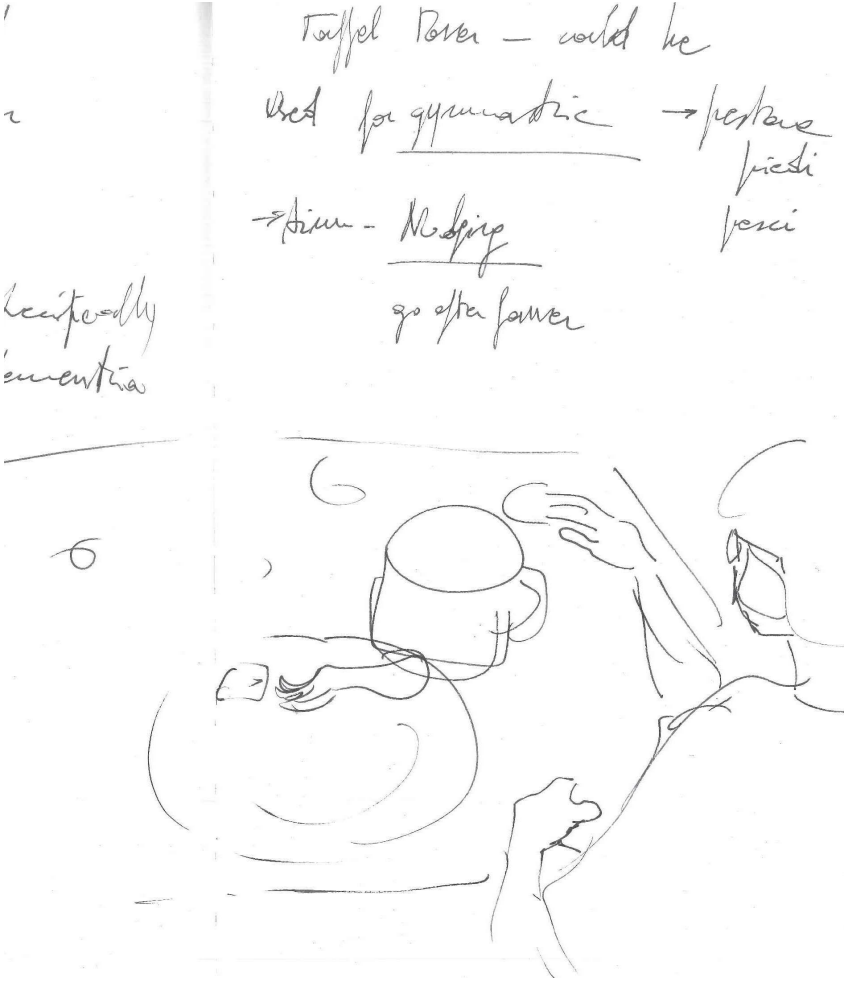
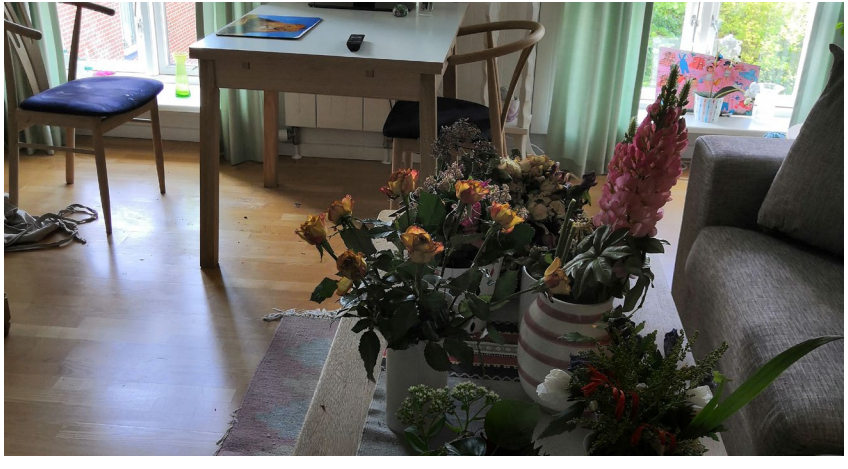
Menschenzentrierter Entwicklungsprozess von BIBO, einem für demenzerkranke Menschen dedizierten Trinkbecher.

Kevin Lefeuvre, D.N.S.E.P Design, M.F.A. Produkt-Design,
ReThiCare / Bauhaus-Universität Weimar / University of Southern Denmark / Technische Universität Chemnitz

World Usability Day 2023_Leipzig_09.11.2023

FELDBEOBACHTUNGEN





Tagebuch von Emanuela Marchetti

Problem:

Fokus: Intervention

Fokus: Intervention/Lösung

KONZEPTVISUALISIERUNGEN: STORYBOARD UND SKIZZEN

Demenzerkranke Menschen vergessen zu trinken, und das Pflegepersonal muss ihnen die Tasse in die Hand geben.

Bewegung schafft visuelle Aufmerksamkeit und holt sie aus ihrer Starre heraus?

Person sitzt und starrt in den leeren Raum - trinkt nicht

Tasse bewegt sich/wackelt ein wenig, ein leuchtender Farbring läuft sanft um die Tasse

> Person hebt sie auf

Wenn der Becher gekippt wird [oder der Flüssigkeitsstand gemessen wird], wird die Anzahl der genommenen Schlucke um +1 erhöht (eventuell für das Personal angezeigt). (Vielleicht auch Ton oder anderer visueller Effekt als direkte Belohnung für die Aktion?)

Nach einem genommenen Schluck / Tasse zurück auf den Tisch, bleibt es ruhig. Wenn der Becher noch voll ist, aber eine bestimmte Zeit lang nicht berührt oder daraus getrunken wurde, bewegt er sich und leuchtet wieder.

Problem:

Demenzerkranke Menschen vergessen zu trinken, und das Pflegepersonal muss ihnen die Tasse in die Hand geben.

Bewegung schafft visuelle Aufmerksamkeit und holt sie aus ihrer Starre heraus?

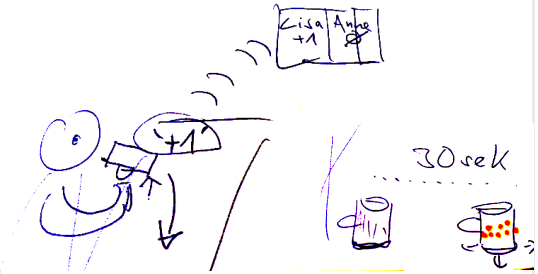
Fokus: Intervention

Person sitzt und starrt in den leeren Raum - trinkt nicht

Tasse bewegt sich/wackelt ein wenig, ein leuchtender Farbring läuft sanft um die Tasse

> Person hebt sie auf

Fokus: Intervention/Lösung

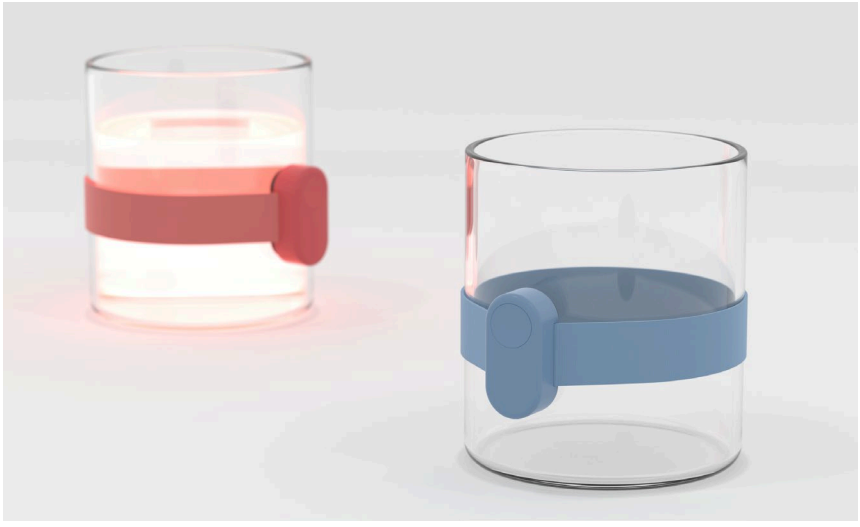


Wenn der Becher gekippt wird [oder der Flüssigkeitsstand gemessen wird], wird die Anzahl der genommenen Schlucke um +1 erhöht (eventuell für das Personal angezeigt). (Vielleicht auch Ton oder anderer visueller Effekt als direkte Belohnung für die Aktion?)

Nach einem genommenen Schluck / Tasse zurück auf den Tisch, bleibt es ruhig. Wenn der Becher noch voll ist, aber eine bestimmte Zeit lang nicht berührt oder daraus getrunken wurde, bewegt er sich und leuchtet wieder.

PRODUKTKONZEPTE

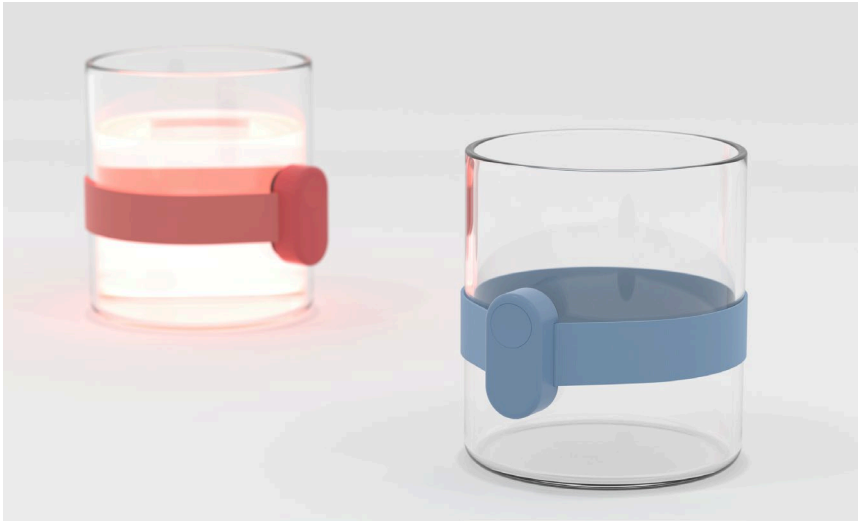
Rotating Coaster



Rotating Coaster

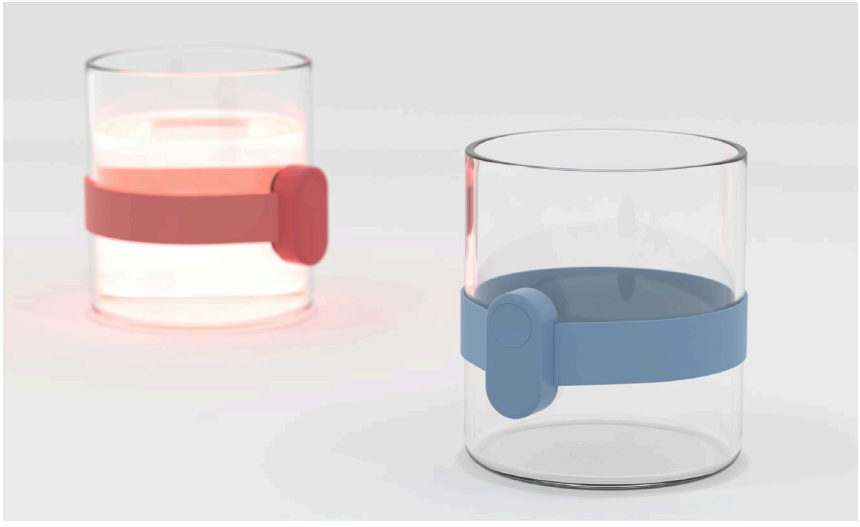
Dancing Cup

Dancing Add-On

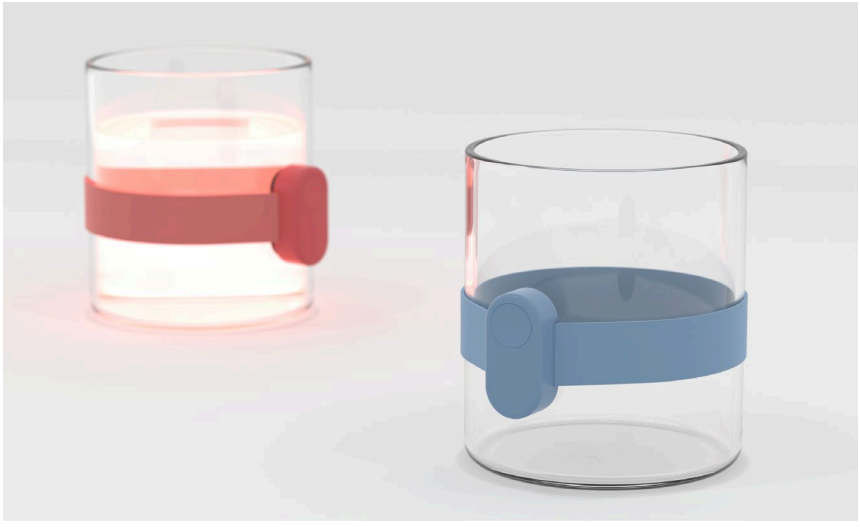


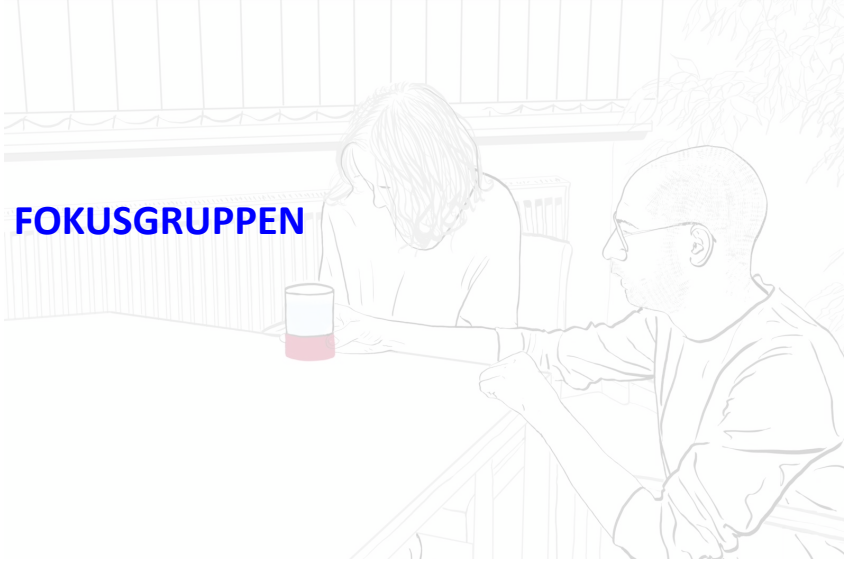

Dancing Cup


Dancing Add-On

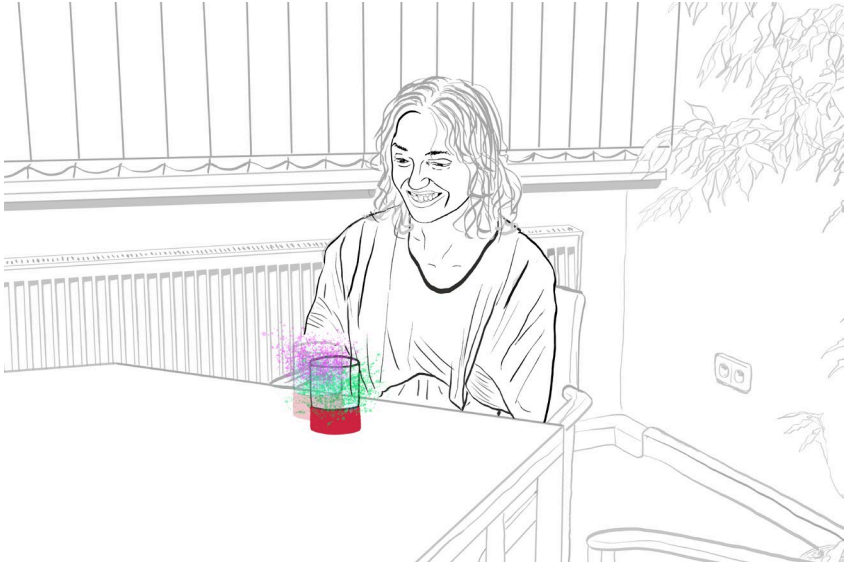



Dancing Add-On



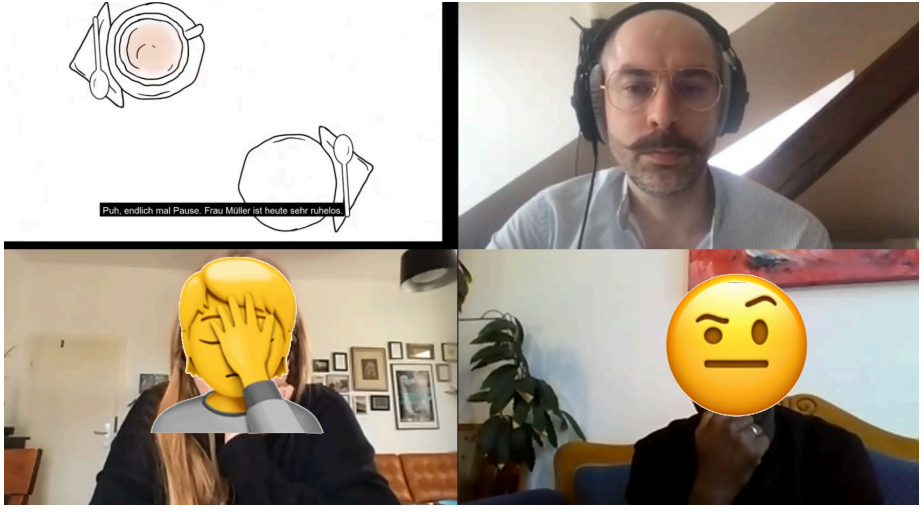


Images extracted from the videoprototype for presenting the bibo concept.



Ausschnitte aus dem Videoprototyp zur Vorstellung des Bibo-Konzepts

7 Sitzungen mit 15 Teilnehmern / 10 Frauen und 5 Männer / 5 PFK, 1 ex. PFK, 4 PK, 3 PP, 1 PB, 1 feldnah



Bildausschnitt einer Online-Fokusgruppensitzung am 09.03.2021

Notizenbuch für die Teilnehmer der Fokusgruppen

Wie wir die Daten ausgewertet haben

I. Grobprotokoll, das in eine Excel-Tabelle (pro Teilnehmer) eingefügt wird.

II. Die Protokolldaten wurden von jedem von uns auf kurze Aussagen reduziert und kategorisiert (Bestätigung/Kritik/Verbesserungen).

III. Die Auswahl der Aussagen wurde diskutiert und vereinbart.

IV. Ausgewählte Aussagen wurden in grober zeitlicher Reihenfolge in Miro eingegeben.

V. Das Diagramm wurde in Teamarbeit iterativ neu gruppiert und wichtige Themen identifiziert.

Was können wir ,
aus diesen Daten lernen?

(Schritt IV.: Überischt)

Affirmation

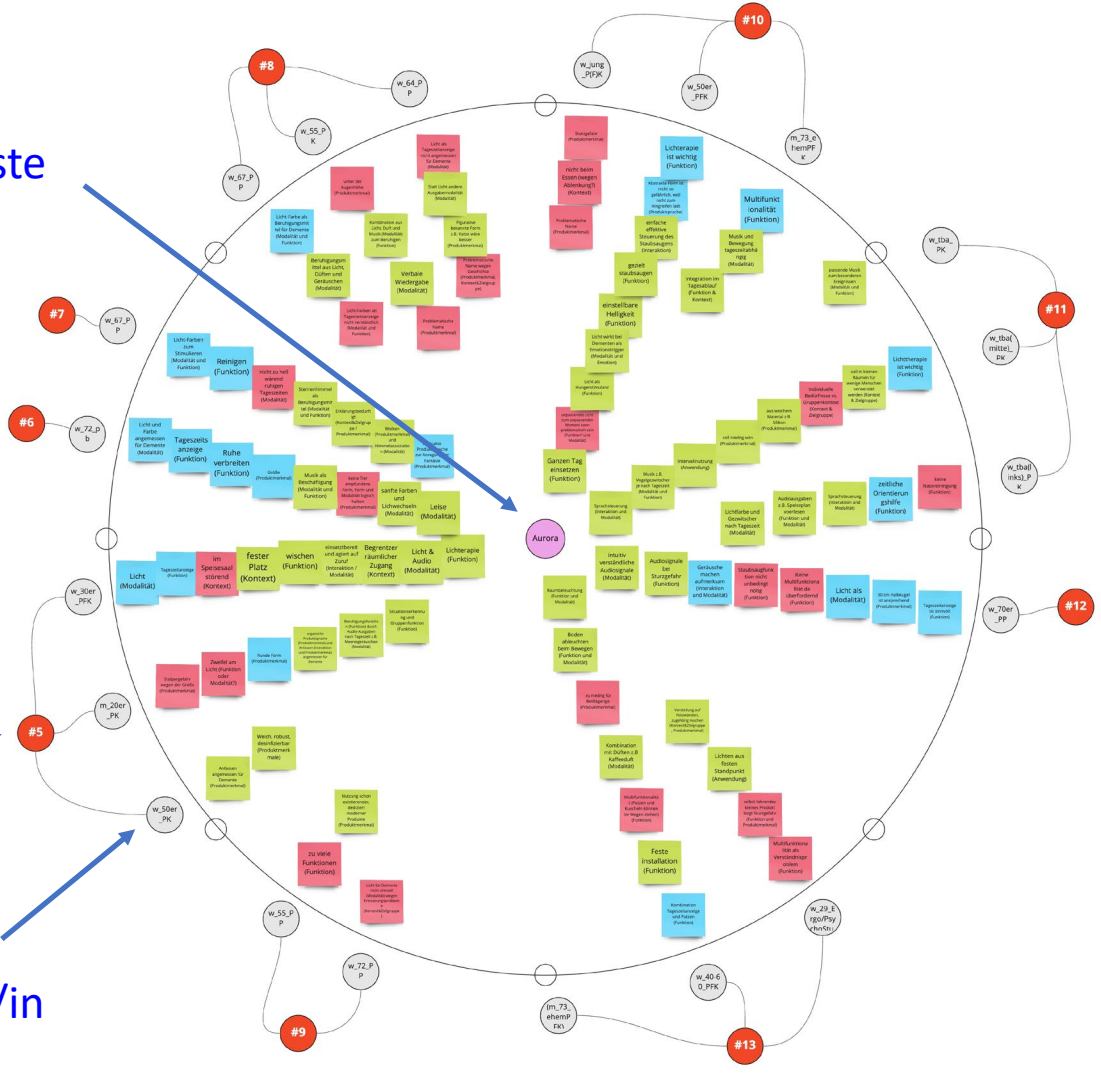
Critique

Suggestions for improvement

Zeitleiste

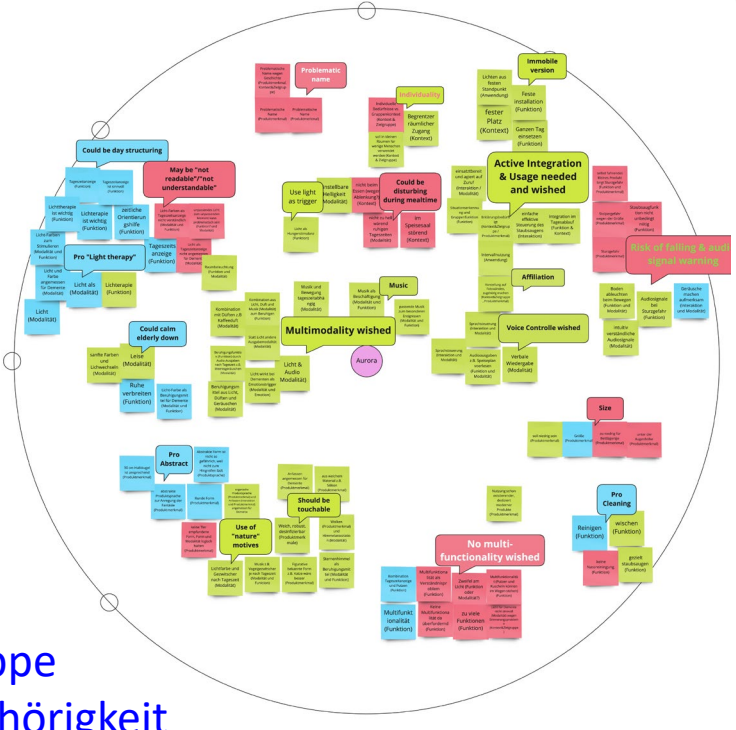
Gruppen

Einzelne Teilnhemer/in



Was können wir ,
aus diesen Daten lernen?

(Schritt V.: Auswertung)

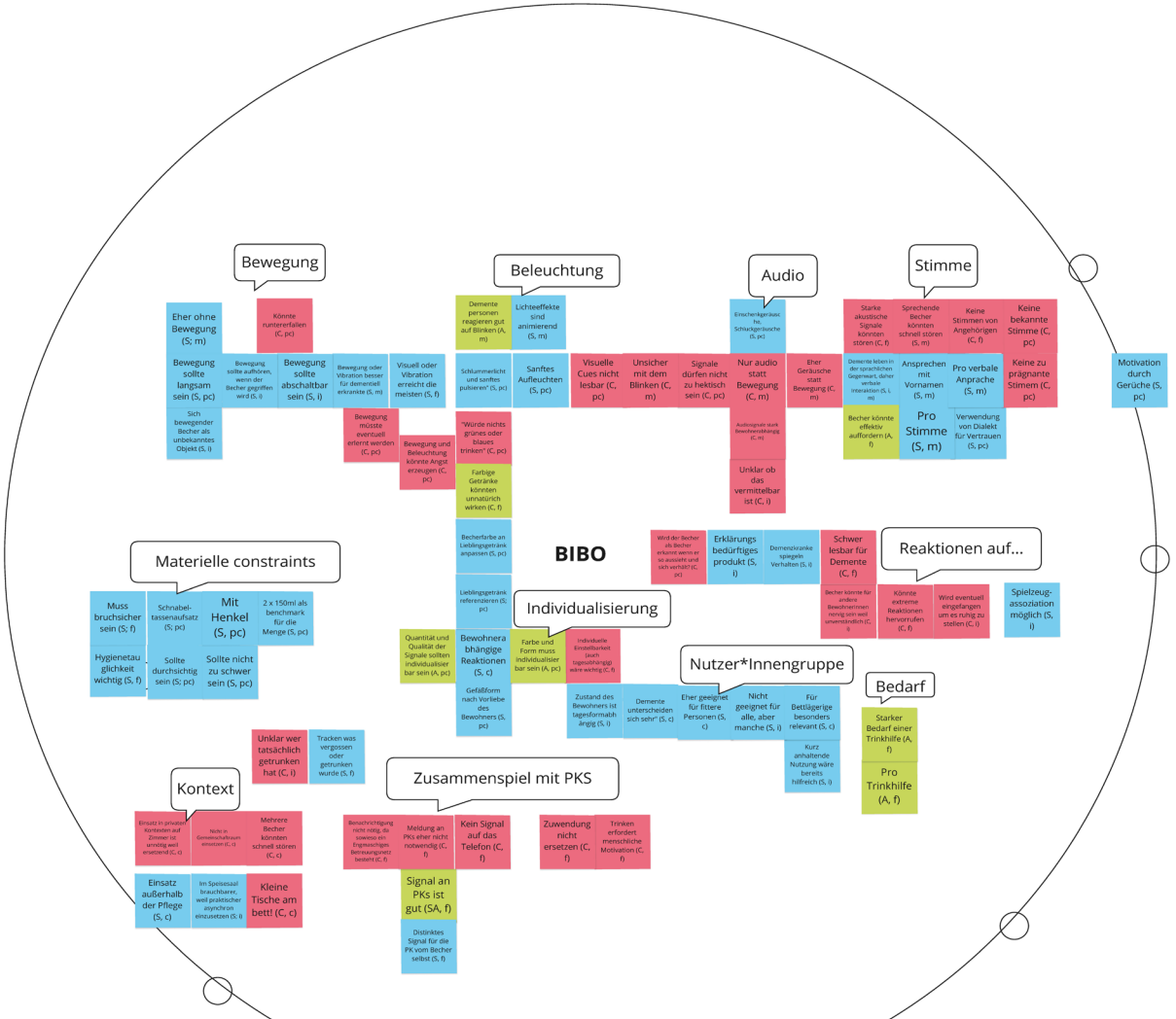


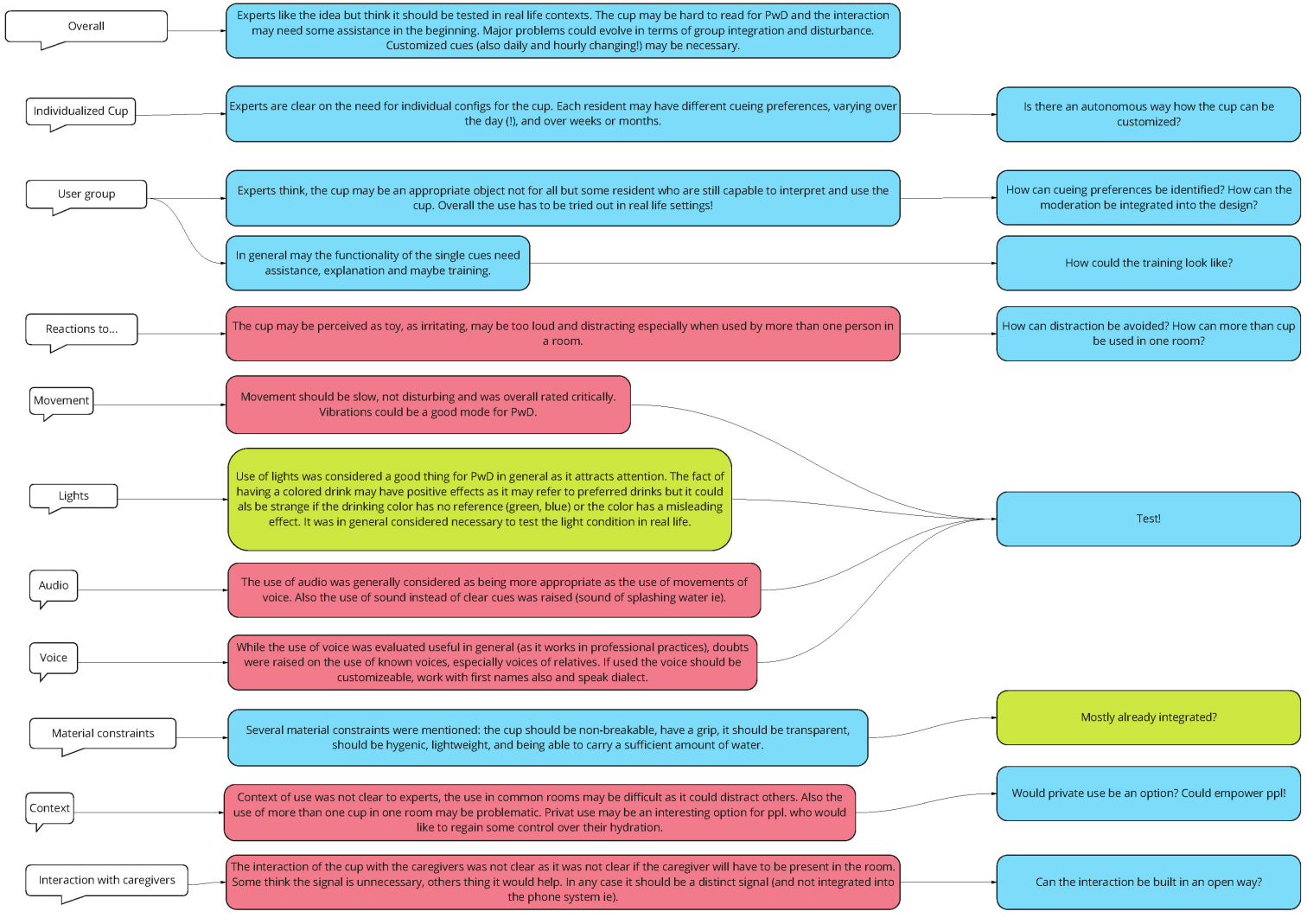
Sortiert nach Gruppe und Kategorie

Sortiert nach Gruppe
und Gruppenzugehörigkeit

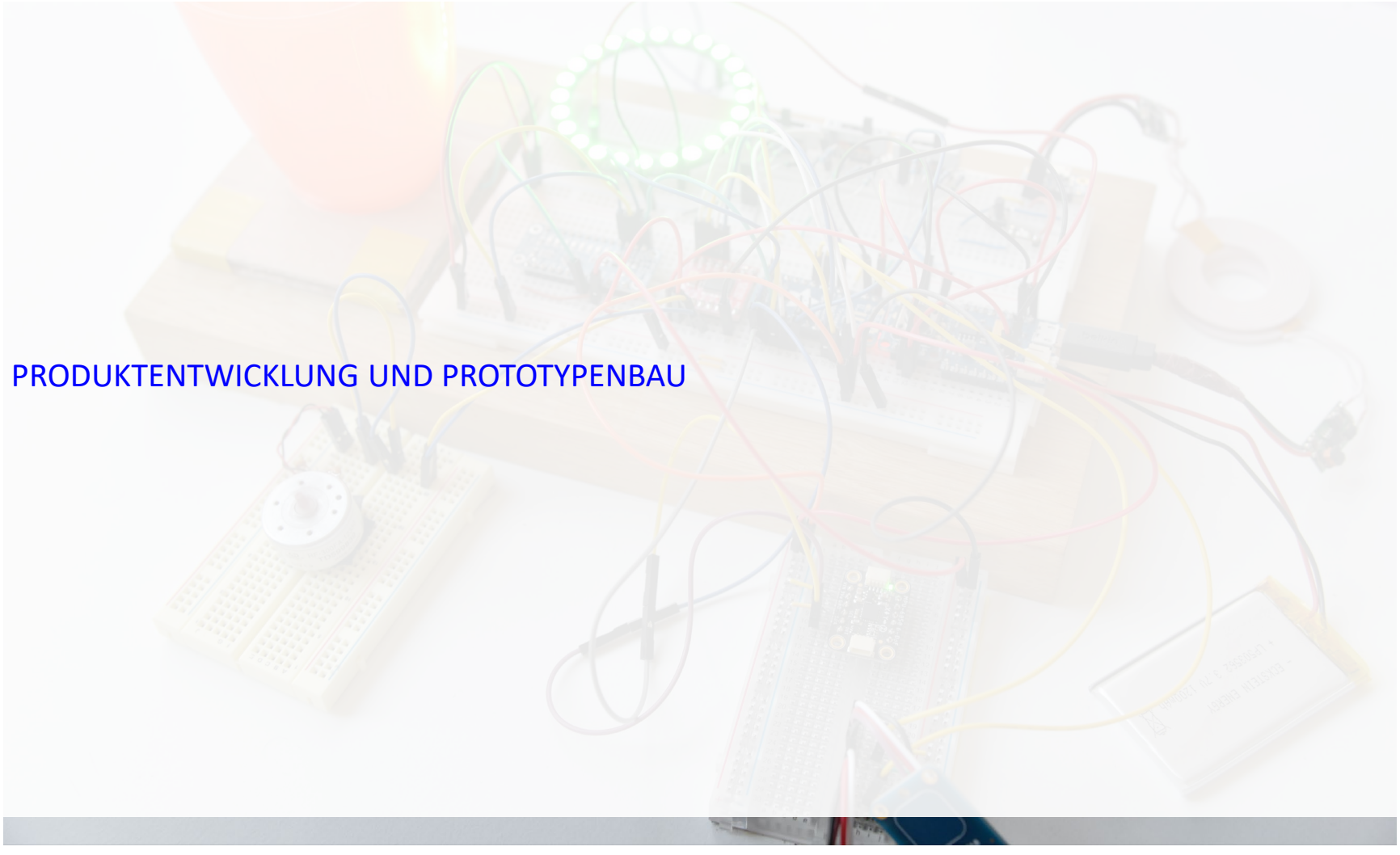
Was können wir ,
aus diesen Daten lernen?

(Schritt V.: Auswertung)

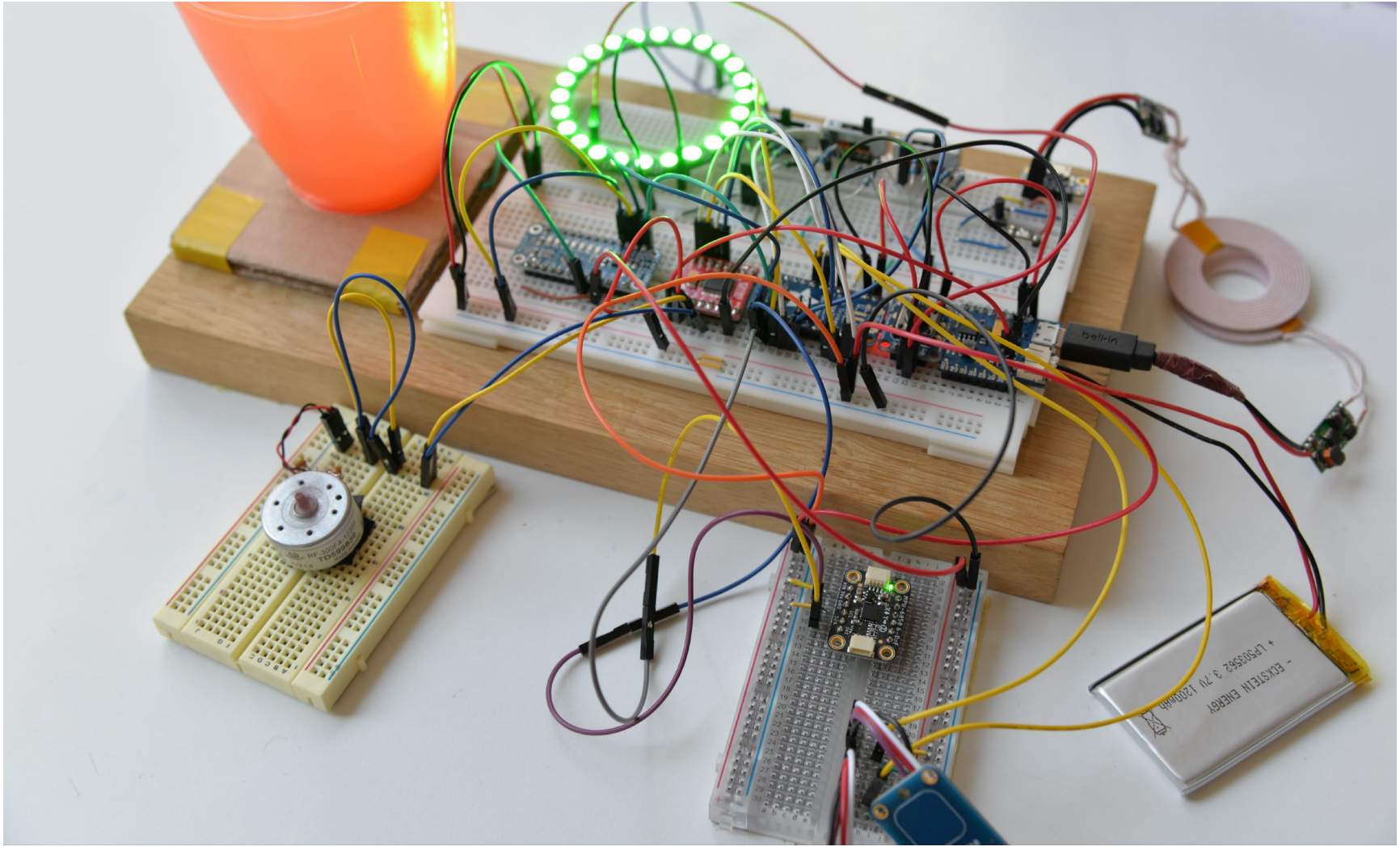


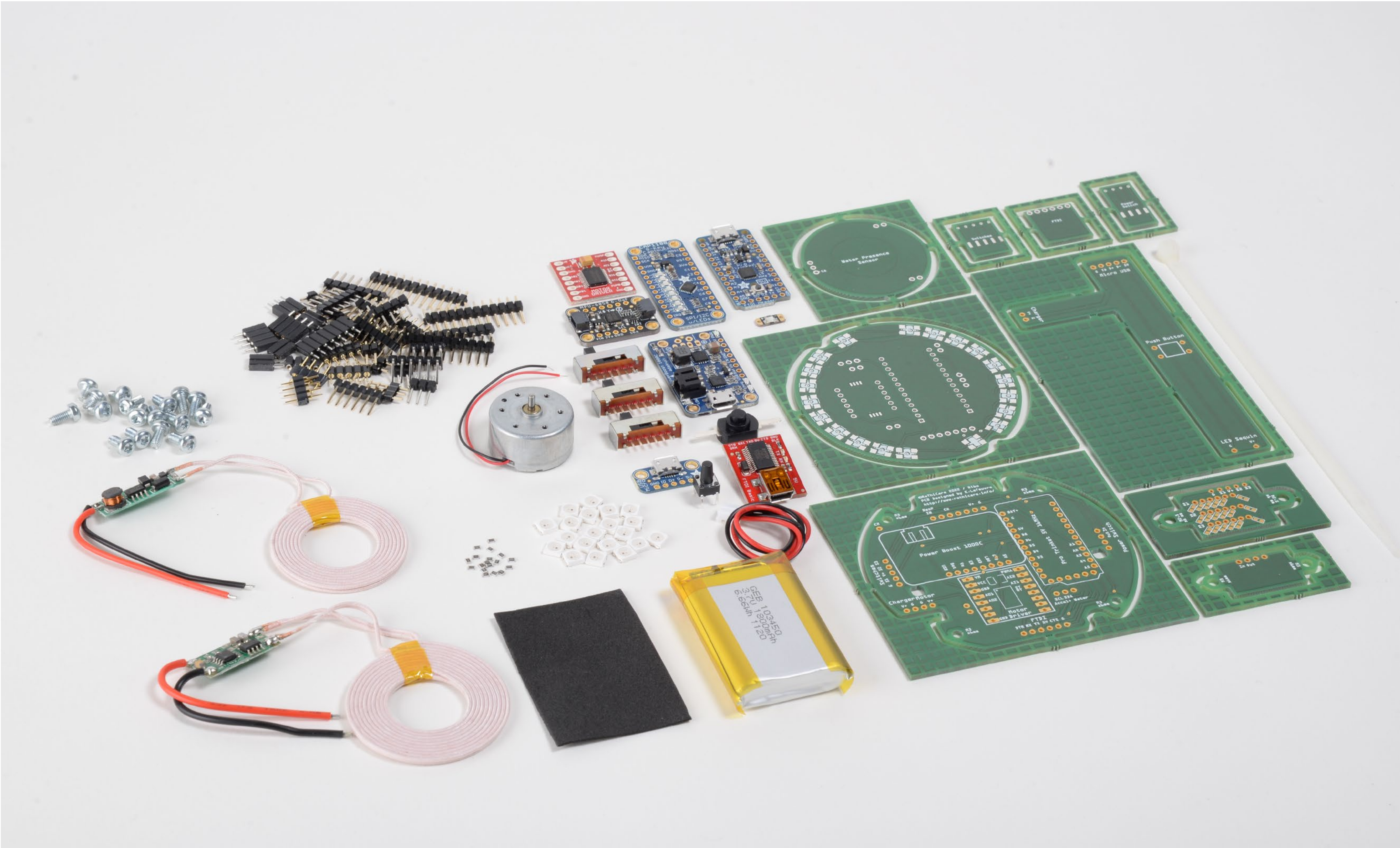

Overall
Experts like the idea but think it should be tested in real life contexts. The cup may be hard to read for PwD and the interaction may need some assistance in the beginning. Major problems could evolve in terms of group integration and disturbance. Customized cues (also daily and hourly changing!) may be necessary.
Individualized Cup
Experts are clear on the need for individual configs for the cup. Each resident may have different cueing preferences, varying over the day (!), and over weeks or months.
Is there an autonomous way how the cup can be customized?
User group
Experts think, the cup may be an appropriate object not for all but some resident who are still capable to interpret and use the cup. Overall the use has to be tried out in real life settings!
How can cueing preferences be identified? How can the moderation be integrated into the design?
In general may the functionality of the single cues need assistance, explanation and maybe training.
How could the training look like?
Reactions to...
The cup may be perceived as toy, as irritating, may be too loud and distracting especially when used by more than one person in a room.
How can distraction be avoided? How can more than cup be used in one room?
Movement
Movement should be slow, not disturbing and was overall rated critically. Vibrations could be a good mode for PwD.
Lights
Use of lights was considered a good thing for PwD in general as it attracts attention. The fact of having a colored drink may have positive effects as it may refer to preferred drinks but it could als be strange if the drinking color has no reference (green, blue) or the color has a misleading effect. It was in general considered necessary to test the light condition in real life.
Test!
Audio
The use of audio was generally considered as being more appropriate as the use of movements of voice. Also the use of sound instead of clear cues was raised (sound of splashing water ie).
Voice
While the use of voice was evaluated useful in general (as it works in professional practices), doubts were raised on the use of known voices, especially voices of relatives. If used the voice should be customizeable, work with first names also and speak dialect.
Material constraints
Several material constraints were mentioned: the cup should be non-breakable, have a grip, it should be transparent, should be hygenic, lightweight, and being able to carry a sufficient amount of water.
Mostly already integrated?
Context
Context of use was not clear to experts, the use in common rooms may be difficult as it could distract others. Also the use of more than one cup in one room may be problematic. Privat use may be an interesting option for ppl. who would like to regain some control over their hydration.
Would private use be an option? Could empower ppl!
Interaction with caregivers
The interaction of the cup with the caregivers was not clear as it was not clear if the caregiver will have to be present in the room. Some think the signal is unnecessary, others thing it would help. In any case it should be a distinct signal (and not integrated into the phone system ie).
Can the interaction be built in an open way?


Movement
Movement should be slow, not disturbing and was overall rated critically. Vibrations could be a good mode for PwD.
Lights
Use of lights was considered a good thing for PwD in general as it attracts attention. The fact of having a colored drink may have positive effects as it may refer to preferred drinks but it could als be strange if the drinking color has no reference (green, blue) or the color has a misleading effect. It was in general considered necessary to test the light condition in real life.
Audio
The use of audio was generally considered as being more appropriate as the use of movements of voice. Also the use of sound instead of clear cues was raised (sound of splashing water ie).
Voice
While the use of voice was evaluated useful in general (as it works in professional practices), doubts were raised on the use of known voices, especially voices of relatives. If used the voice should be customizeable, work with first names also and speak dialect.
Material constraints
Several material constraints were mentioned: the cup should be non-breakable, have a grip, it should be transparent, should be hygenic, lightweight, and being able to carry a sufficient amount of water.
Context
Context of use was not clear to experts, the use in common rooms may be difficult as it could distract others. Also the use of more than one cup in one room may be problematic. Privat use may be an interesting option for ppl. who would like to regain some control over their hydration.
Interaction with caregivers
The interaction of the cup with the caregivers was not clear as it was not clear if the caregiver will have to be present in the room. Some think the signal is unnecessary, others thing it would help. In any case it should be a distinct signal (and not integrated into the phone system ie).



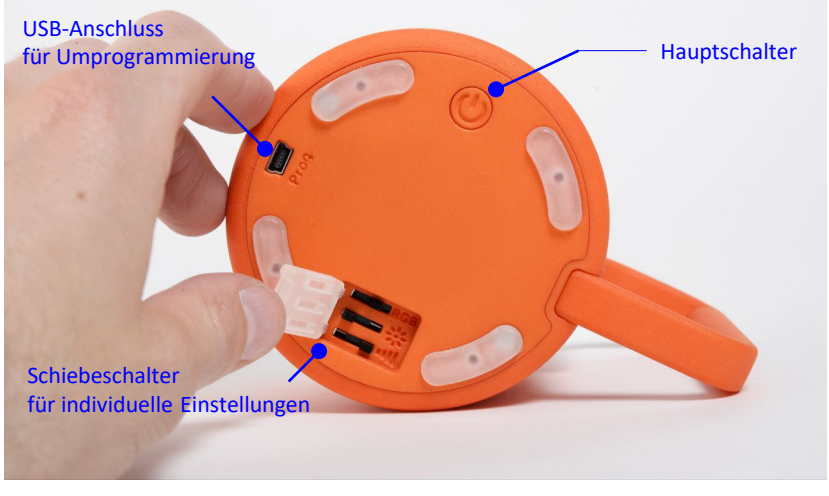
PRODUKTENTWICKLUNG UND PROTOTYPENBAU


belkin
+ LP-503562 3.7V 1200mAh -
EINSTEIN ENERGY


Water Presence Sensor
Micro USB
Push Button
LED Sequin
Power Boost 1000C
Pro Trinket 5V 16MHz
Motor Driver
FTDI
Charger Motor
Switches
Power Switch
GEB 103450
3.7V 1800mAh
6.66Wh 1120


Wireless Charger
Herausnehmbarer Griff


RGB LED-Ring,
kapazitativer Wassersensor
Microcontroller,
Beschleunigungssensor,
Motortreiber, DC-Motor,
Power Boost, LiPo-Akku


USB-Anschluss
für Umprogrammierung
Hauptschalter
Schiebeschalter
für individuelle Einstellungen

EVALUIERUNGSTESTS MIT DEMENZERKRANKEN MENSCHEN

Testsitzungen

. 12 Teilnehmer/innen mit Demenz / 6 Frauen und 6 Männer

. Stufe 5+ auf der globalen Demenzskala

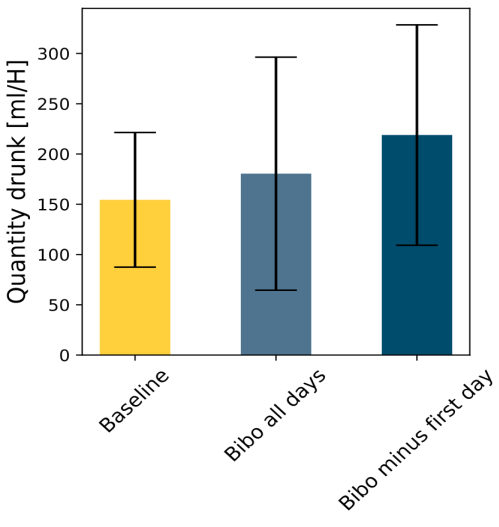
. 15 Baseline-Sitzungen ohne Bibo / 17 min bis 120 min pro Sitzung

. 29 Sitzungen mit Bibo / 21min bis 129min pro Sitzung

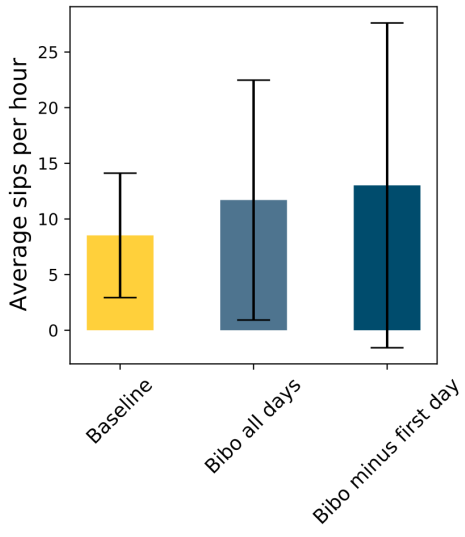
. Videoaufnahmen und Beobachter, die Notizen machen

. Quantitative und qualitative Auswertung

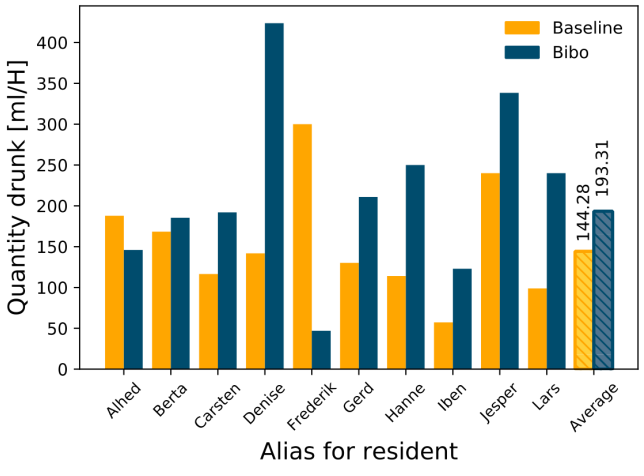
Ergebnisse: 33,98 % mehr Wasserverbrauch und mehr Schlucke



Durchschnittlich getrunkene Menge pro Stunde



Durchschnittliche Anzahl der Schlucke



Gesamtverbrauch aller Teilnehmer für die Ausgangsbedingungen im Vergleich zu Bibo (ohne Tag 1 mit Bibo)

Fragen ?

Kevin Lefeuvre, D.N.S.E.P Design, M.F.A. Produkt-Design,
ReThiCare / Bauhaus-Universität Weimar / University of Southern Denmark / Technische Universität Chemnitz

World Usability Day 2023_Leipzig_09.11.2023