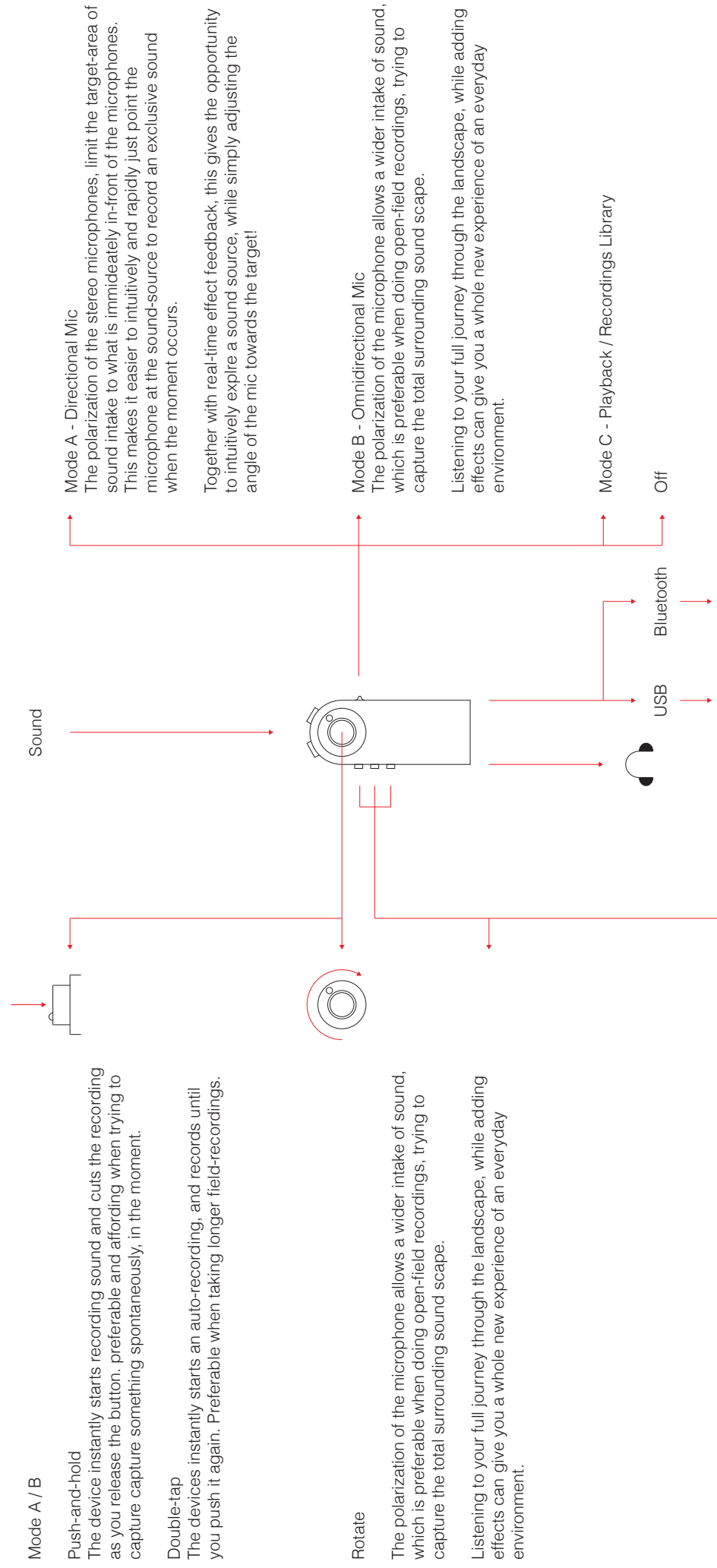
- RECORD SOUND + STORAGE
- MANIPULATE APP. (BLUE-TOOTH)
- REAL-TIME EFFECT APPLICATION!
- PLAY-BACK SOUNDS FROM LIBRARY?



Form Development - Recorder

B-F. The all-in-one recorder & remote controller.





Mode A / B

Push-and-hold

The device instantly starts recording sound and cuts the recording as you release the button. preferable and affording when trying to capture something spontaneously, in the moment.

Double-tap

The devices instantly starts an auto-recording, and records until you push it again. Preferable when taking longer field-recordings.

Rotate

The polarization of the microphone allows a wider intake of sound, which is preferable when doing open-field recordings, trying to capture the total surrounding sound scape.

Listening to your full journey through the landscape, while adding effects can give you a whole new experience of an everyday environment.

Mode A - Directional Mic

The polarization of the stereo microphones, limit the target-area of sound intake to what is immediately in-front of the microphones. This makes it easier to intuitively and rapidly just point the microphone at the sound-source to record an exclusive sound when the moment occurs.

Together with real-time effect feedback, this gives the opportunity to intuitively explore a sound source, while simply adjusting the angle of the mic towards the target!

Mode B - Omnidirectional Mic

The polarization of the microphone allows a wider intake of sound, which is preferable when doing open-field recordings, trying to capture the total surrounding sound scape.

Listening to your full journey through the landscape, while adding effects can give you a whole new experience of an everyday environment.

Mode C - Playback / Recordings Library

Off

Yep... Very complicated, and competes with the existing market in size and compatibility.

Re-considering:
Technology isn't a hurdle... so why consider it now?



Its not whats on the device, its what in front of it....



When putting the small but still rather squarish and bulky electronics aside, having understood that building custom-made electronics for an even smaller device is possible, the design process became even more interesting.

Now, it was possible to have a closer look at how a person would benefit from using a recorder, and how a simpler device would change the focus from the device to what is actually behind it... the sound.

“...change the focus from the device to what is actually behind it... the sound.”

Form Development - Recorder: G. The Flashlight Analogy

The second Journey departed from the epiphany, that the user is not interested in an expensive product that has all those extra features, but rather a quick GoPro-like sound-binocular towards the world. True urban ears that keeps you one-click away from that amazing new sound.

The simplicity and non-demanding product-interface, brings the user closer to the actual sound and the world. It has a much greater potential of becoming an extension of your mind, than a bulky instrument which you have to learn and fight with while trying to follow your intuition on your journey through the soundscape.

**Just like pointing a flashlight to
highlighten your surroundings...
you are searching and highlighting
sounds.**

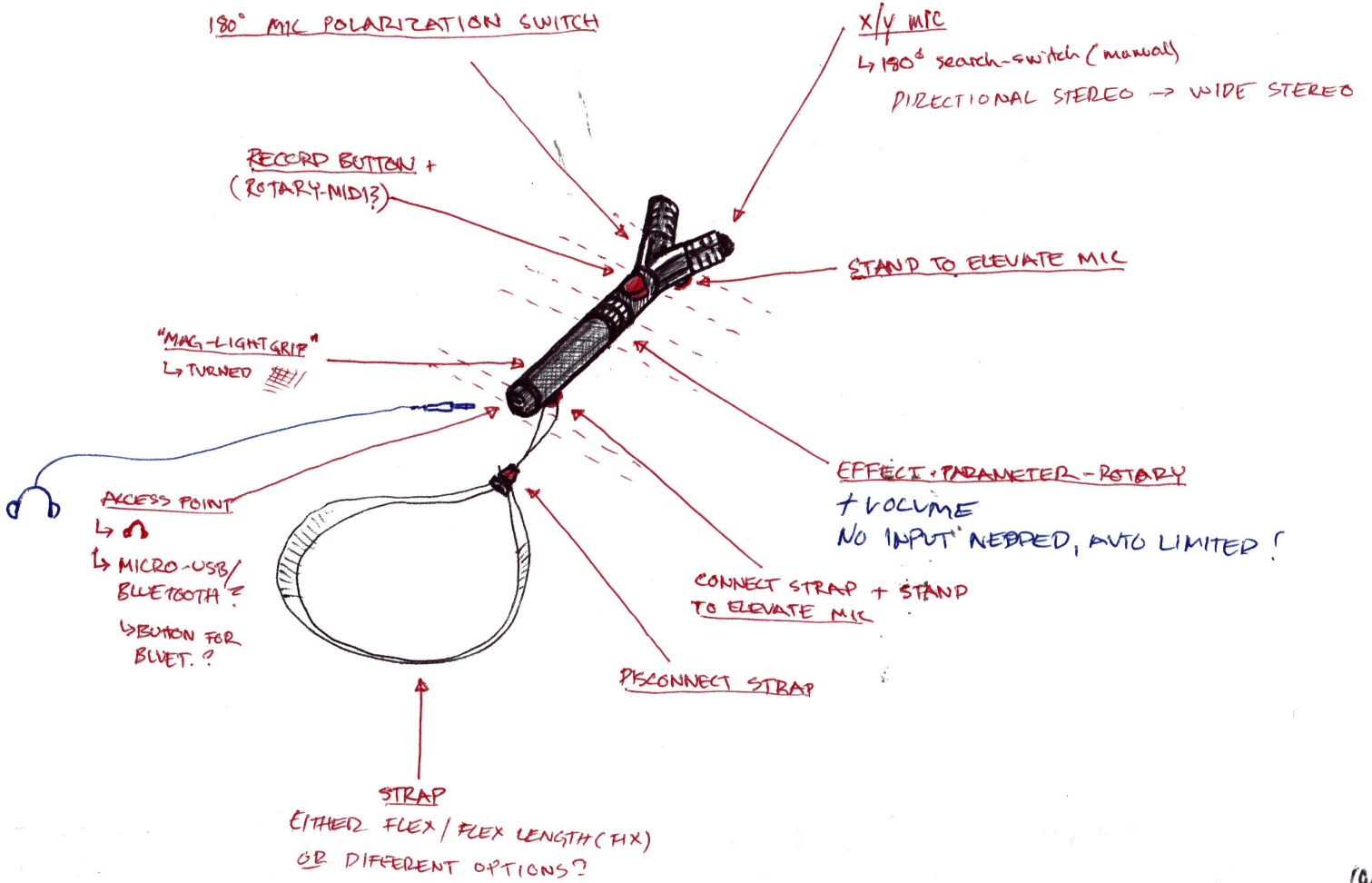


Form Development - Recorder: G. The X/Y “Maglite” recorder with a feeling of quality.

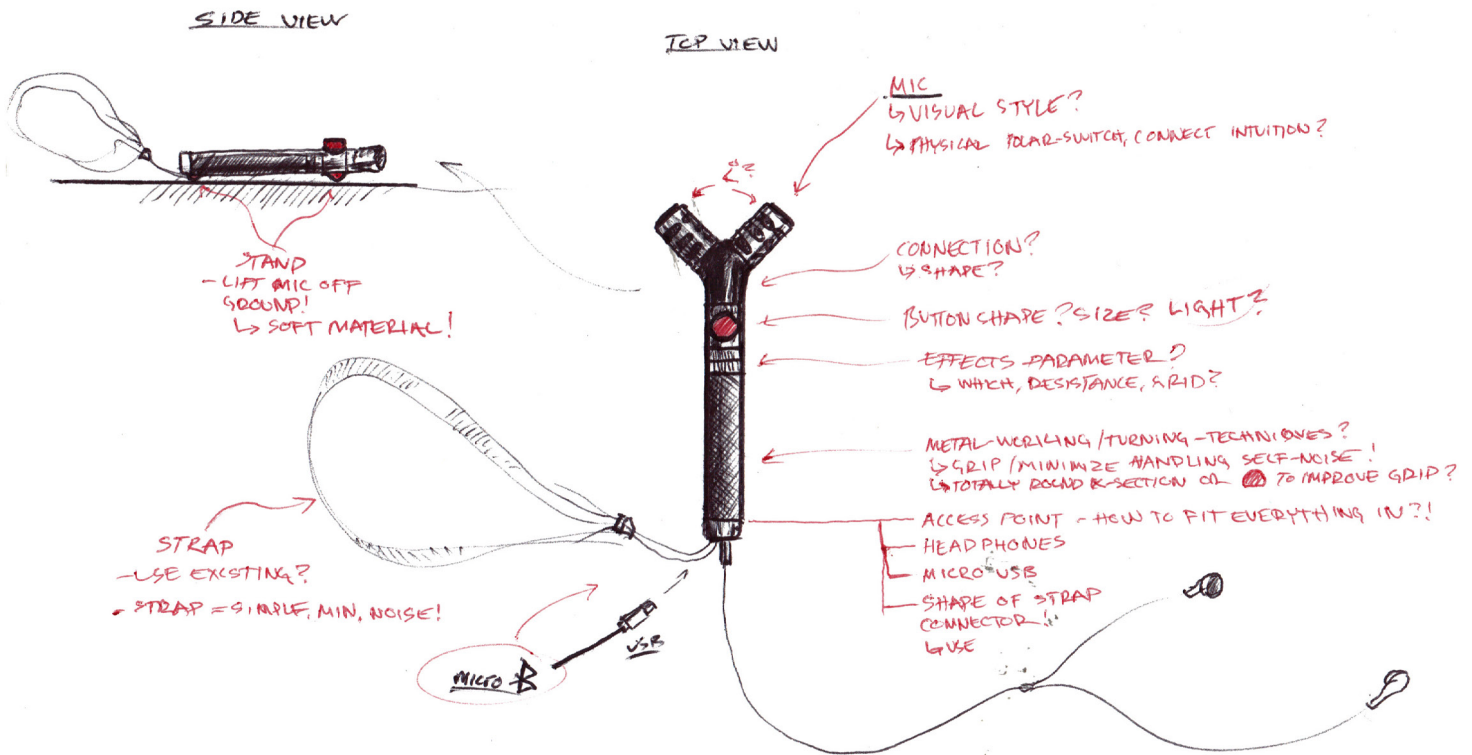


As a first moodchart to the flashlight-concept, I was inspired by the simplicity, durability, accessibility and affordable form-language of a straight mag-lite flashlight. You point it towards something, you screw the lid and it lits it up. Simple as that.

The direction of use is 100%. Keeping it black, simple and clean, while small enough to always carry it around and fast to use to never be more than one click away from that sound, would make it an affordable and accessible life-style product which would still feel like a professional tool.



10/2-

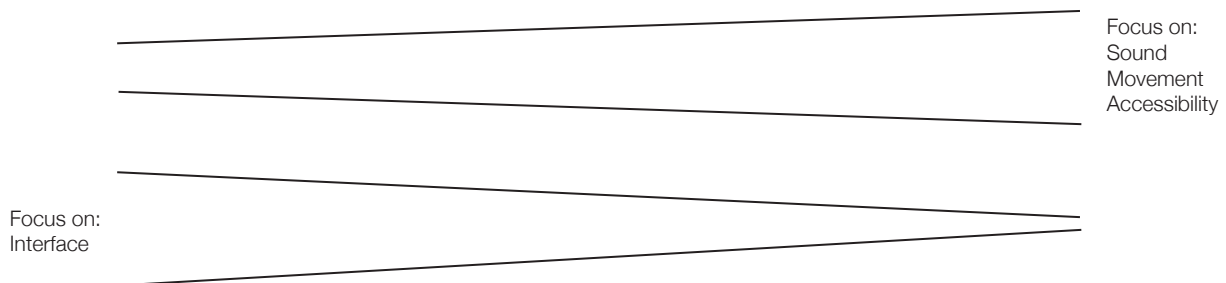


But... It's still too big to have hanging around...
and it gets stuck in your pocket.

**Form Development - Recorder:
I. Stereo to Mono. Tool to Icon.**



A small, iconic, affordable way of capturing your angle of the sound world.



**Stereo to Mono.
Professional to Accessible.**

Because its smaller and more directional than a stereo mic which affords a decent quality recording and in which you can be very precise in what sound you want to explore and capture. It's about intuition, speed and precision.

Small to smaller...

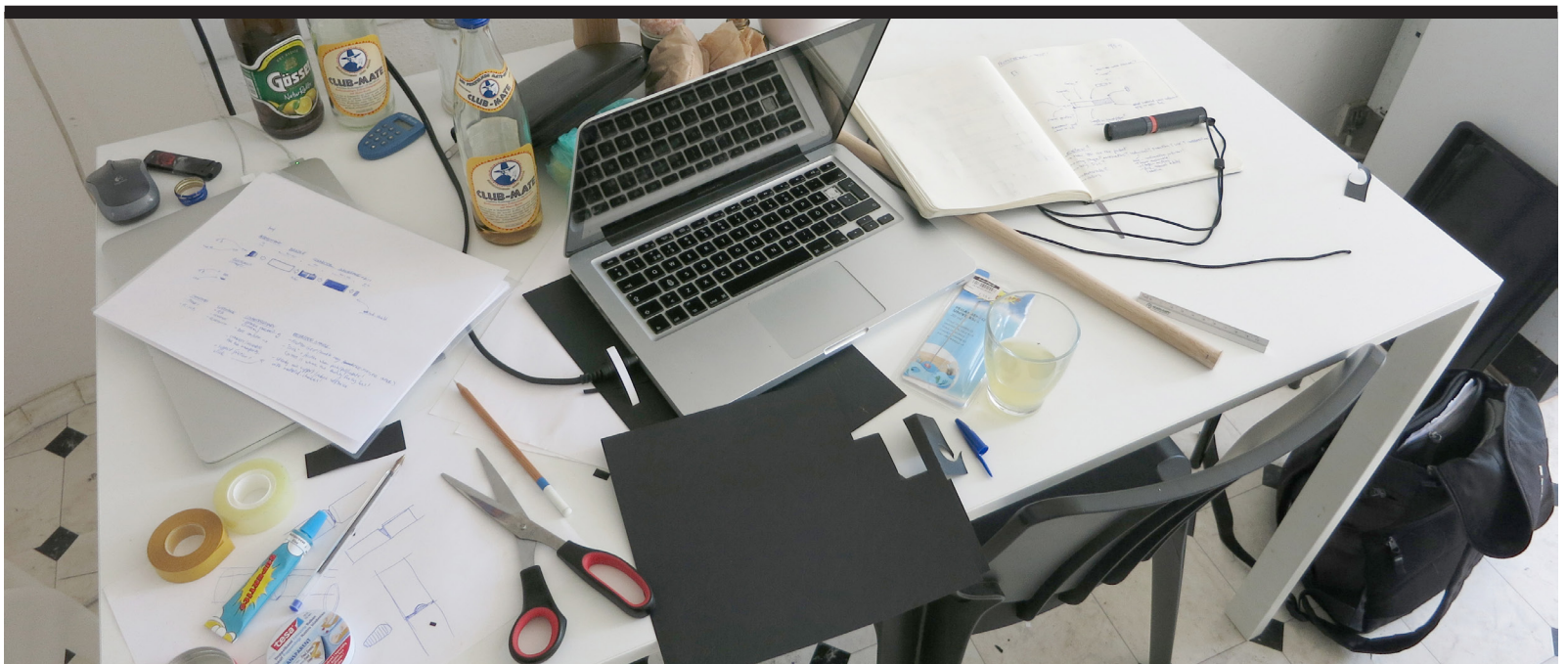
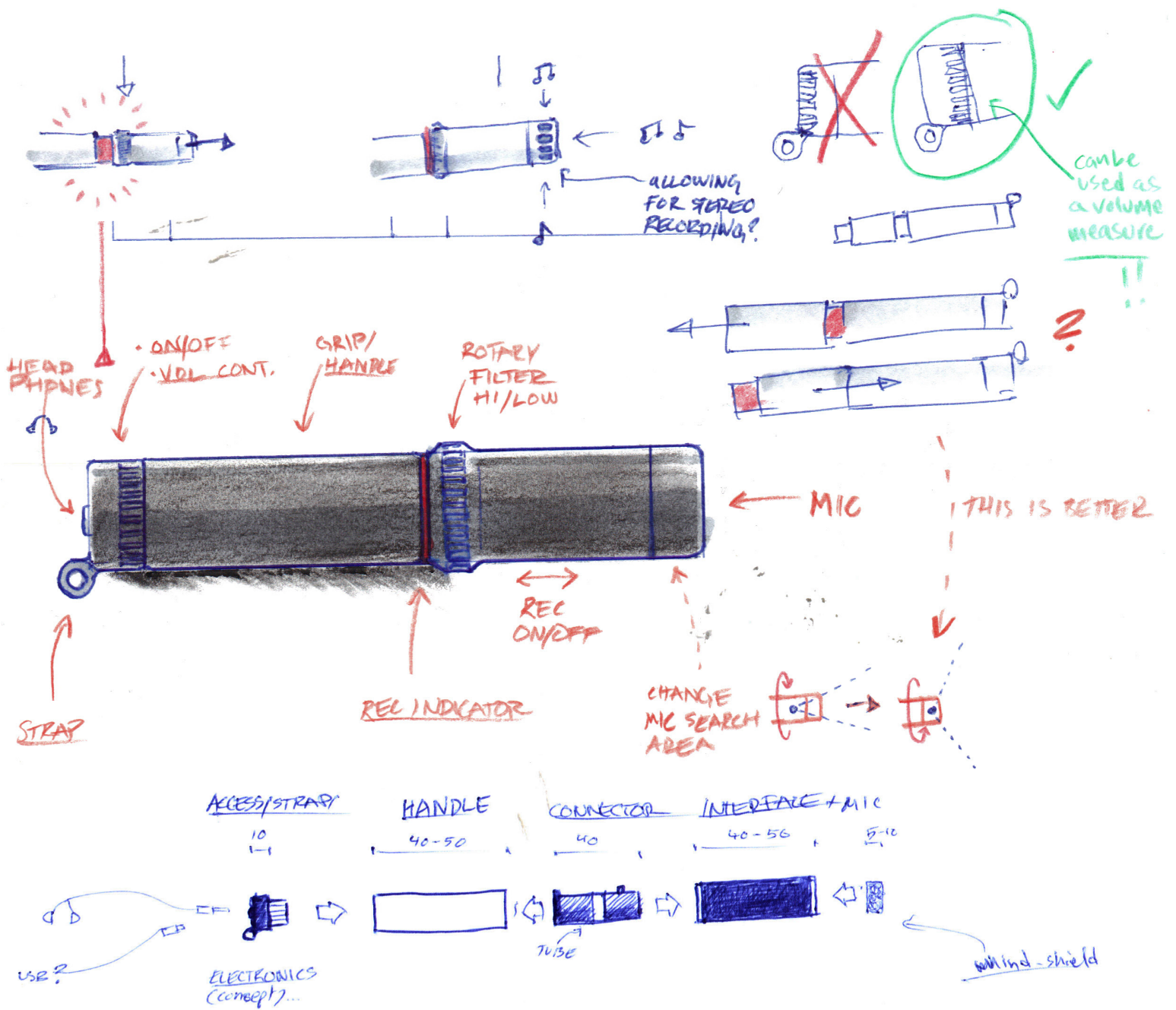
○ → You never know when the opportunity hits... better be prepared. ○

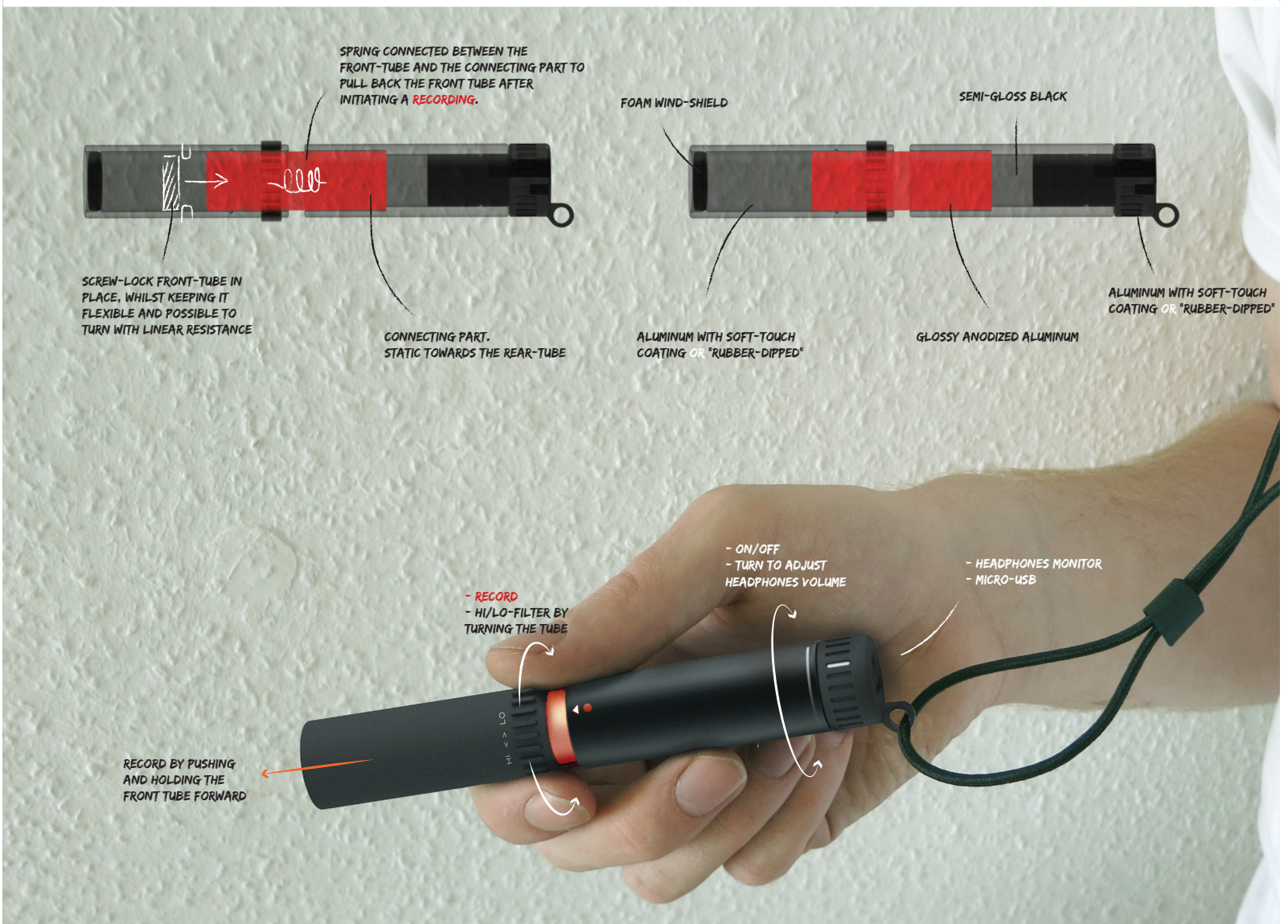
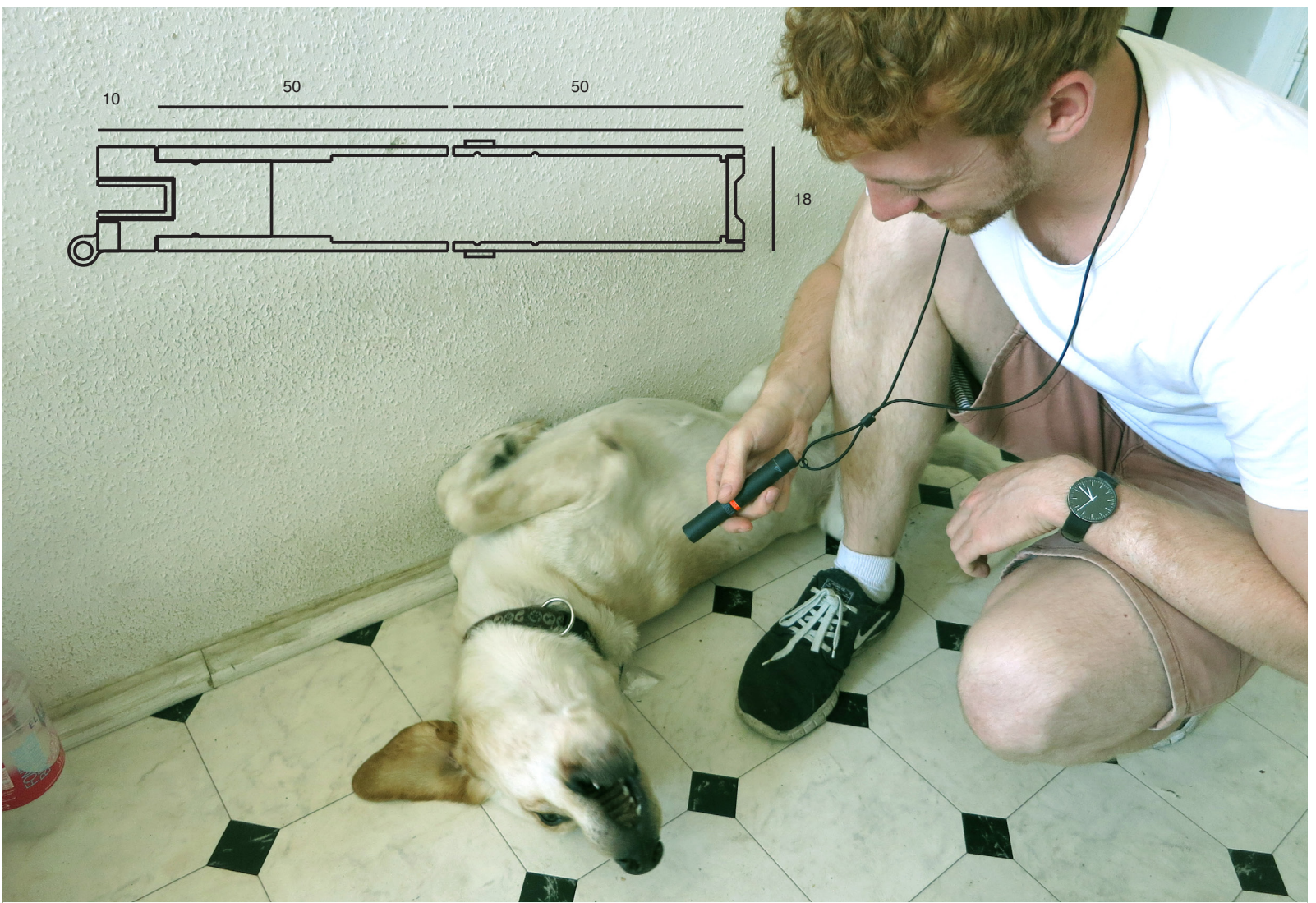


A small iconic wearable, affordable and fun way of capturing your angle of the ever changing sound-world.

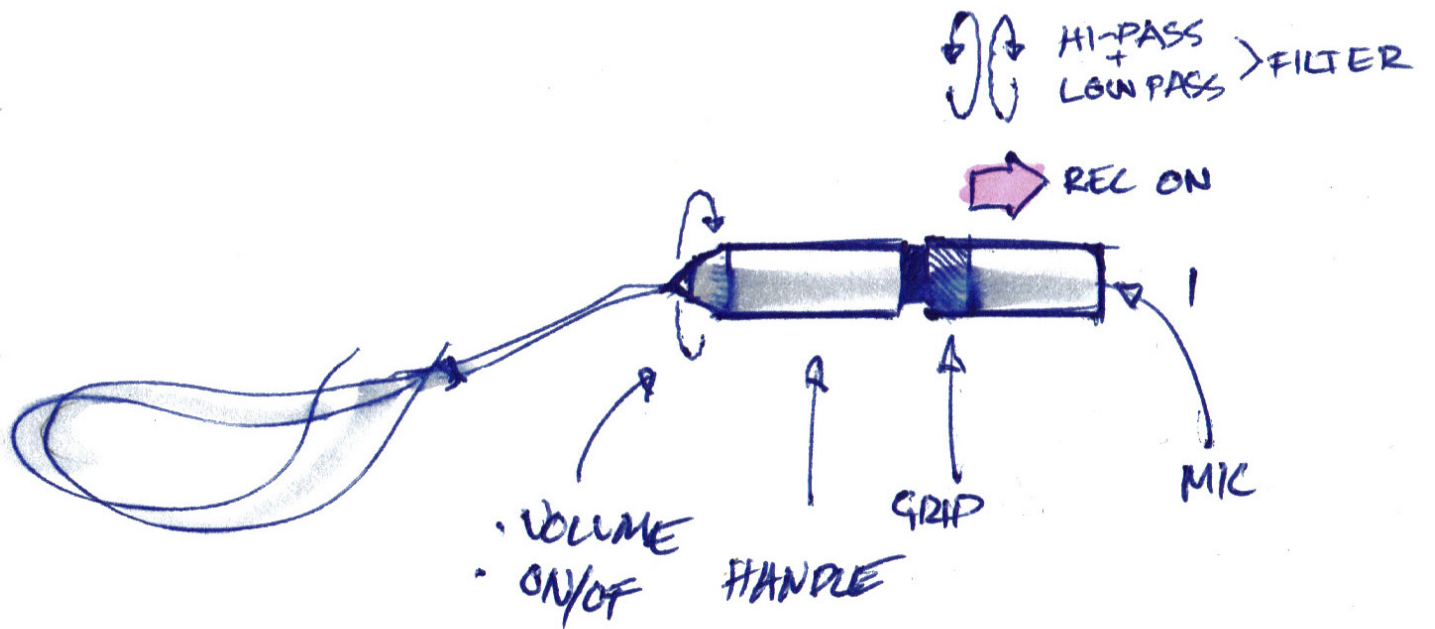
Form Development - Recorder:

J. The Maglite Mini. Directional one-axis design. Point & catch.

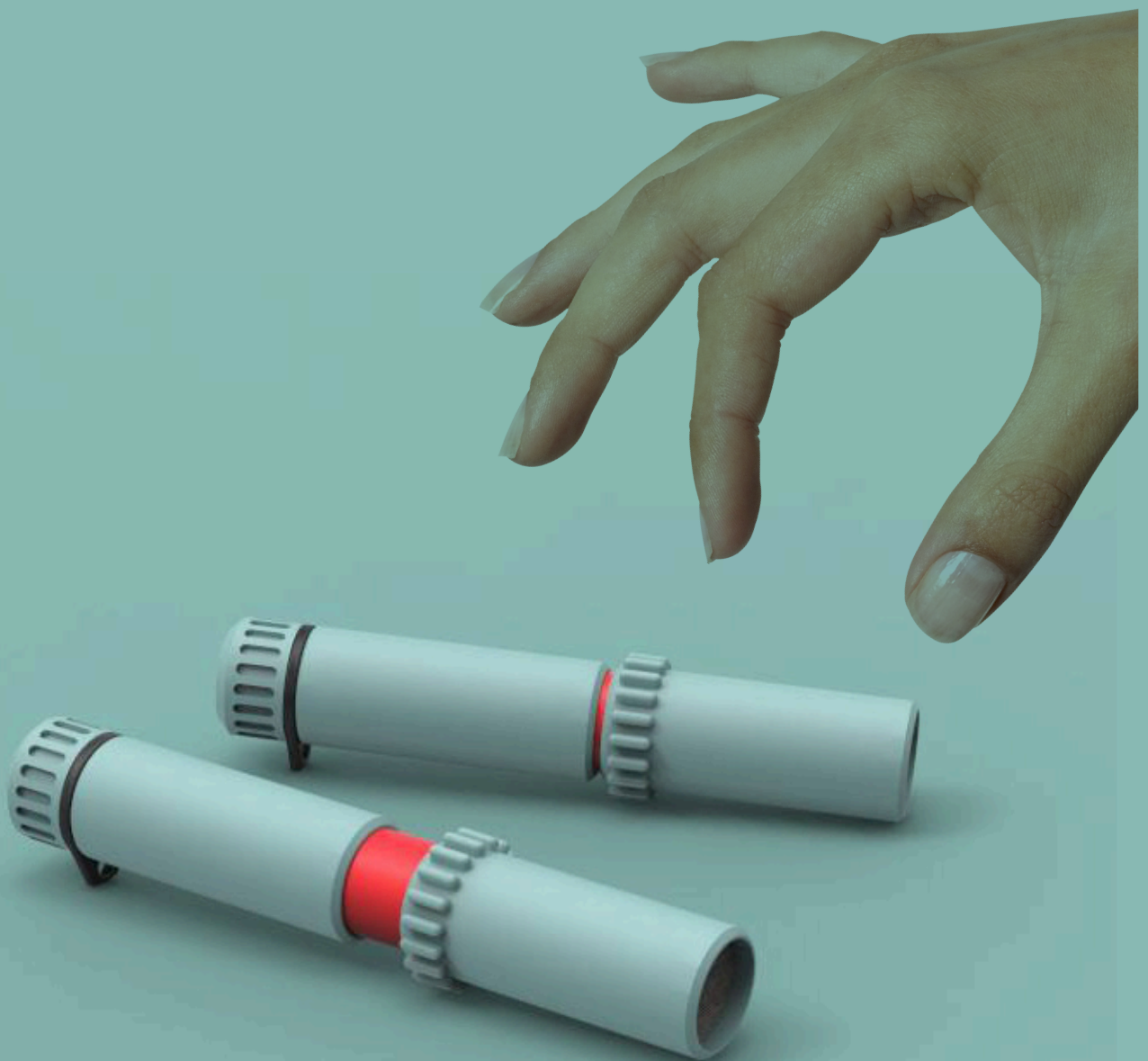




Re-considering:
Still too much of a tool.

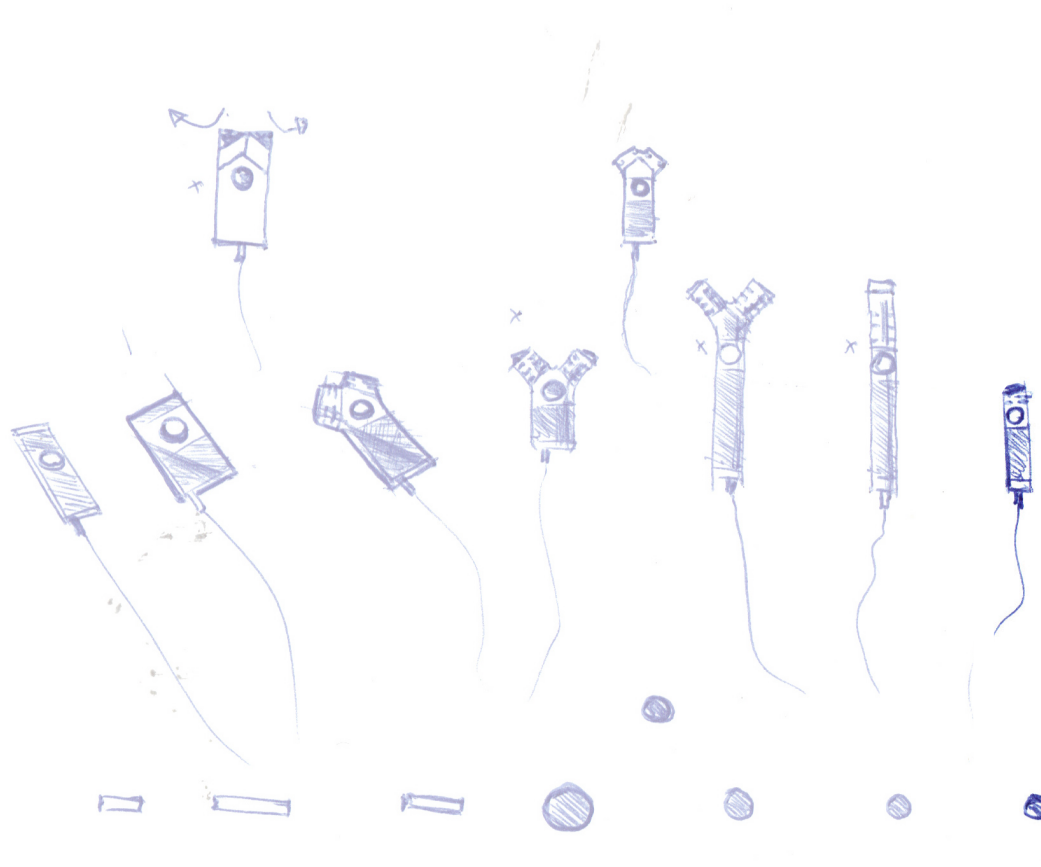


Soft touch, edges and color...



But... certainly still looks like hospital equipment...
like an "insuline-shot".

Form Development - Recorder: K. The accessible urban ear !



Easy and intuitive to point and catch. The shape fits everywhere and since its a mono-recorder it makes sense to work around one angle. The zooming function can easily be incorporated together with the recording-switch, without adding any shapes to the product.

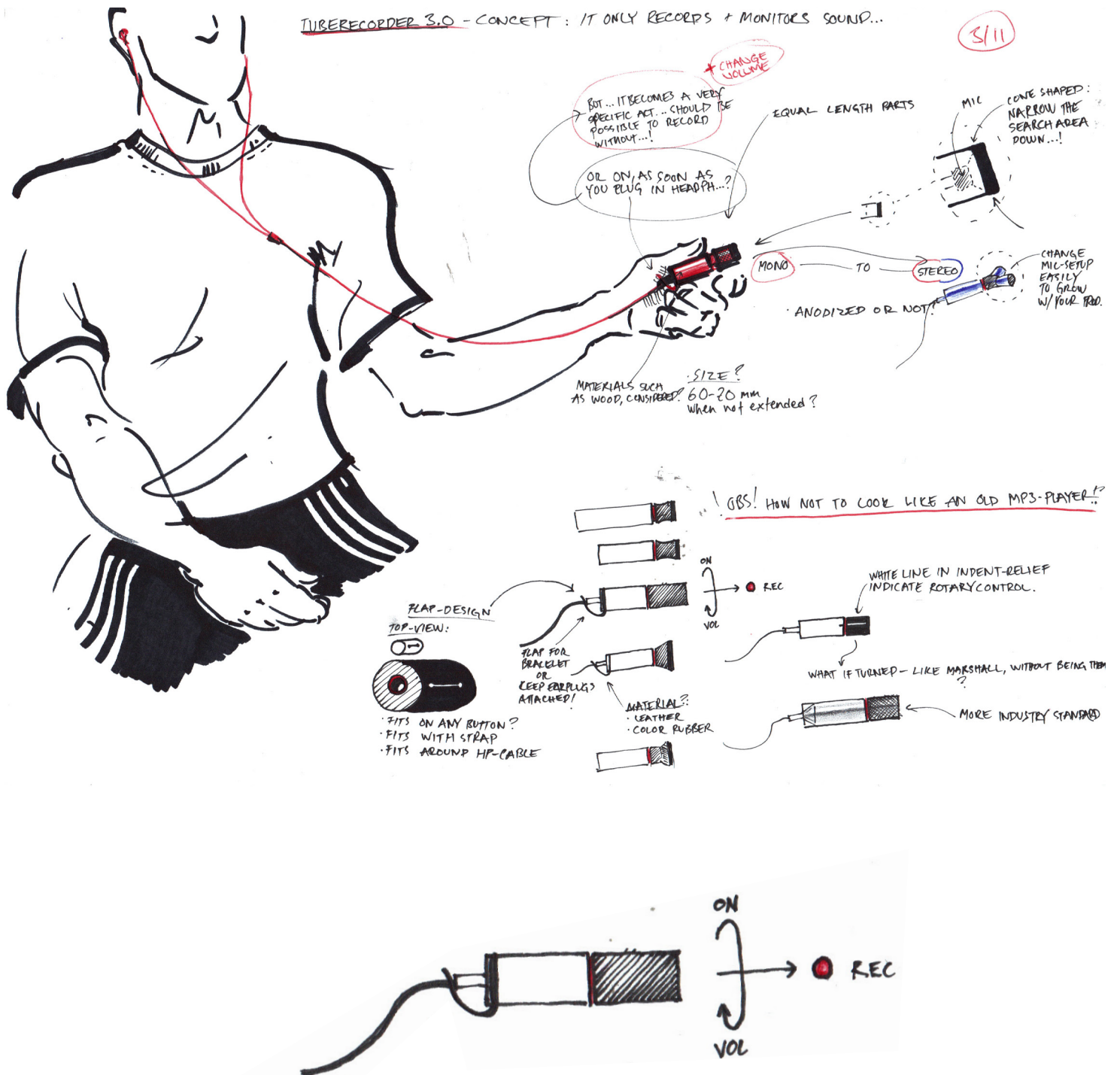
Keeping the profile minimal, small and ambidextrous makes it a very accessible product since it can be worn outside of your cloths and be rapidly swung up whenever. The direction is very affordable and the sound travels through this tube into your ear.

Since the technology can be this small, it was realised it shouldn't focus too much on trying to fit existing technology in there, just experiment and try to develop a very small and accessible mono-mic recorder.

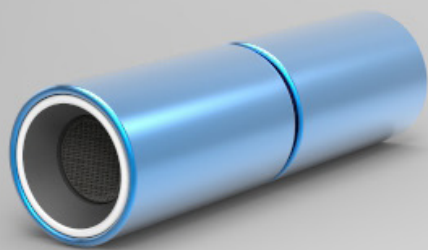
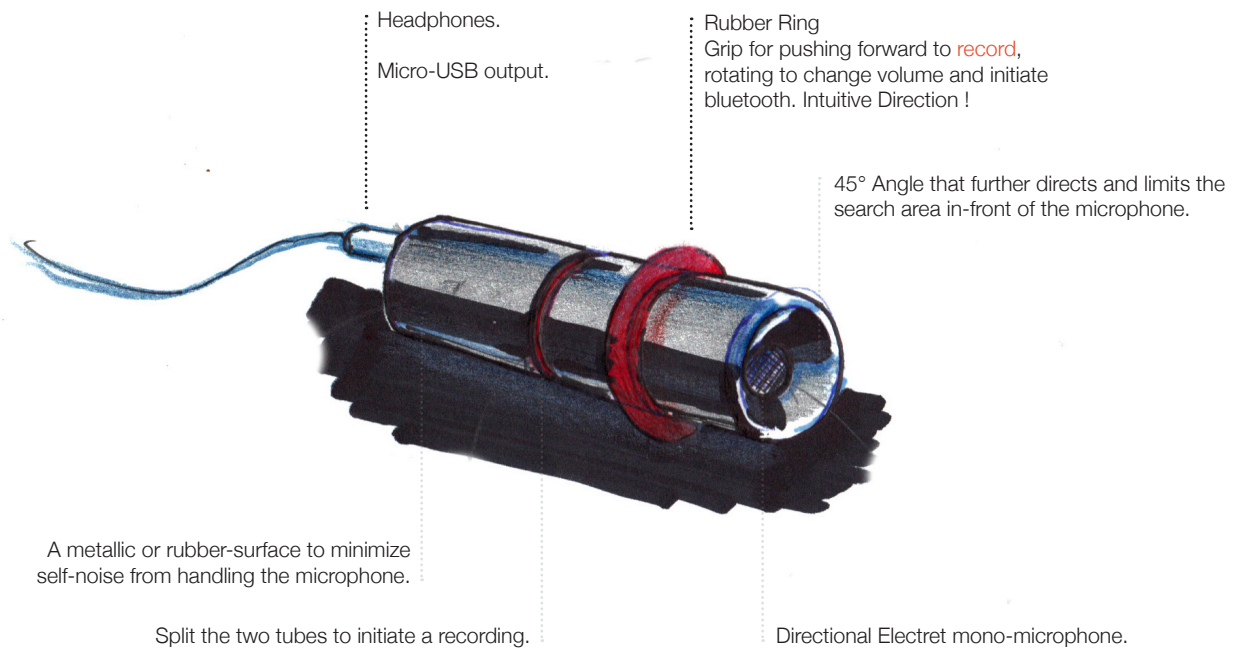
Because, if you don't wear it and have it accessible, your inability of capturing sounds spontaneously would probably make you less perceptive. Referring back to the camera. Recording and listening should be something you always do I think, not an activity you put in the calendar, but something very effortless and everyday. Never more than one click away from that sound...!

“Never more than one click away from that sound...”

Size, accessibility and simplicity matters the most...

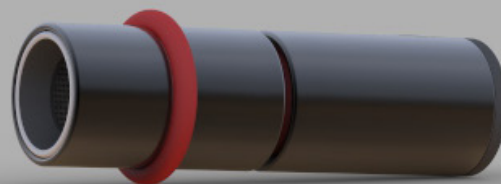


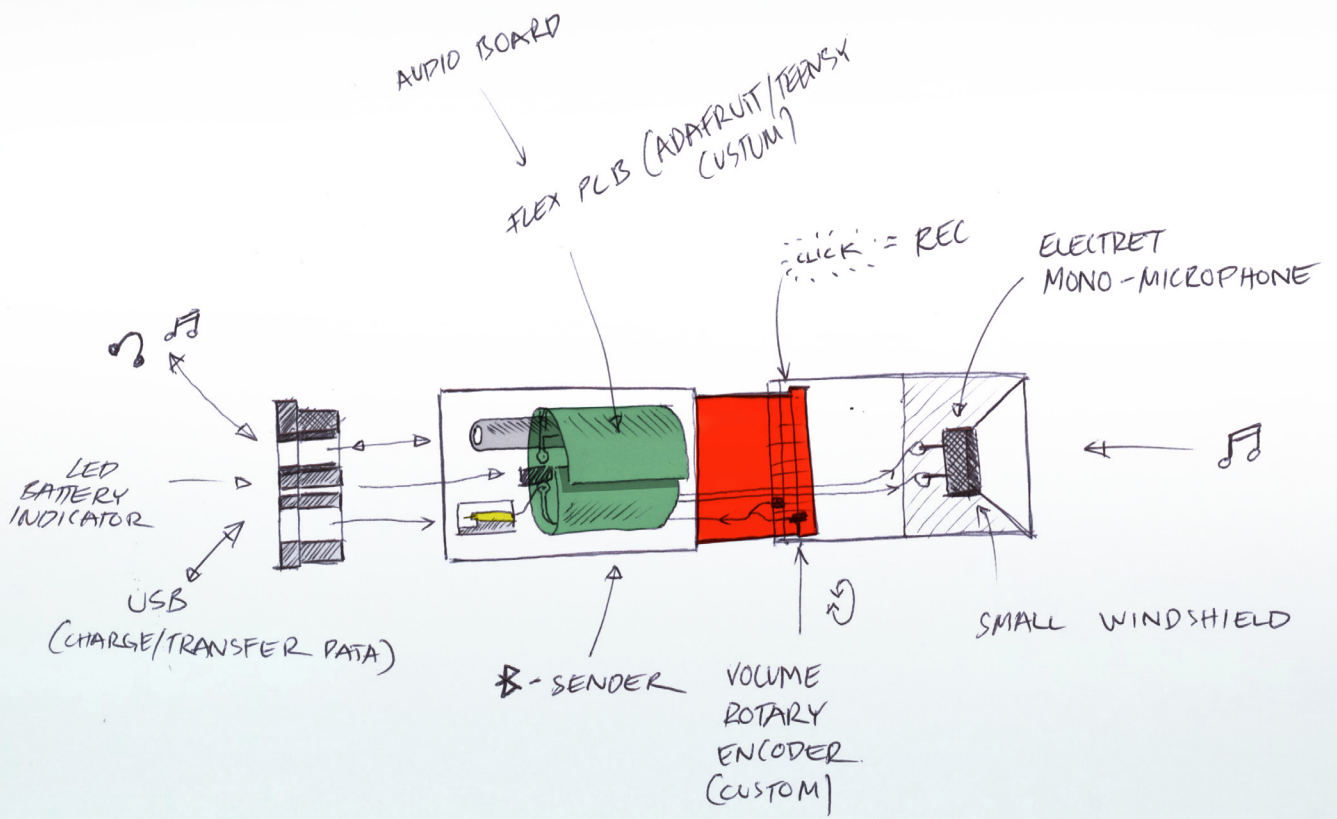
Form Development - Recorder: Parts + Materials + Technical Overview.



Simple and
expressive

The Icon.





.....

60 mm (closed) - 70 mm (extended while recording)



Form Development: Social Sharing Platform

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...

...the ...



Trying out different effects and ways of interacting with sound both physically and digitally with Ableton Live-Software. I tested how I could use the effect parameters of Filter, Reverb and Delay in order to replicate different moods.

The rapid-prototyping software for creating life-like application mock-ups for Iphone, called Invision, was used during the whole illustrator process to try out different workflows.

Illustrator interface iteration + evaluation

User-Interface work-flow charts

Research about social interaction / digital interfaces insights + brief

Storyboard always present.

Paper Mock-Ups to rapidly try out different workflows and features of the application + being able to do user testing.

Café Notes + Ideas

Social Sharing Platform:

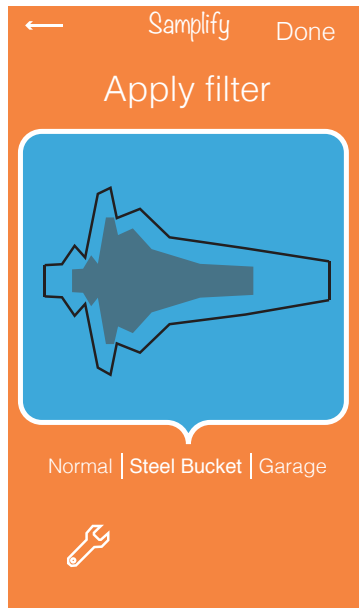
Add Effects to your sound to make it even more your own.

Reverb + Delay + Filter

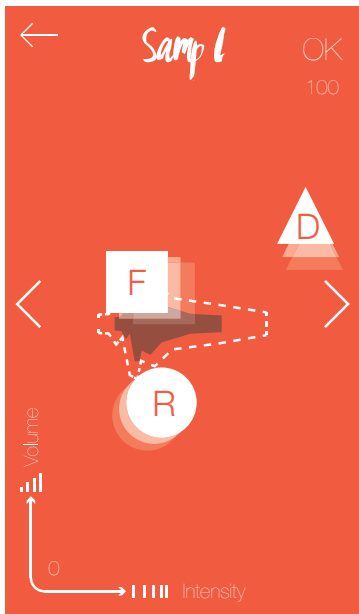
By combining the three different effects and putting them into the same grid of intensity + volume of the effect, it is easy to visualize how an effect works while the sound is re-playing itself realtime in the background.

Having a manual opportunity to change the parameters while the sound is re-playing, facilitates one's understanding and offers the user a possibility to develop their skills and personal touch with the sound modulation and sample creation.

The process got its inspiration from talking to musicians, working simultaneously with the interface and computer sound modulation softwares, building the effect patterns.



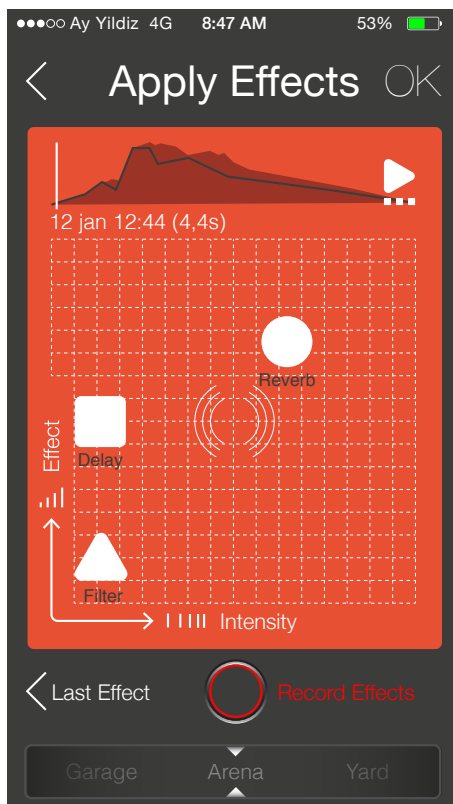
Premade Effects



Premade Effects

Visual feedback

Manual manipulation



Premade Effects

Visual feedback

Manual manipulation

"Shake N Bake" - feature
(Shake your device to create random patterns)

Form Development - Social Sharing Platform: Frictionless storage, manipulation, sharing and exploration of **Sampl**

Inspiration and fascination:

The first impression of the application should be a world of sounds coming towards you. It should inspire you by the quantity and the casual way we are all able to be creative and that every sound has its own value. Whenever there's a sender, there is an appreciating receiver.

Access and storage:

After trying field-recording, an obvious discouragement for sound-recording casually for a beginner, was that it was rather difficult to handle the sound files. You could listen to them on the recorder (small Zoom H1 for example), but navigating these semi-professional devices was a horrible user-experience and accessing the sounds on your computer even more so.

On most devices there are two ways of transferring the sound from the recorder to the computer, via a SD-Memory Card or via a USB-cable. First of all, you need a computer close at hand, sometimes the output-format of the sound is not even wav/mp3 because of setting the wrong initial adjustments on the recording-device. This means that you have to convert the files before you can even listen to them on most computers. Second of all, having to go through the procedure of transferring anything with a cable or detaching a sound-card, is far too inconvenient.

Therefore, it is crucial that the sound is directly and frictionlessly transferred from the recorder to the most accessible device of our time; the smart-phone/pad. In this way you can re-listen, arrange, create and share + explore other sounds all around the world while navigating on an interface well known

Selection and appreciation:

As we experience the spinning globe coming towards us for the first time, with small dots indicating that there are sound from all around the world and even from the corner of your own neighbourhood. It should be possible to navigate the world and the sounds in it in a rapid and frictionless way. Just zooming and scrolling around the globe, stopping and swiping through hundreds of sounds in a minute, "liking" when we find something instantly interesting, re-listening when we were not sure and going to the next sound when we don't like it! Quantity leads to quality by the fast process of discarding rather than rating and categorizing.

As Google supplied us with all the information of the internet, the next challenge was how to navigate this cloud. Just as with the infinite amount of unique sounds in our world, we need to first capture them and put it out there in the application, nonetheless, we need to connect people and give them the opportunity to navigate it once they get an idea of what sounds they like.

Connection and further exploration:

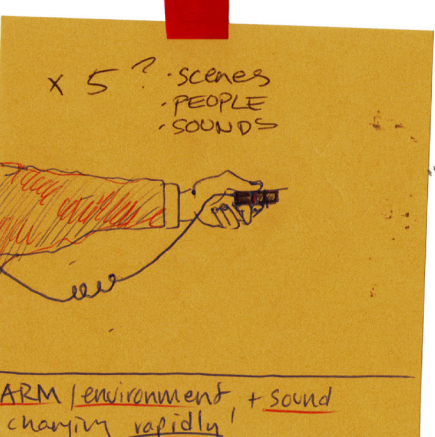
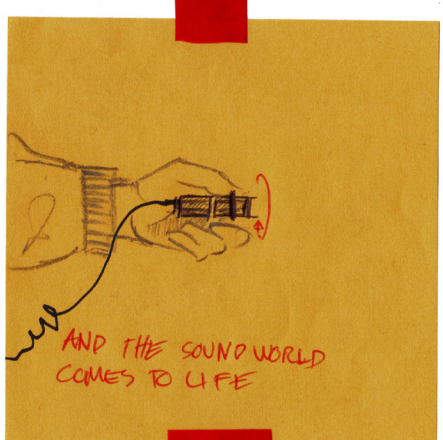
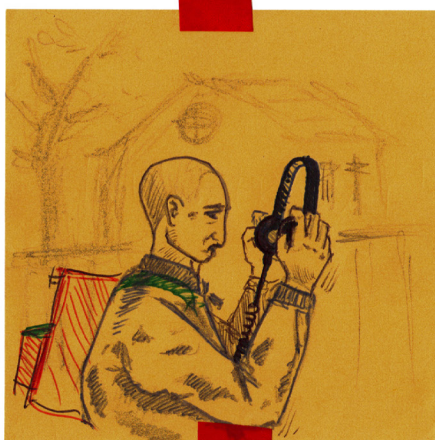
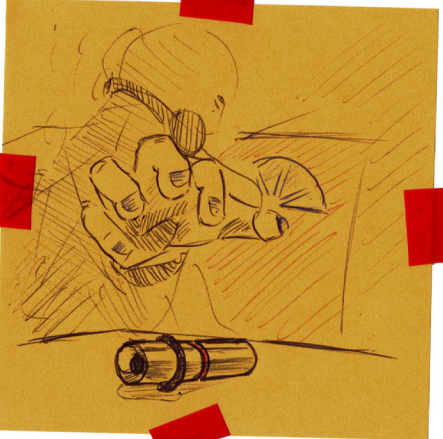
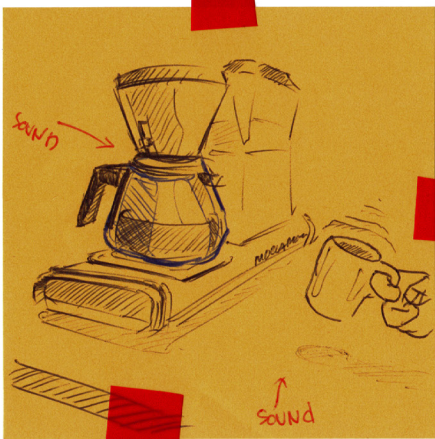
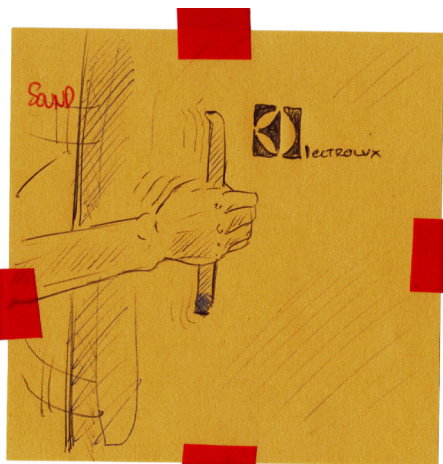
Therefore, it is crucial that the user of the application may connect with others and apply filters (+ have the application learn what they "like" / "dislike") to guide people through the cloud while developing their personal-sound-profile.

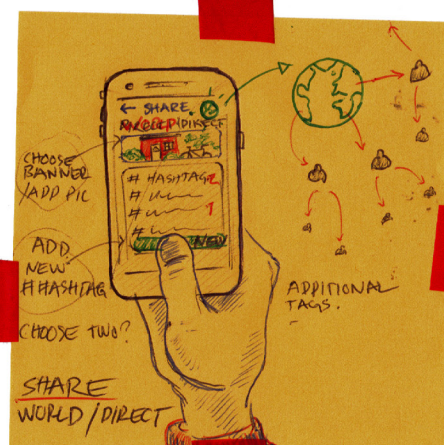
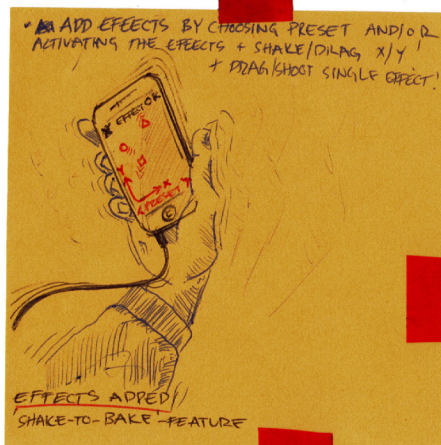
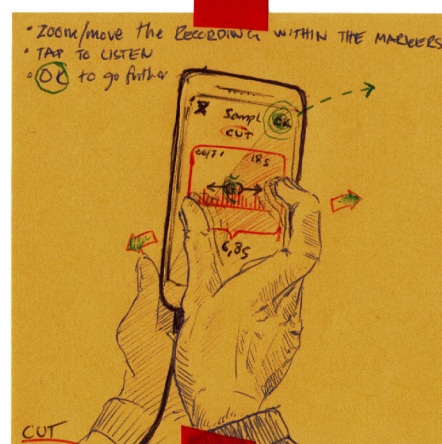
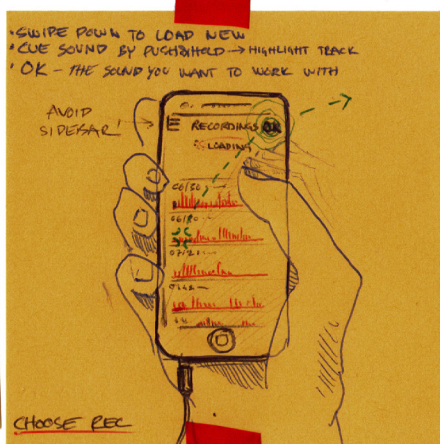
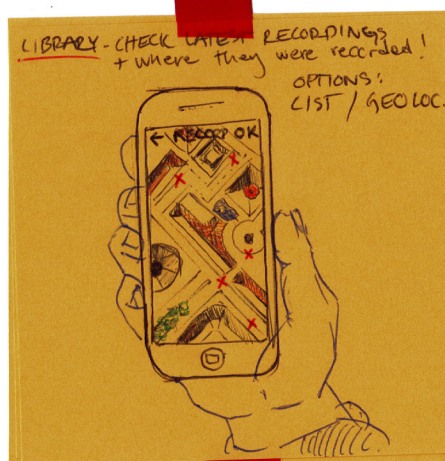
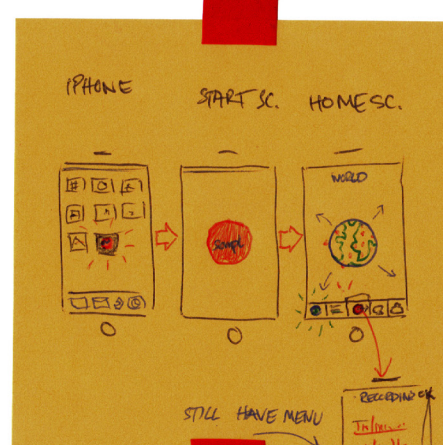
We should be able to look further into the people that make the sounds, connect with the producer behind this small sample and to create a connectivity between them and us. In the end, a sample is just a sound, nonetheless, made by somebody special.

Uncover the hidden world of sound !



The story of an everyday commuter... who became creative inbetween.



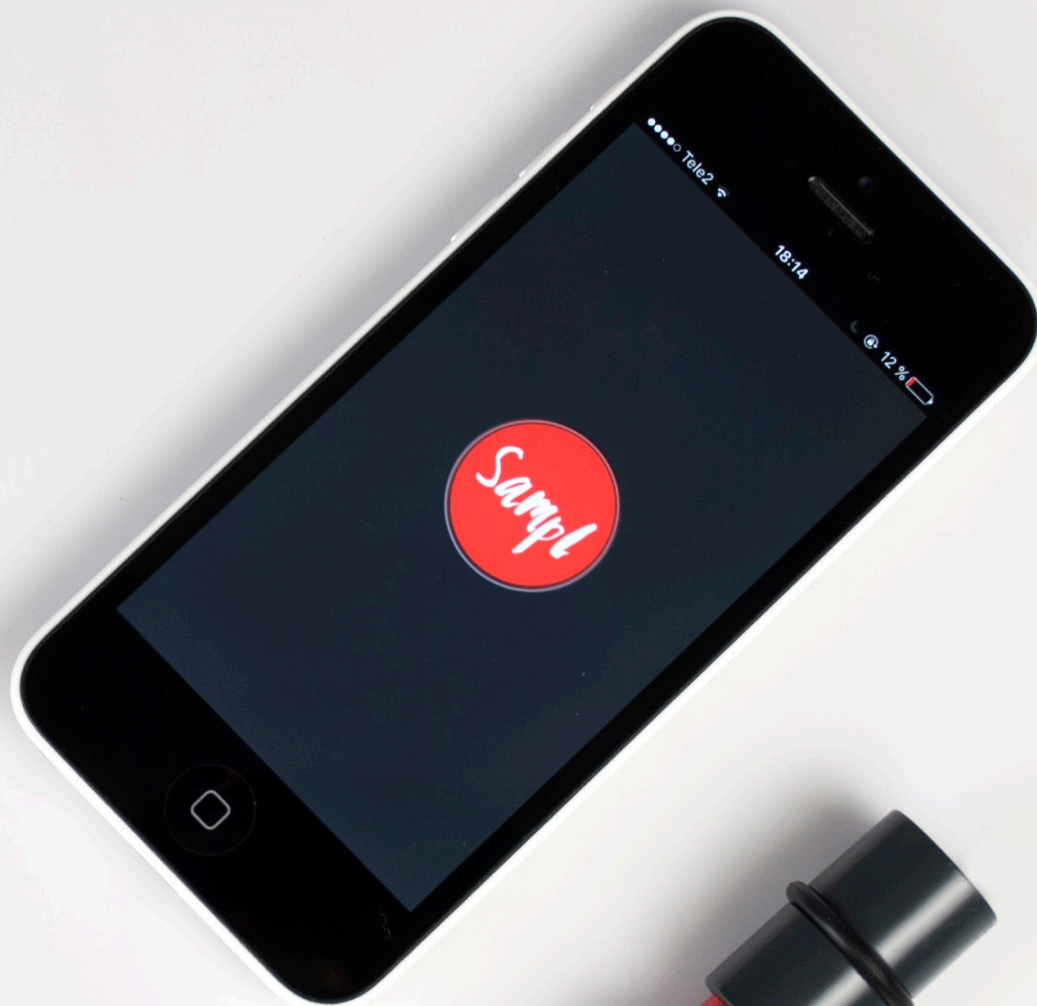


The *Sampl* Selector

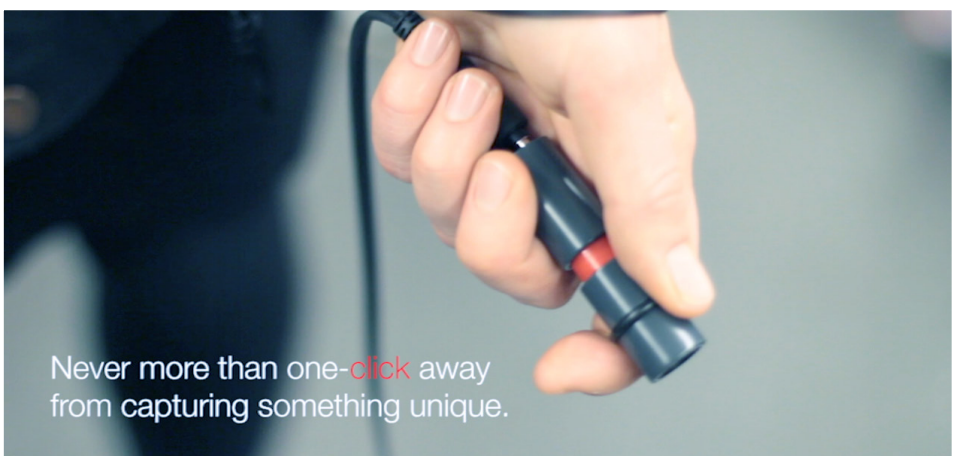


Scenario:

Be creative on the go and make your everyday fascinating.



All you got to do is **listen**. It really isn't more difficult than that...



Basic Function



A magnet inside the tube is slightly attracting the two parts together, which gives the opportunity to click it open for fast samples, but avoiding to set the recording off and fill up the storage by accident.

When the parts are extended, they close a circuit with a nice *click* as the metallic parts touch each other when pulled completely apart (5mm).



Rotate the front end to turn the recorder on with a click and then adjust the volume for your headphones by rotating further clockwise. Direction of use is very intuitive to understand when the functions work around one axis... point the microphone towards your target, move closer or increase volume until you reach an interesting and satisfying result.



The sound is received by a super small directional Electret Mono-Microphone



Access your recordings easily through the application of your phone via bluetooth-transfer or by connecting the micro-usb straight to your computer.



ON / Charged



Not so charged

Material:
Lightness, durability and grip are key

Injection-molded ABS-plastics for its strength, rigidity and toughness. ABS-plastics also support the reduction of sound caused by the user due to its glossy surface. Another preferable attribute is its electrical insulation properties.

Rubber-ring to enable any kind of attachment suitable for the individual usage.

ABS-Plastics



10mm Diameter Electret Mono - Microphone,
excellent for close-up recording.
2mm wind-absorbing foam, may be extended.

Painted and lacquered brass because of its weight and easy production feasibility.

The hard surfaces decrease friction and noise created when handling it.

The weight improves the balance the product which ease handling.

45° rubber cone that stabilizes the microphone, further focusing the sound and reduces the creation of echo created in the chamber in front of the microphone due to its uneven surface.



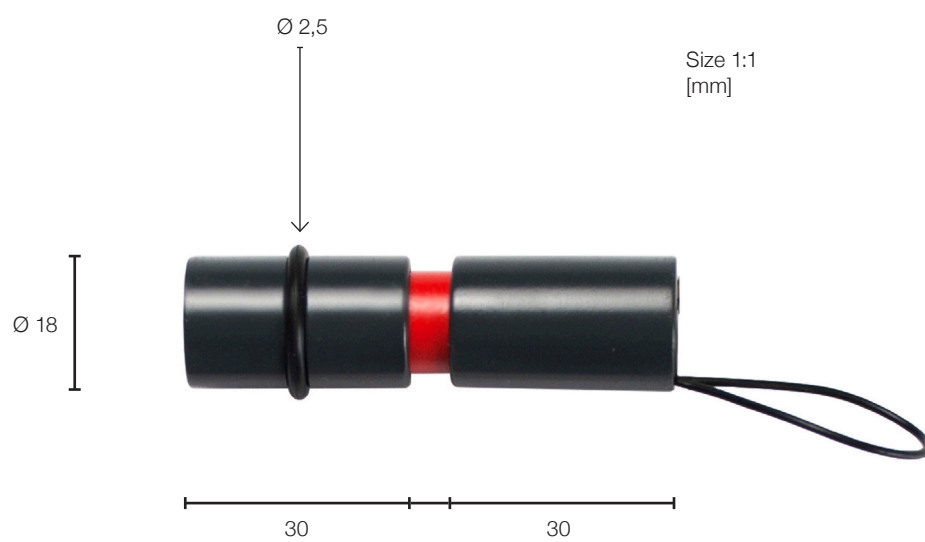
White paint to further mark the microphone area.

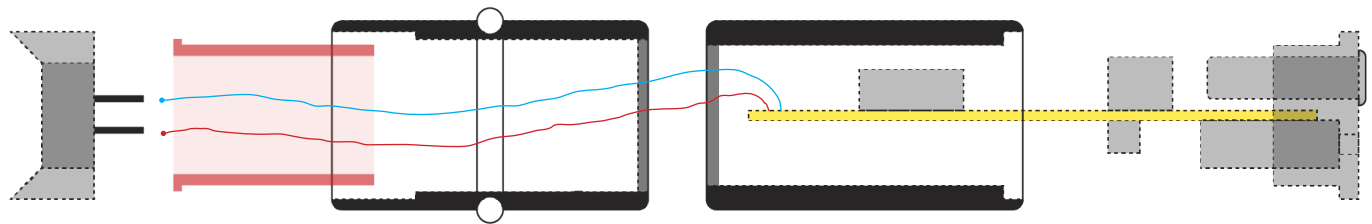
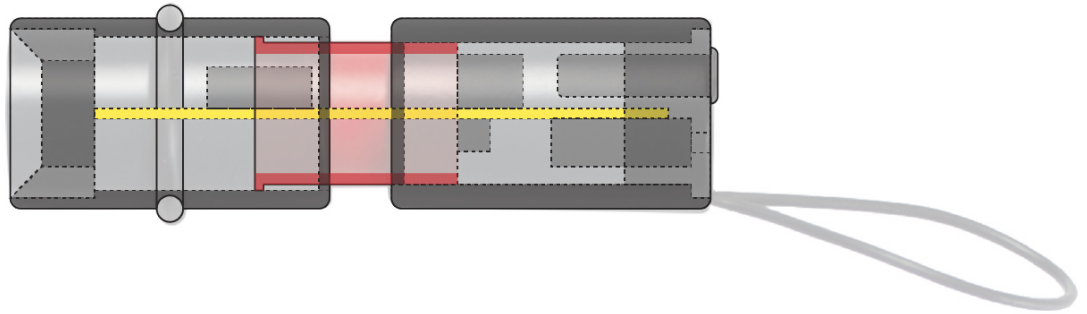
Rubber O-Ring to improve friction when turning volume up/down and pushing/retracting **REC** on and off while a.

Low production cost is of outmost importance because in-store pricing is a great motivator for early enthusiasts.







At the same hand, it has to feel trustworthy and professional, therefore the weight and balance is an important factor as well as the feeling of rigidity and toughness in material choices.

Construction and Measurements





Assembly
"lock-in-place"

-  Outer construction
-  Inner construction
-  PCB / Mother-Board
-  Rotating Connector
-  Components attached to PCB
-  Solid ABS-shell

The Parts are locked in on the **red rotating connector** from both ends. This enables the free rotation of the PCB-board with its components, which in its turn enables a one-axis interface. In this way the manufacturing process is made economically sustainable using already existing technology...

...basically you could create this pcb-board at home, create the shell on your personal 3D-printer and screw/ glue the parts together.

Locking the electronics on the back plate, offers the possibility to modify the front- and/or back-tube and microphone to fit your use...

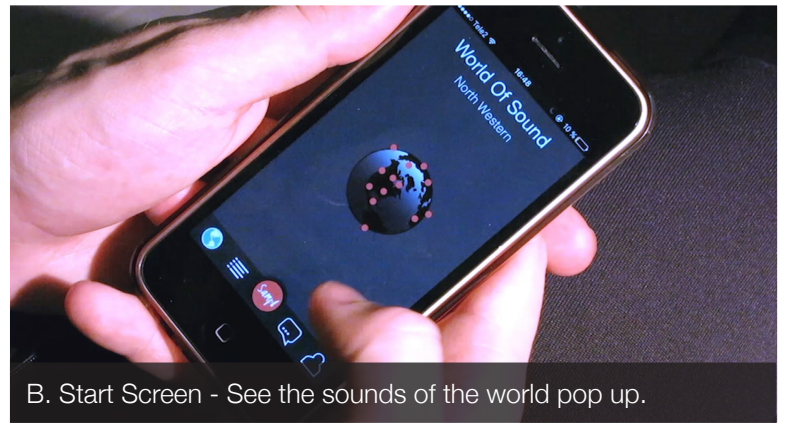
The System:
Your recordings appear on your phone instantly



Sampl-Application:
Create your Sampl



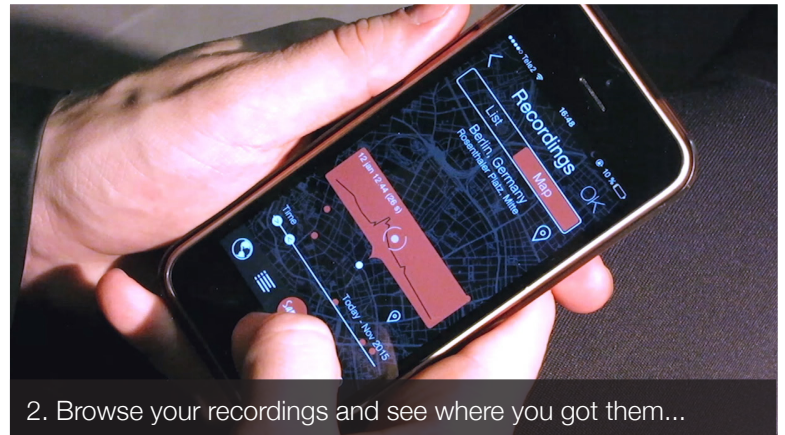
A. Create a unique sample in the short tram-ride.



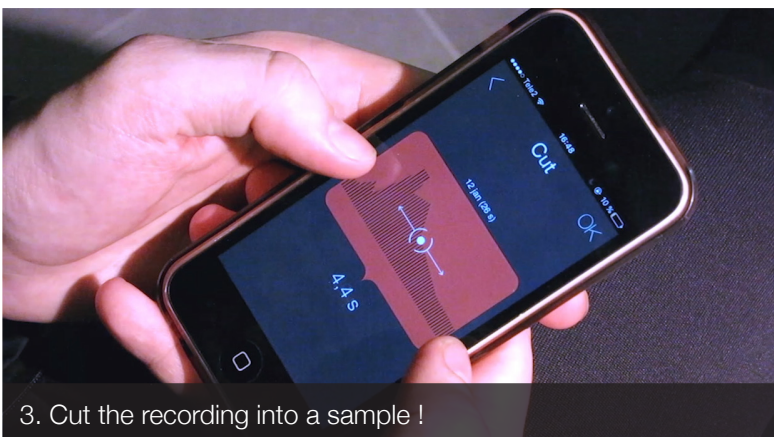
B. Start Screen - See the sounds of the world pop up.



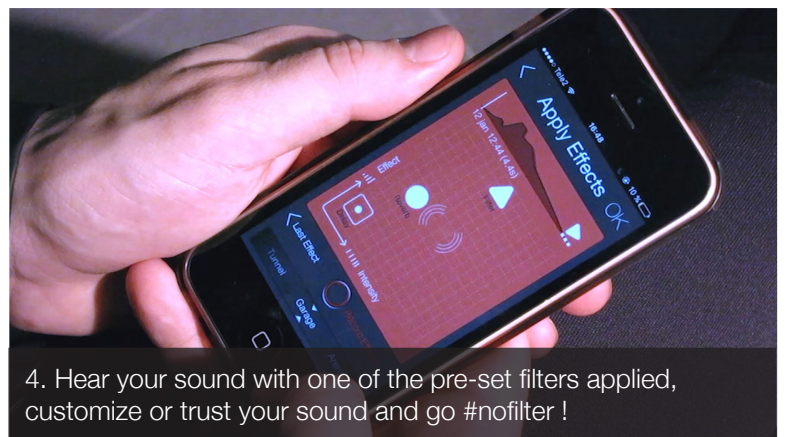
1. Choose a Recording - Find your latest recordings in the library loading from your microphone via bluetooth or from your phone.



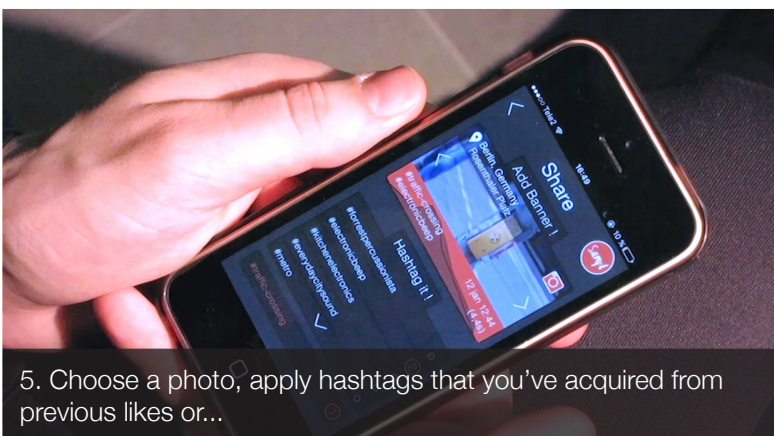
2. Browse your recordings and see where you got them...



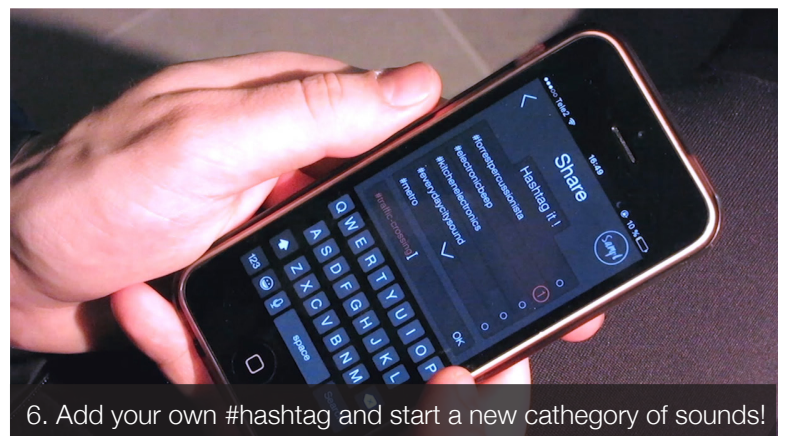
3. Cut the recording into a sample !



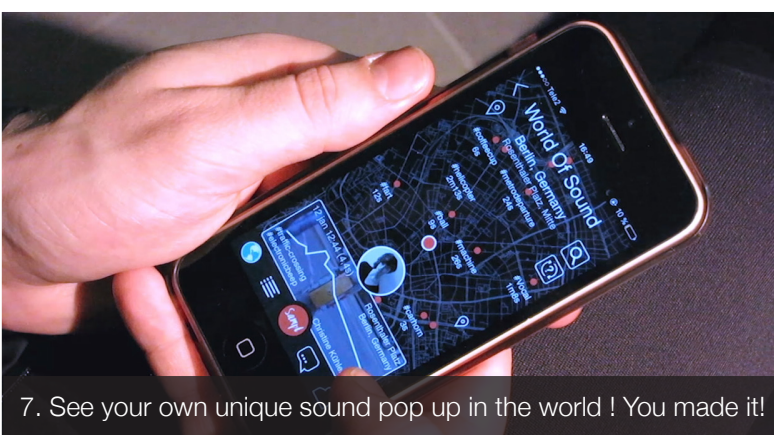
4. Hear your sound with one of the pre-set filters applied, customize or trust your sound and go #nofilter !



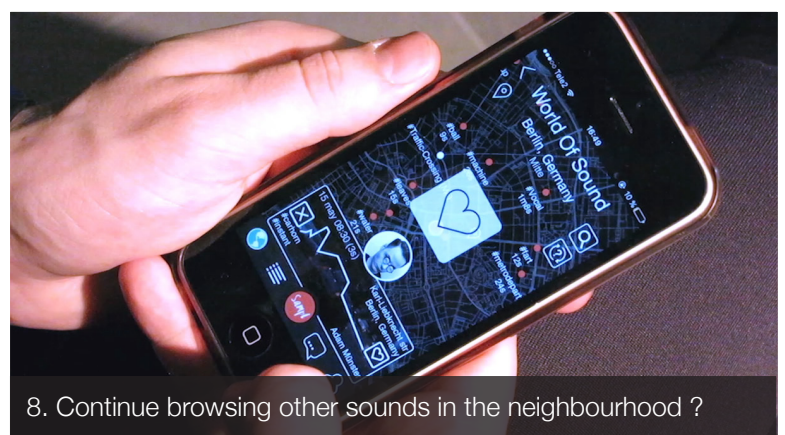
5. Choose a photo, apply hashtags that you've acquired from previous likes or...



6. Add your own #hashtag and start a new category of sounds!



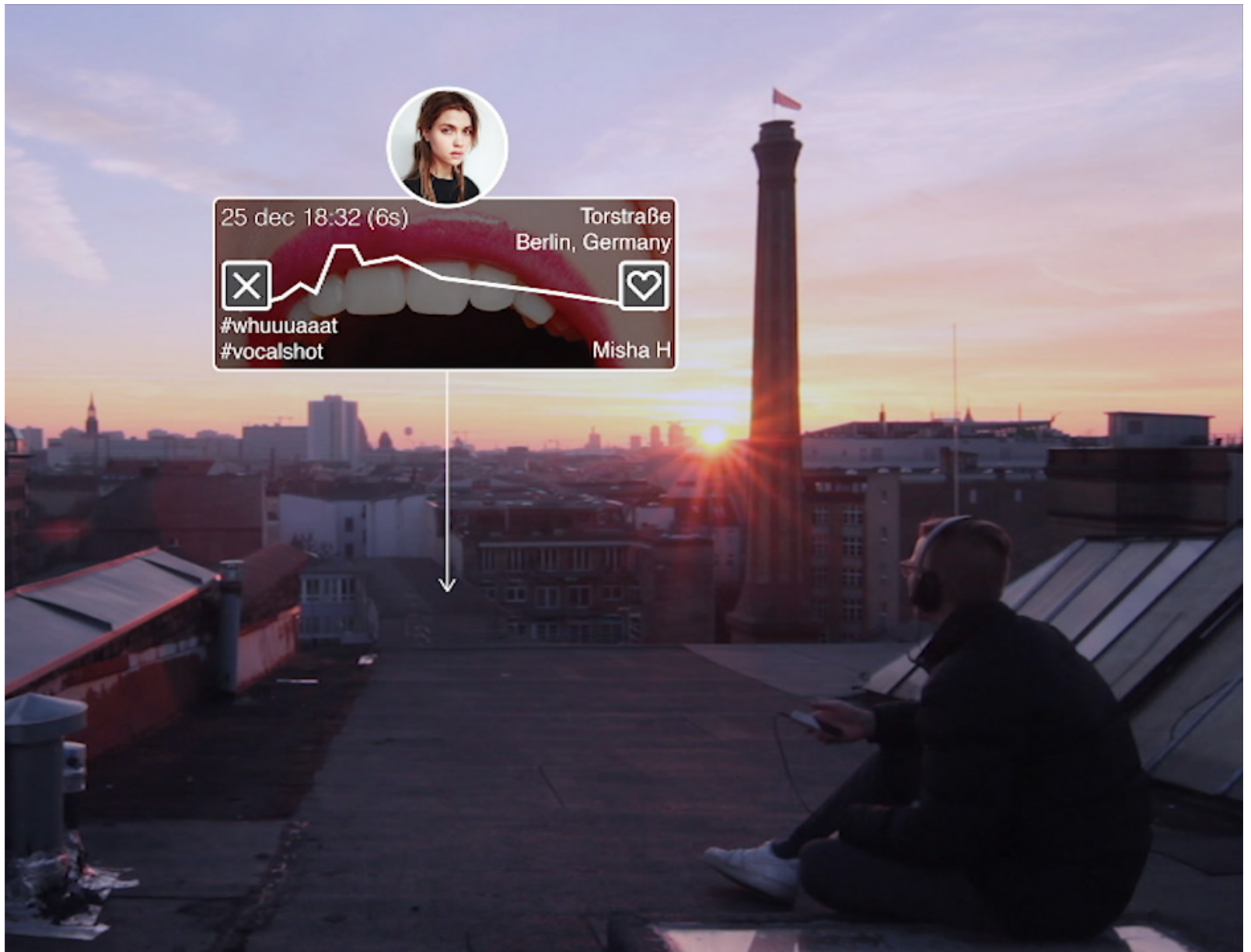
7. See your own unique sound pop up in the world ! You made it!



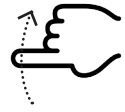
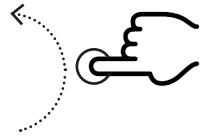
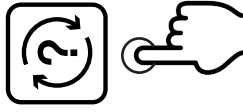
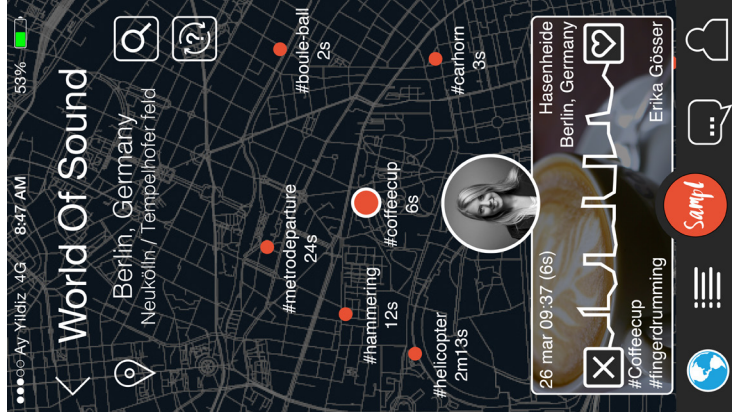
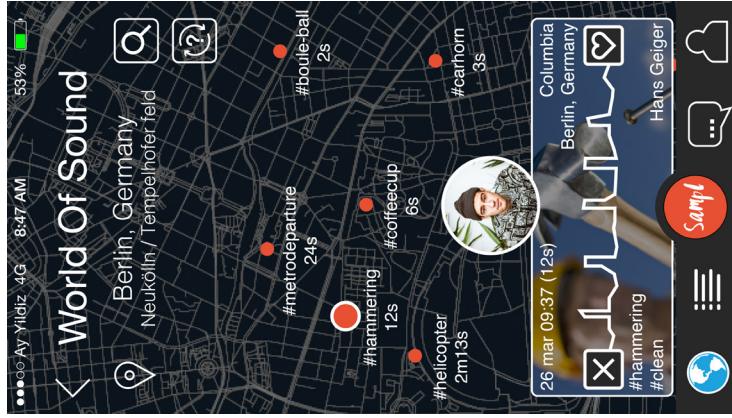
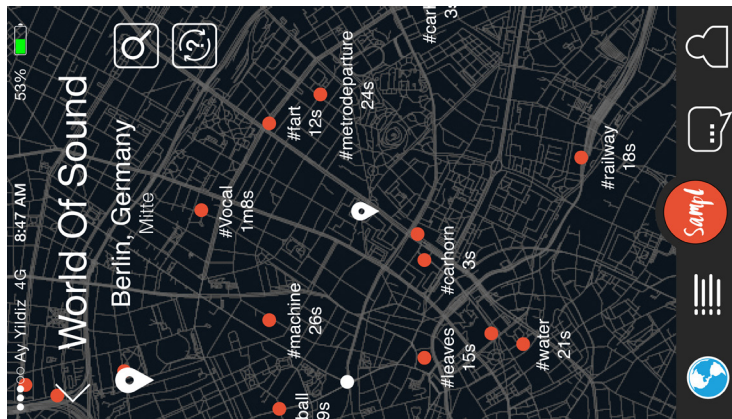
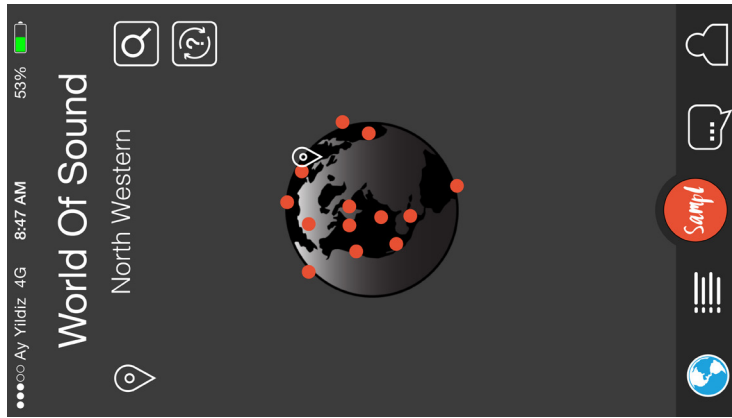
8. Continue browsing other sounds in the neighbourhood ?

Sampl-Application:
What's the sound of your city?

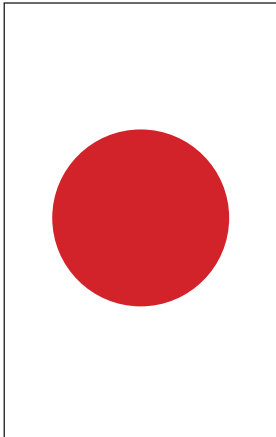
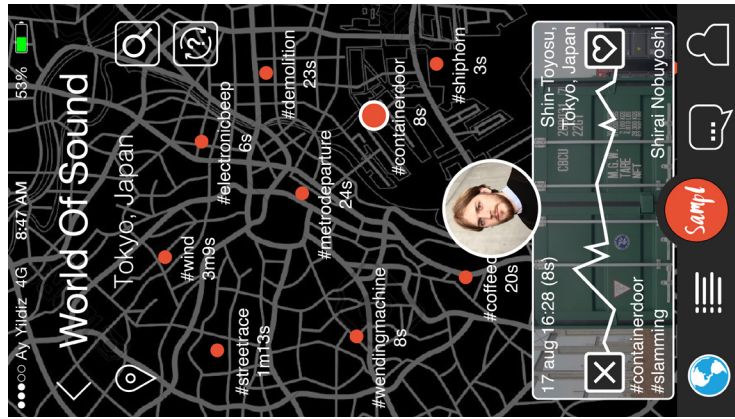
Pass through the city as sounds appear around you.
Find the actual source of the sound or catch somebody
recording in the corner of your street.



Sampl-Application:
Explore a new world
around you



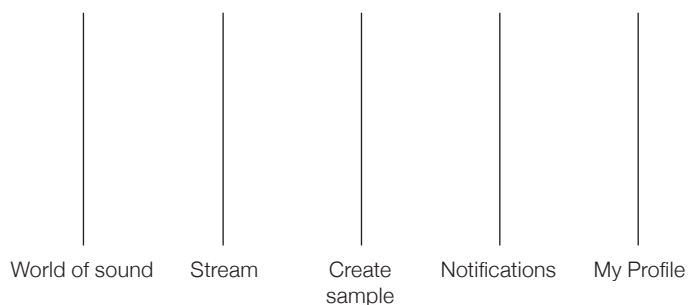
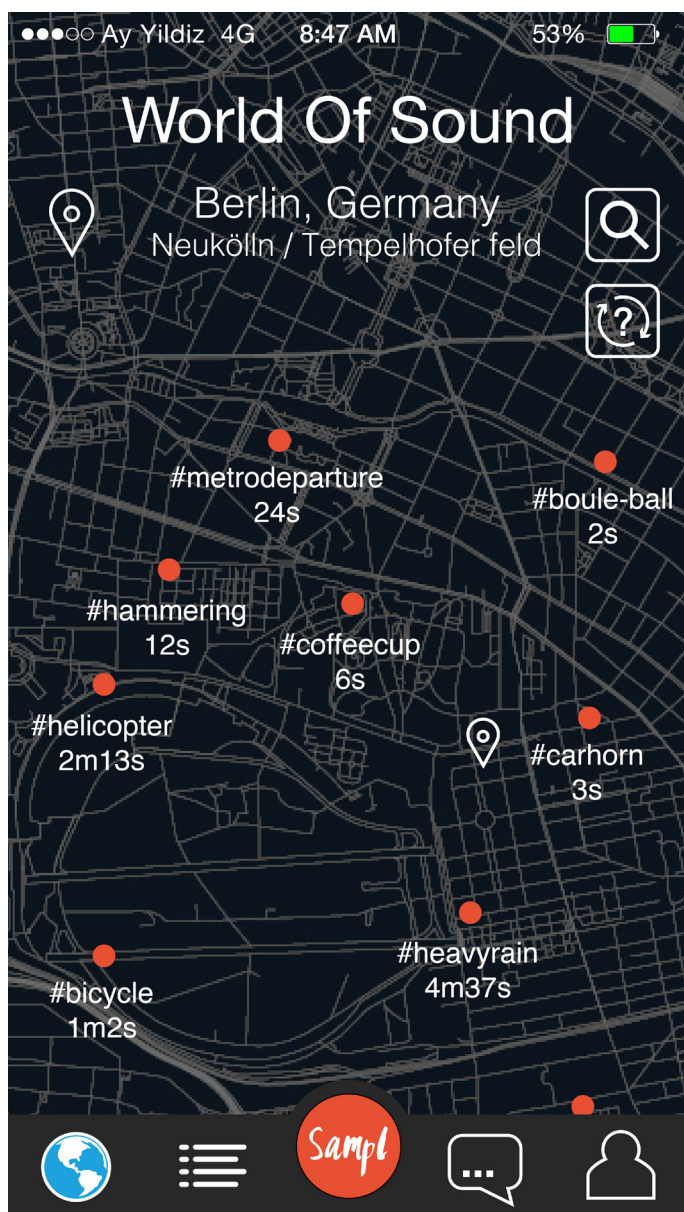
TOKYO ?!



The Land of the **REC**

#WOW

Organic Sound-Categorization with #Hashtags: Building the framework together



How shall one categorize sounds that have never been heard or referenced to before?

This was a very interesting question that arose when designing the information flow of the application. How can you find similar sounds to that one sound that blew your mind?

With infinite options to choose from, and a users evolving personal taste, there needs to be a way of filtering info to explore a certain path.

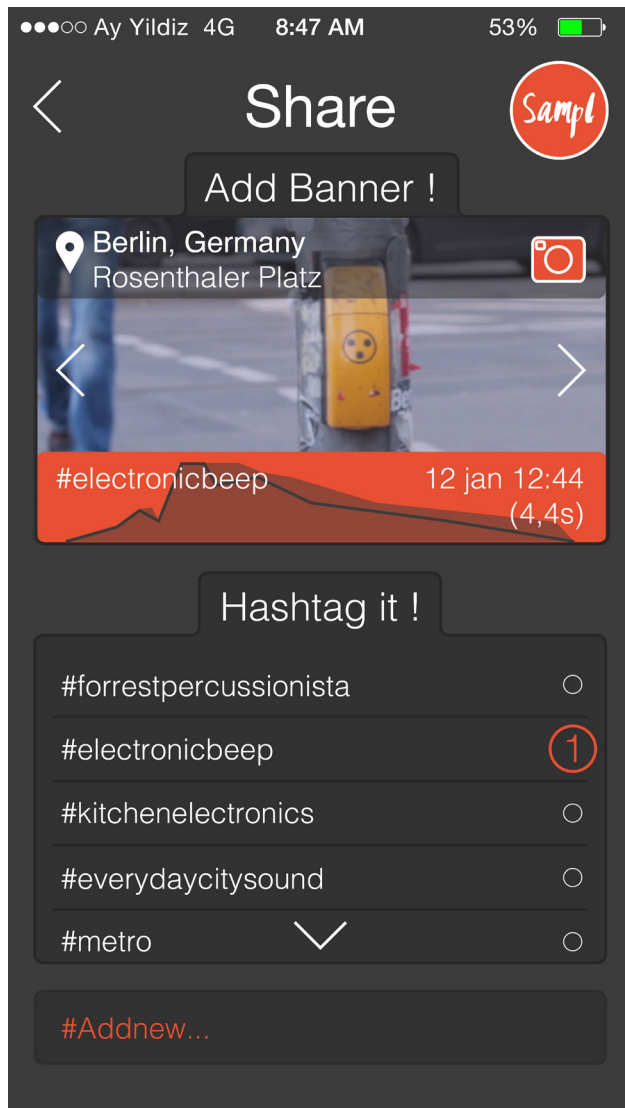
There could be a search feature only attempting to categorize sounds by the readable meta-data of the sound:

- Duration
- Sound Quality
- Equalizer
- Geo-location

However, only grading sounds this way makes no sense because you lose the personality behind the sound. A whole new system of creative pioneers coming together, should themselves try to create the shelves in which to fit in their sound.

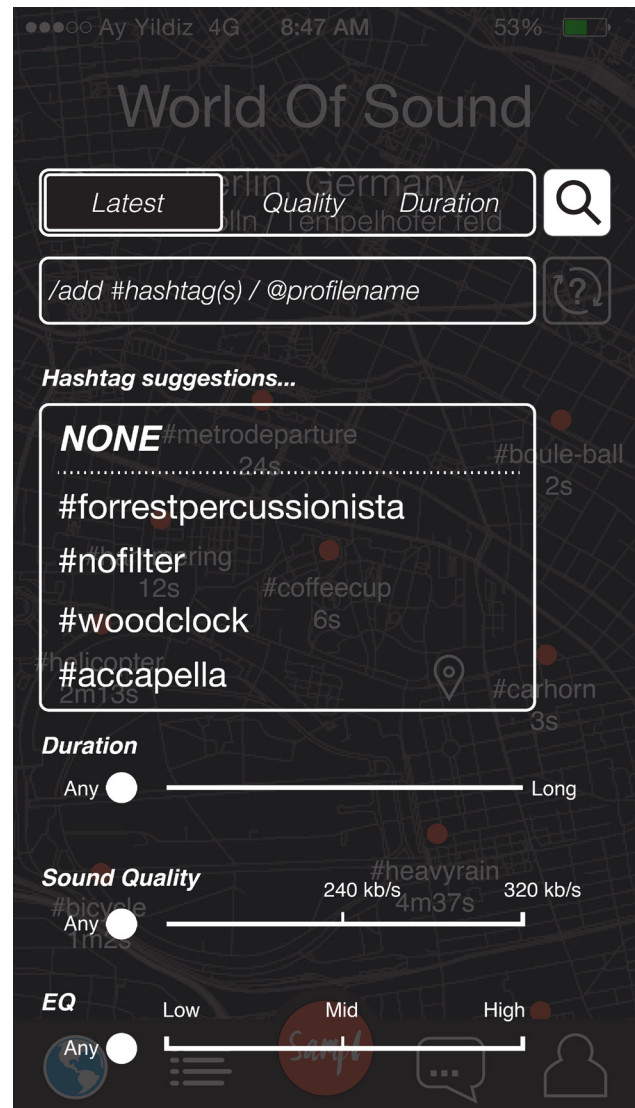
So, here we have people building up their own framework together as they go along. Being a part of something new with the responsibility of developing it from their end.

Sounds and people are alive, so should the system.



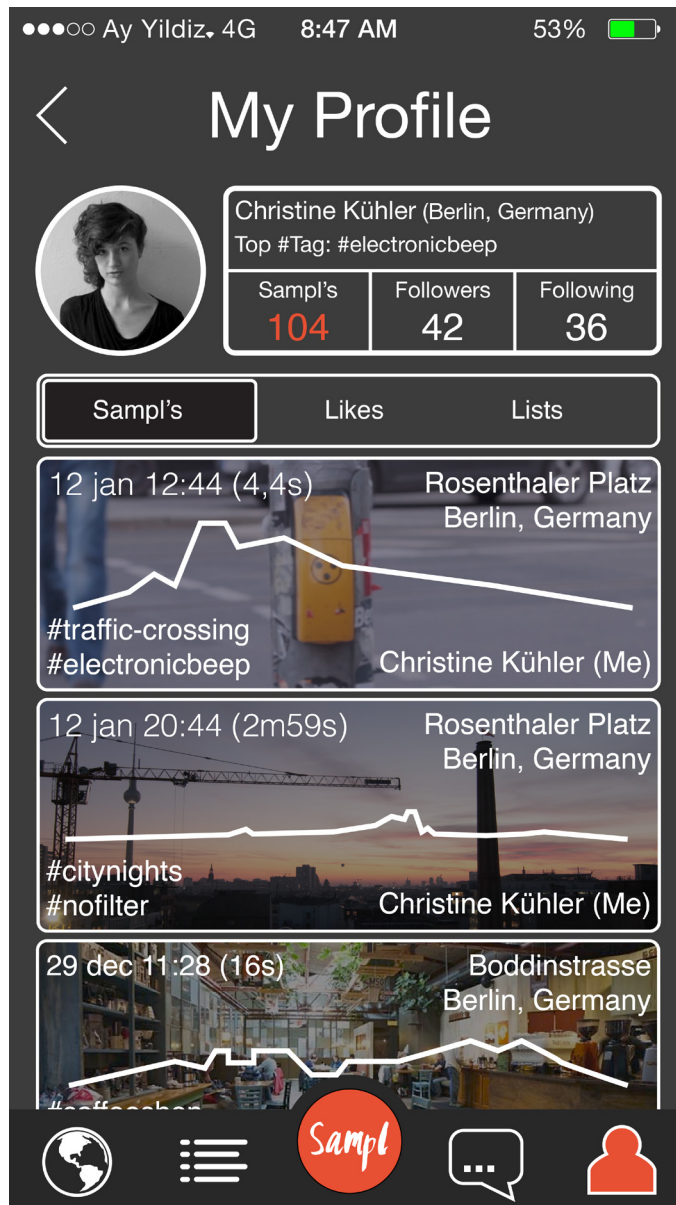
When uploading the sound, you are asked to add one or two hashtags. There are suggestions based on the hashtags attached to the sounds that you have previously added to your like-list. The hashtags are presented in an orderly fashion with the most frequent hashtag on top.

When touching a hashtag, it plays a random sound form that hashtag group, and in this way you may compare the sounds to the sound you're about to upload. In this way, people are building up hashtag-groups which are solely based on the sound. Connecting something tangible as a sound to something subjective, a word.



When searching for sounds, you can choose from different fast options and add hashtags to the search field. The sounds that fit to the search will be high-lightened on the globe and you can start scrolling and swiping the globe again.

My Sampl-Profile: This is you as a sound creative




Your profile is a representation of your sound. In here you present your sounds, what sounds you like and you're also able to arrange your likes into different lists for yourself and others to download directly and ready-to-use through the online web-account.

It also shows you your development and could be seen as a diary itself with its chronological arrangement of what you have liked throughout your use of **Sampl**.

●●○○ Ay Yıldız, 4G 8:47 AM 53%

My Profile



Christine Kühler (Berlin, Germany)
Top #Tag: #electronicbeep

Sampl's	Followers	Following
104	42	36

Sampl's
Likes
Lists

10 jul 14:27 (11m 4s)




#quietlake
#hdstereo #nofilter

Ufa
Russia

Carl Gervais

9 jul 11:28 (16s)

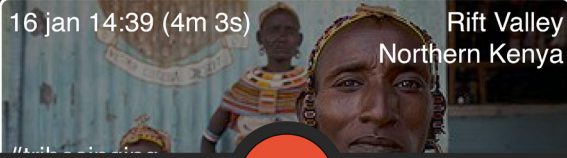


#coffeeshop
#woodenbench



West Village
New York City

Henrietta Hilding


16 jan 14:39 (4m 3s)



Rift Valley
Northern Kenya





Sampl

●●○○ Ay Yıldız, 4G 8:47 AM 53%

My Profile



Christine Kühler (Berlin, Germany)
Top #Tag: #electronicbeep

Sampl's	Followers	Following
104	42	36

Sampl's
Likes
Lists



Long Soundscapes

Drum Pack1



City Sounds

Vocals

Nofilters

Sampl

What did today sound like...?

Have your pocket filled with new sounds from people and #hashtags you follow.



Hear sound by clicking

Go to location



16 jan 14:39 (4m 3s) Rift Valley Northern Kenya

#tribesinging #nofilter Mchemba Zali



See sounds from these hashtags

Go to profile

Click and explore... **forever.**

Sampl



#wheresyoursound



Books, Articles, Seminars

- p. 17 Ruth Mugge, Jan P.L. Schoormans & Hendrik N.J. Schifferstein, "Emotional Bonding With Personalised Products". *Volume 20. Issue 5.* (2009, pages 467-476)
- p. 20 https://www.ted.com/talks/ge_wang_the_diy_orchestra_of_the_future#t-740978
<http://www.smule.com/ocarina/original>
- p. 22 https://www.ted.com/talks/mark_applebaum_the_mad_scientist_of_music#t-212975
- p. 24 Rollo May, "The Courage To Create (March, 1994)
- p. 25 <http://www.positivelypositive.com/2013/01/20/you-dont-need-more-experience-you-need-more-courage/>
- p. 26 https://www.ted.com/playlists/131/carlton_cuse_6_talks_that_hel
- p. 27 http://www.ted.com/talks/tony_fadell_the_first_secret_of_design_is_noticing
- p. 28 *Harvard Business Review*. "Reclaim Your Creative Confidence". (December, 2012)
- Tom Kelley, David Kelley. "Creative Confidence: Unleashing the Creative Potential Within Us All", (October, 2013)

Pictures

- p. 20 https://31.media.tumblr.com/30428e97c2b563c1e904f975bb3345f2/tumblr_inline_n7toc0eIjM1sf6n1e.png
<http://i.ytimg.com/vi/ol1b5mMeP7s/maxresdefault.jpg>
<https://gigaom2.files.wordpress.com/2012/06/screen-shot-2012-06-19-at-8-40-35-am-e1340120527433.png?w=511>
http://i2.wp.com/johnwilker.com/wp-content/uploads/2008/11/img_0002.png
http://ecx.images-amazon.com/images/I/51GKCs0L83L._SX522_.jpg
<http://vni.s3.amazonaws.com/120619112058219.jpg>
- p. 22-23 http://cec.sonus.ca/econtact/12_3/images/applebaum_bluecloak_all.gif
http://i.ytimg.com/vi/46w99bZ3W_M/maxresdefault.jpg
- p. 24-25 <http://quotes.lifehack.org/media/quotes/quote-Rollo-May-the-opposite-of-courage-in-our-society-42437.png>
<http://www.s2-groupe.com/wp-content/uploads/2012/08/1213-0501.jpg>
- p. 26-27 http://img.tedcdn.com/r/images.ted.com/images/ted/a144e7f99ea4e6756fd89e50cd6f0beeada7abda_1600x1200.jpg?
<http://www.gannett-cdn.com/-mm-/e444bbc09a6976692352b8cbe5cff27bd8a60d79/c=0-2093-3333-3972&r=x1683&c=3200x1680/local/-/media/USATODAY/test/2014/01/13//1389655575000-XXX-Change-Agents-Tony-Fadell04.jpg>
- p. 29 <http://wonder-full.ru/wp-content/uploads/2013/10/2013-10-10-12.22.42.jpg>
- p. 39-40 <https://www.pinterest.com/>
http://www.lund.se/ImageVault/Images/id_52498/scope_0/filename_rKiamJSG7WFJUTh0Yzhq.jpg/storage_Edited/ImageVaultHandler.aspx
- p. 80 https://0.s3.envato.com/files/48075519/05_earth-illustrated-3D-world-cinema4d-3ds-obj-globe-planet-realistic-polygons-photoshop.jpg

Sampl

#wheresyoursound



LUND
UNIVERSITY