

# re | HABIT

„BACK TO THE FAMILIAR“

*Rehabilitation experience  
design for stroke patients with  
hand impairment*

*16.3.2011*

Interaction Design

Zurich University of the Arts

Students     Michael Huber

Samuel Bauer

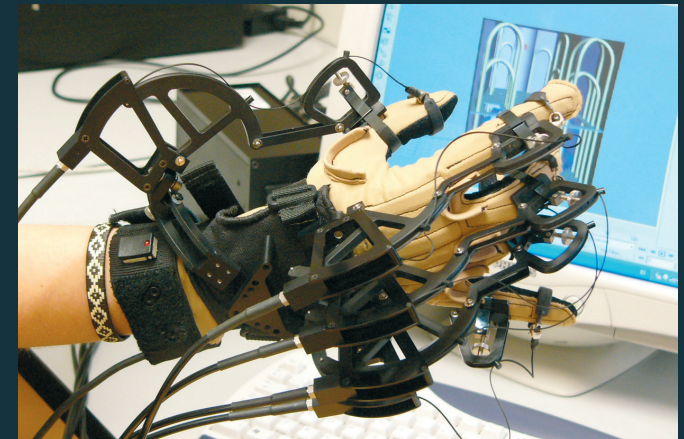
Dinis Meier

Mentors     Karmen Franinovic

Max Rheiner

## BACKGROUND RESEARCH

From a (interaction) design and user centred perspective, technical aspects seem to have been too much of an issue whereas fears, needs and experiences of stroke survivors are often not directly addressed.



## CONTEXT INQUIRY

- 8 patients: interview
- 3 therapists: interview
- 2 support groups: observation
- 4 therapy sessions: observation





## CONCLUSION 1

Creating motivation by  
concentrating urge – in terms  
of applied direction or force,  
compassion or responsibility  
for someone or something.  
{“Urge”}

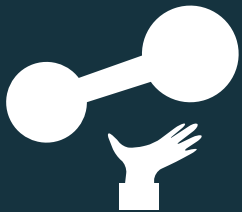




## CONCLUSION 2

Creating motivation by  
empowering the own strong  
dedication through specific  
training methods and extended  
measurement of progress.

{“Support”}





## CONCLUSION 3

Creating motivation by including hobbies, interests and social activities: Incorporating music, play, devices (and their interfaces) and levelled social interactions.

{“Fun”}

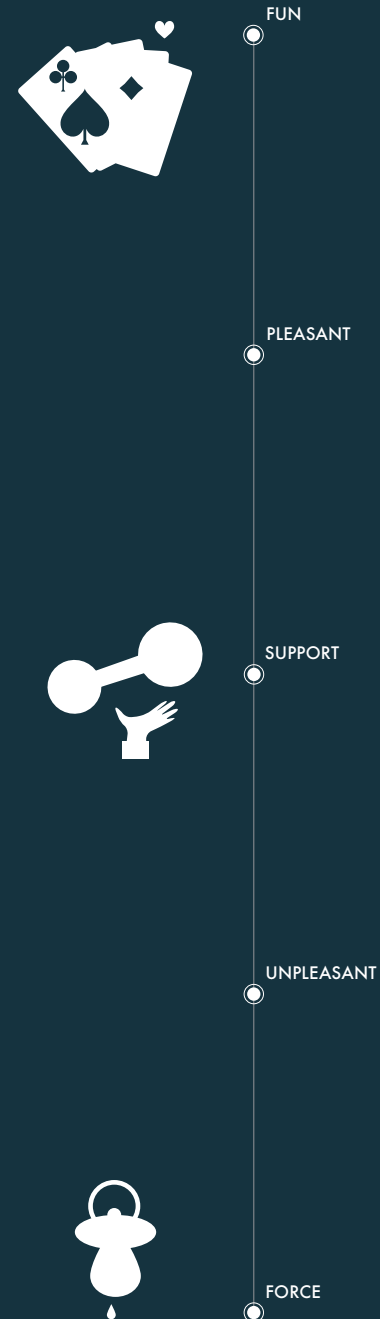


# MAP

To get a deeper overview we placed our conclusions on a two axes map.

## Axis 1

Main motivations





## MAP

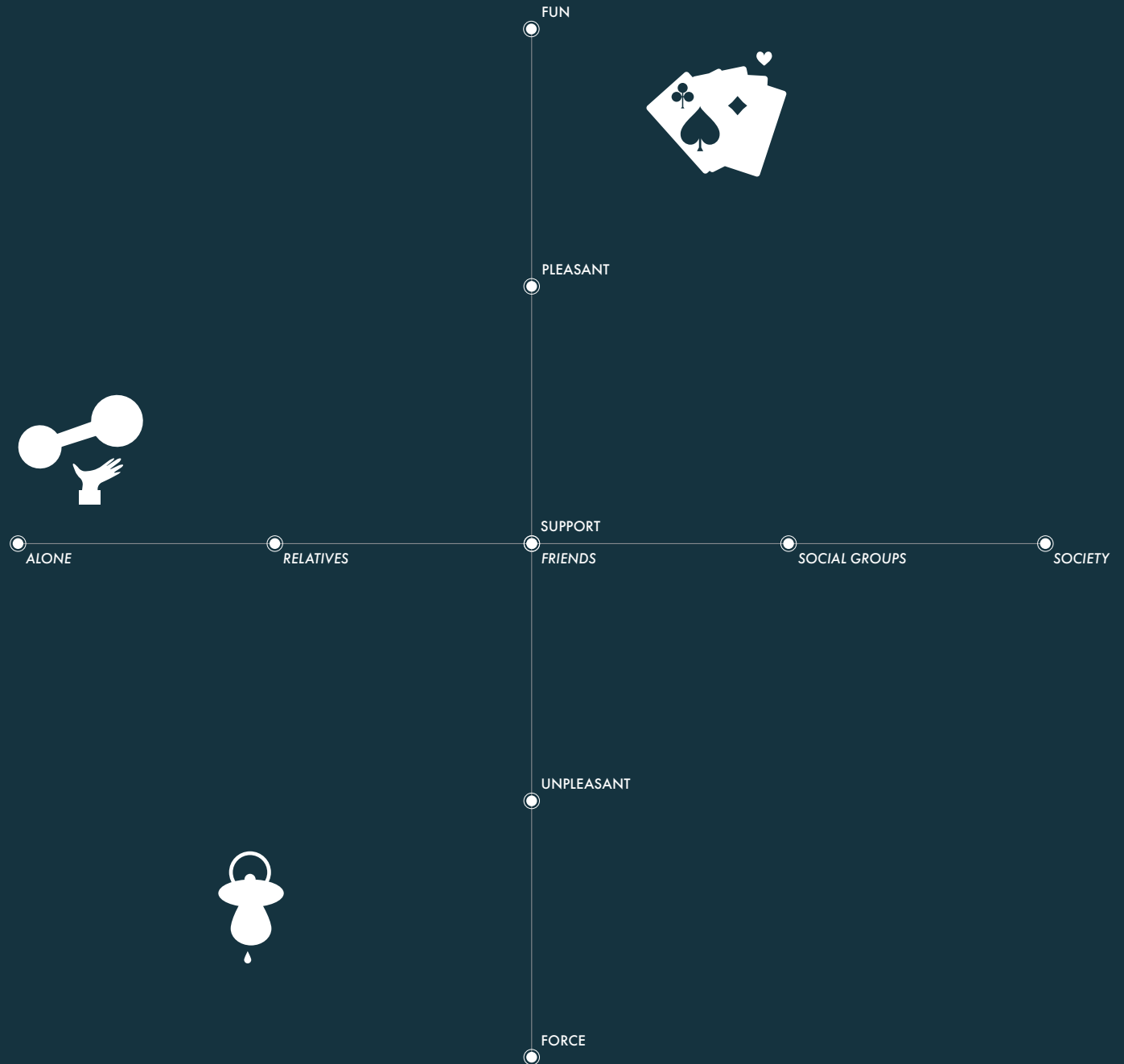
To get a deeper overview we placed our conclusions on a two axes map.

### Axis 1

Main motivations

### Axis 2

Social groups



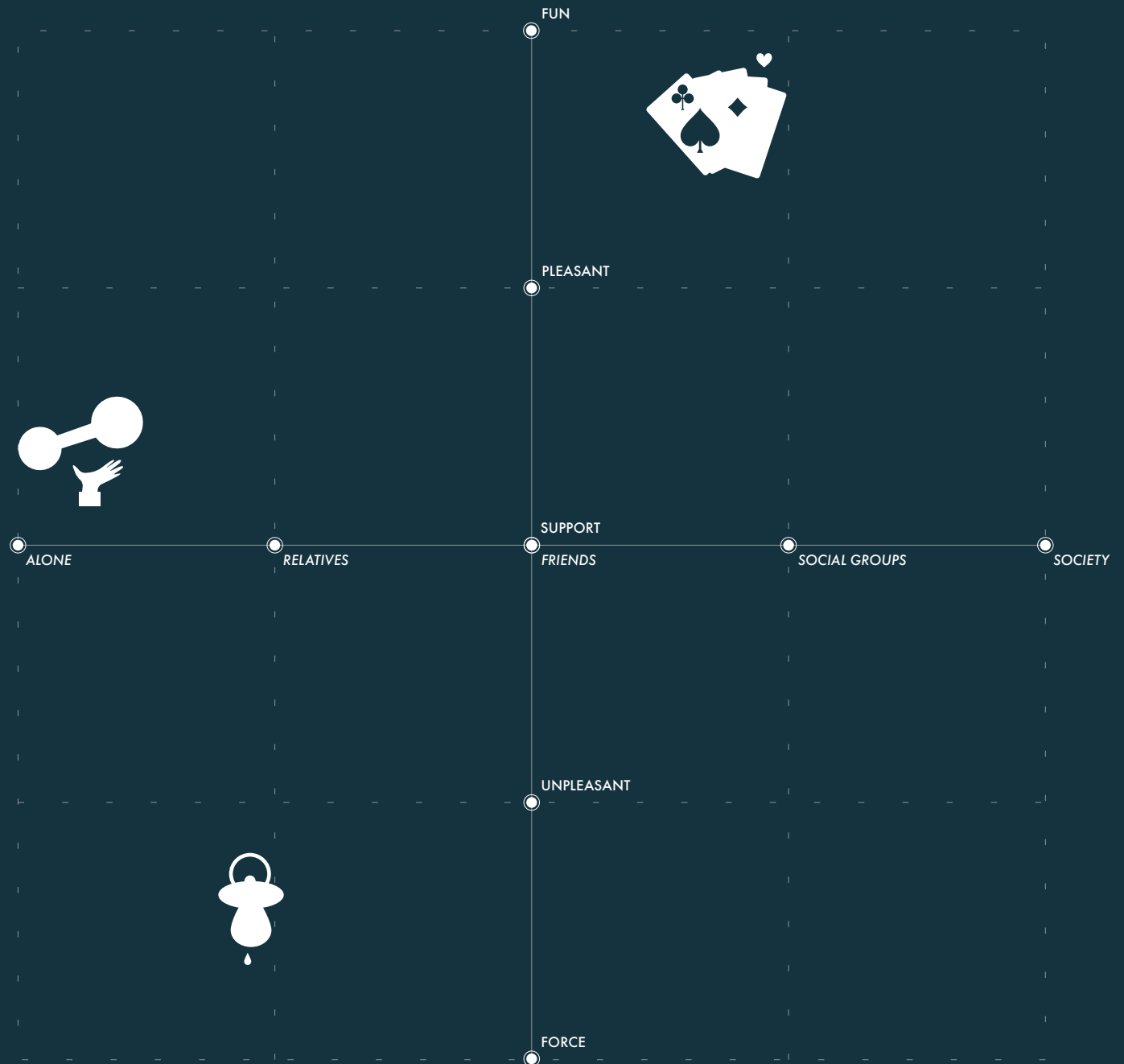
## IDEAS OVERVIEW

Method focus:

 SUPPORT

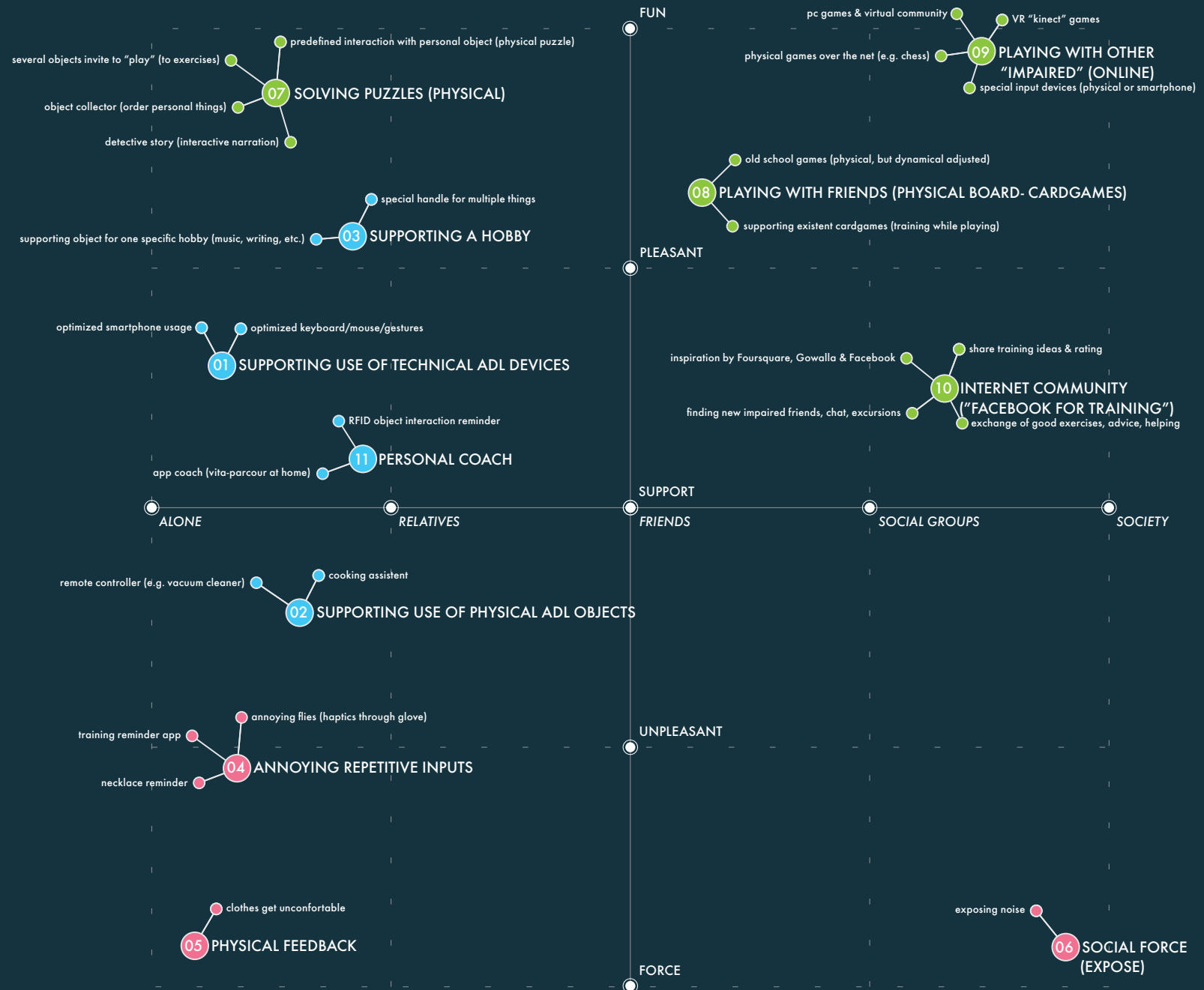
 NO CHOICE

 PLEASURE



# IDEAS OVERVIEW

Method focus:







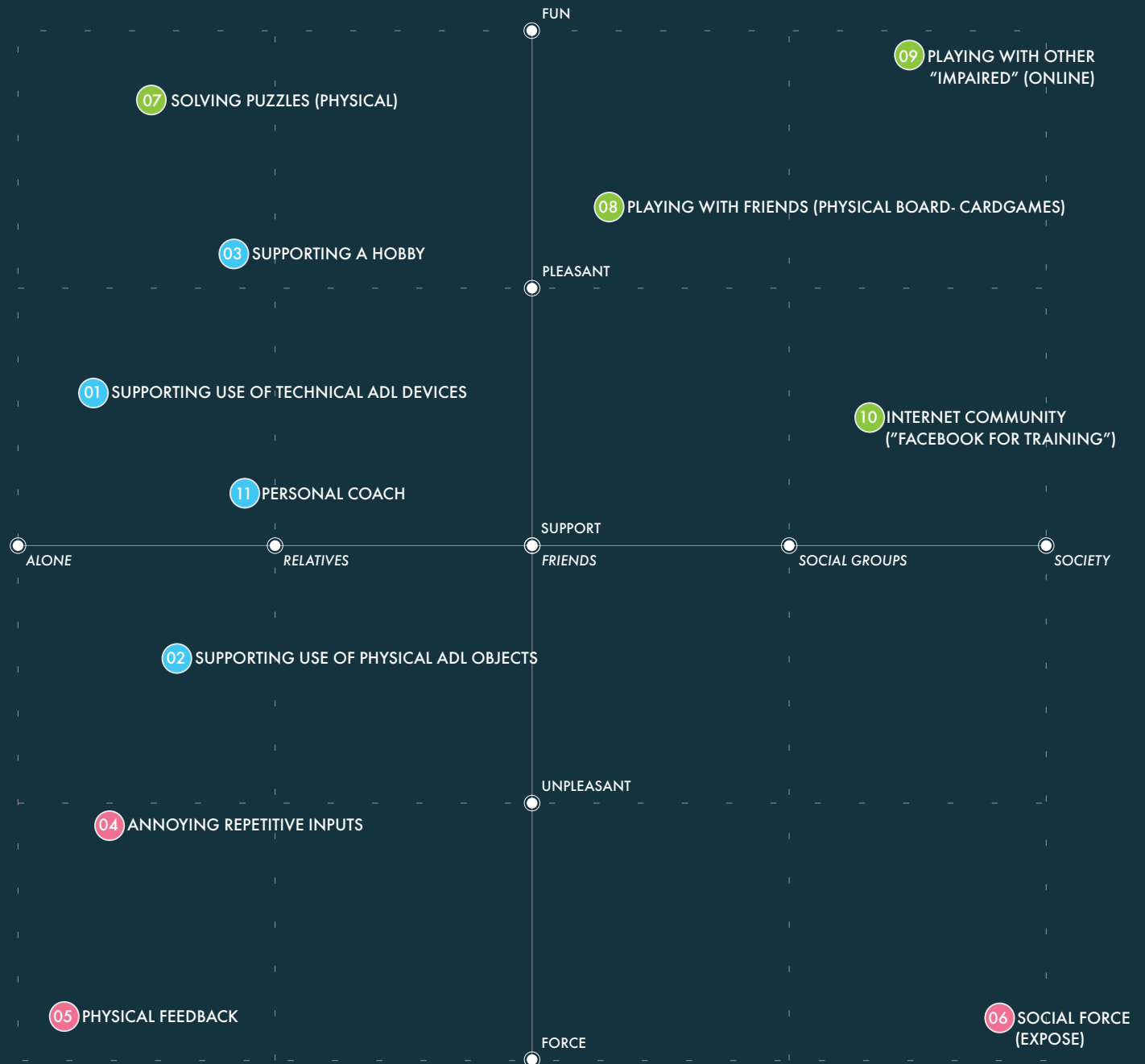
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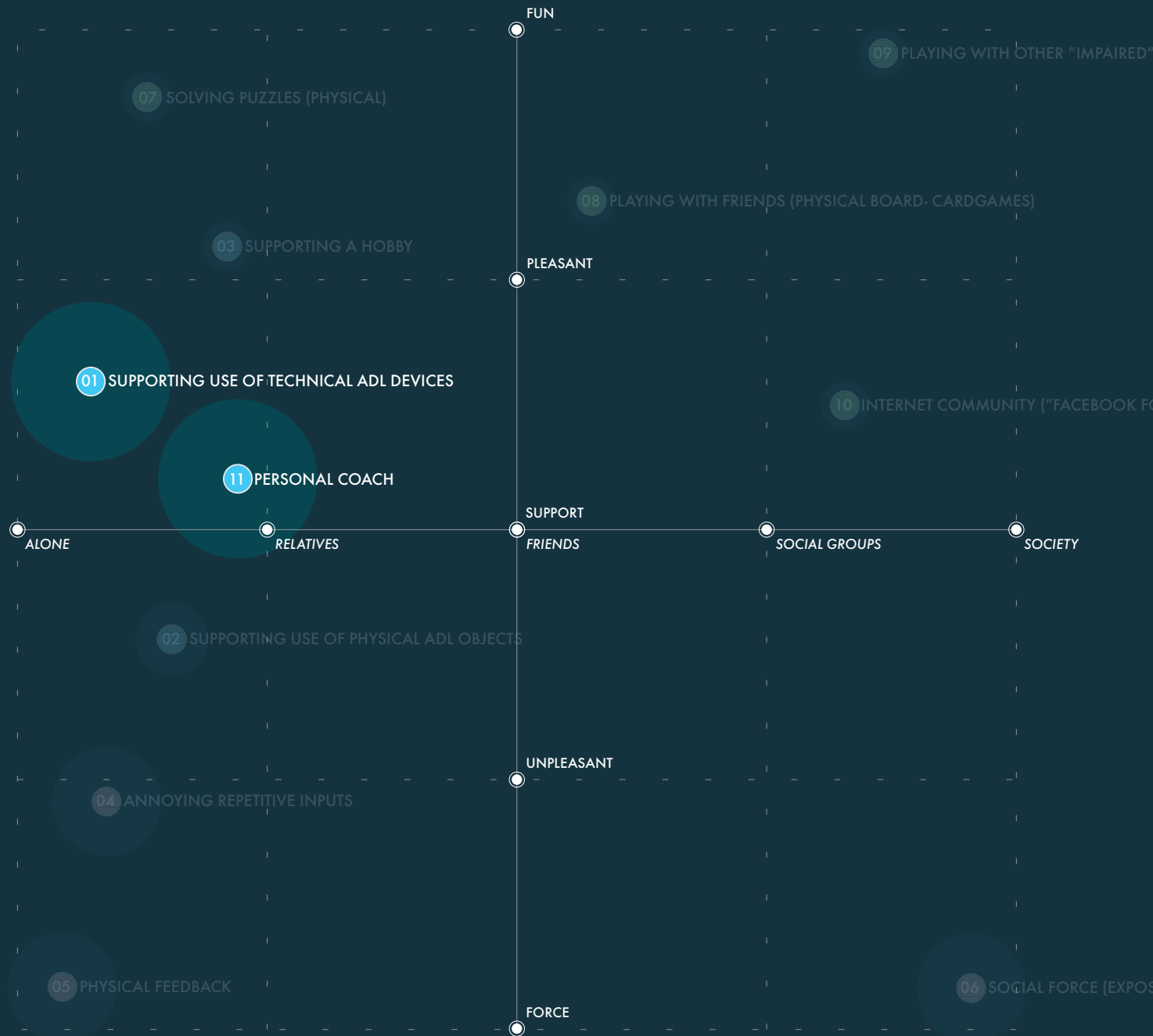
 NO CHOICE 

 PLEASURE 

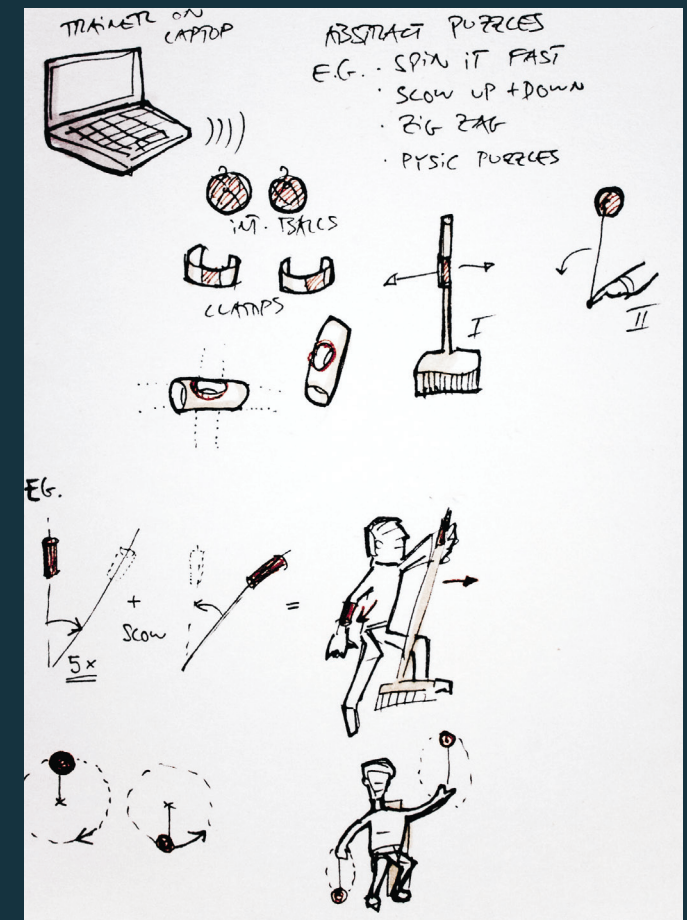
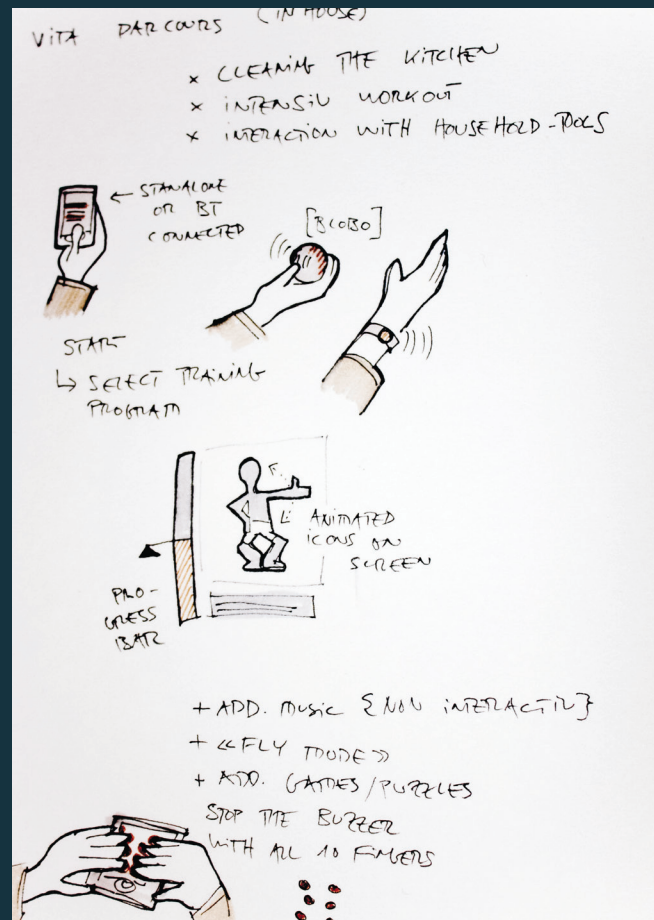


# GROUP 1

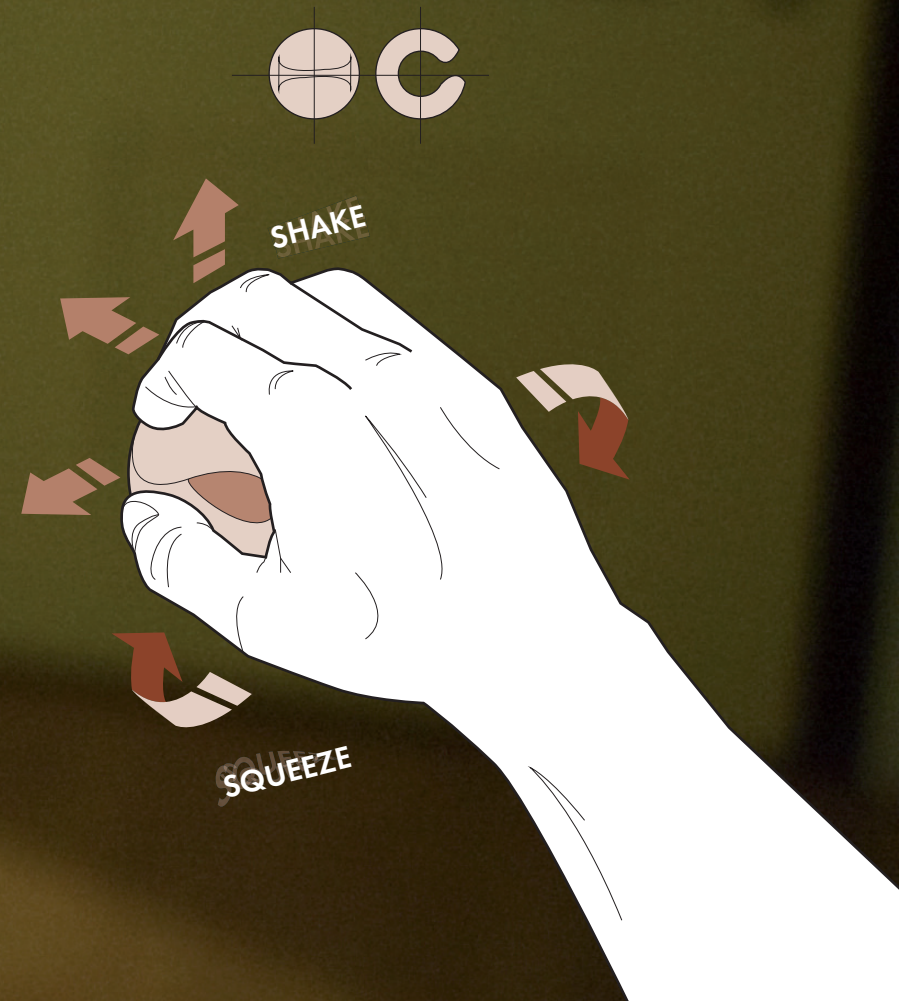
Micha Focus



# INDOOR VITA PARCOURS

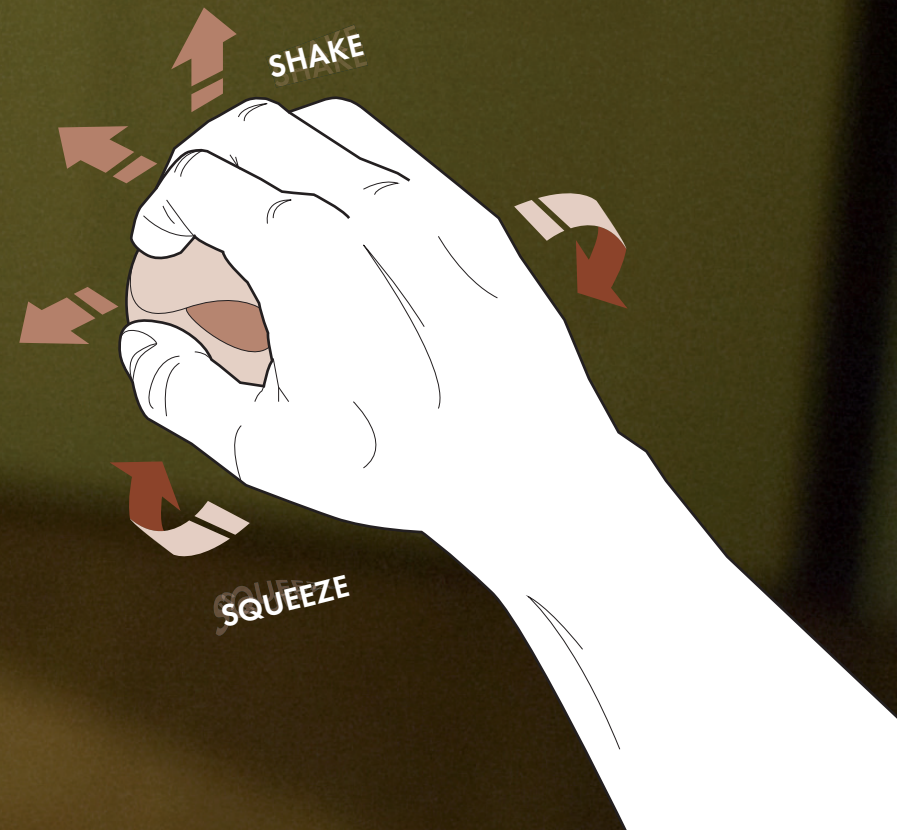
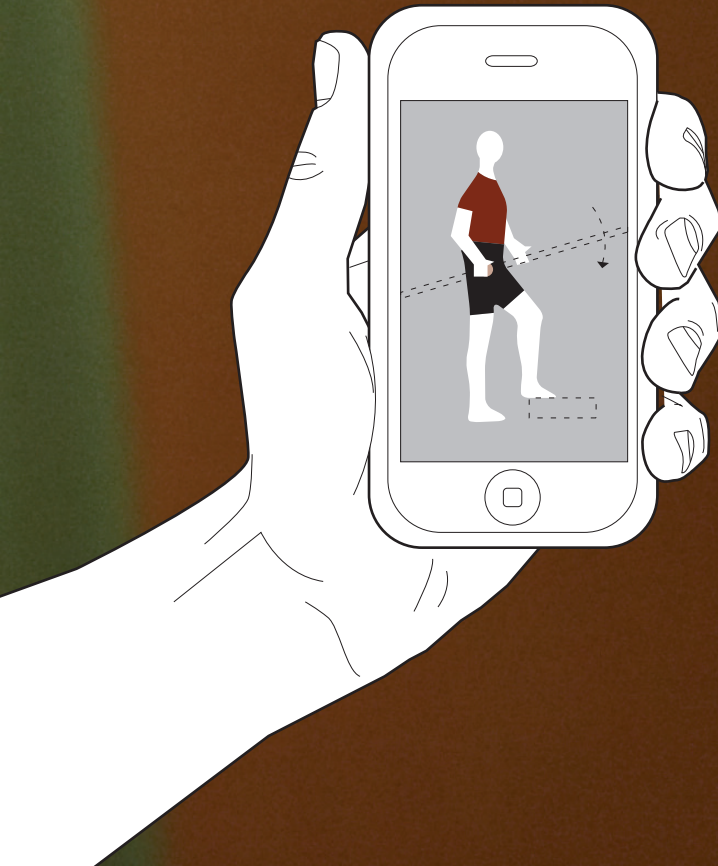




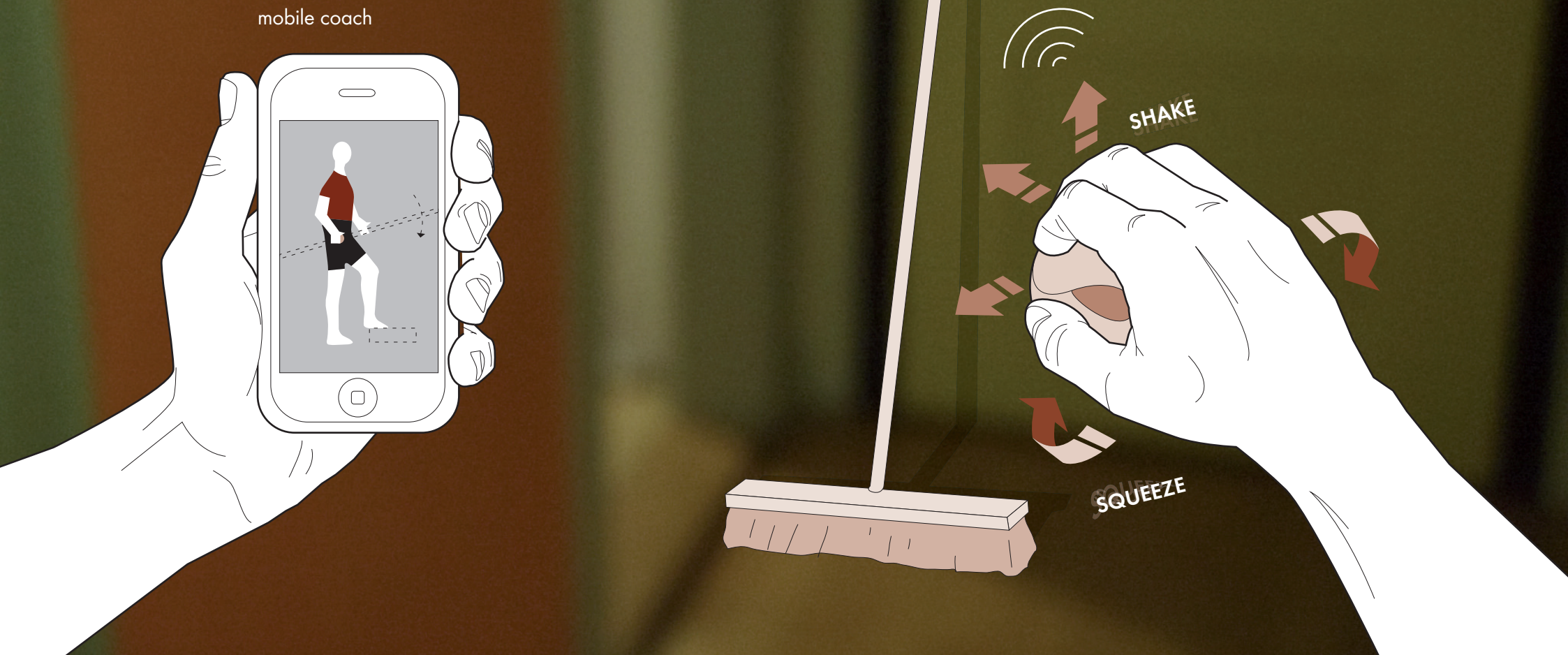




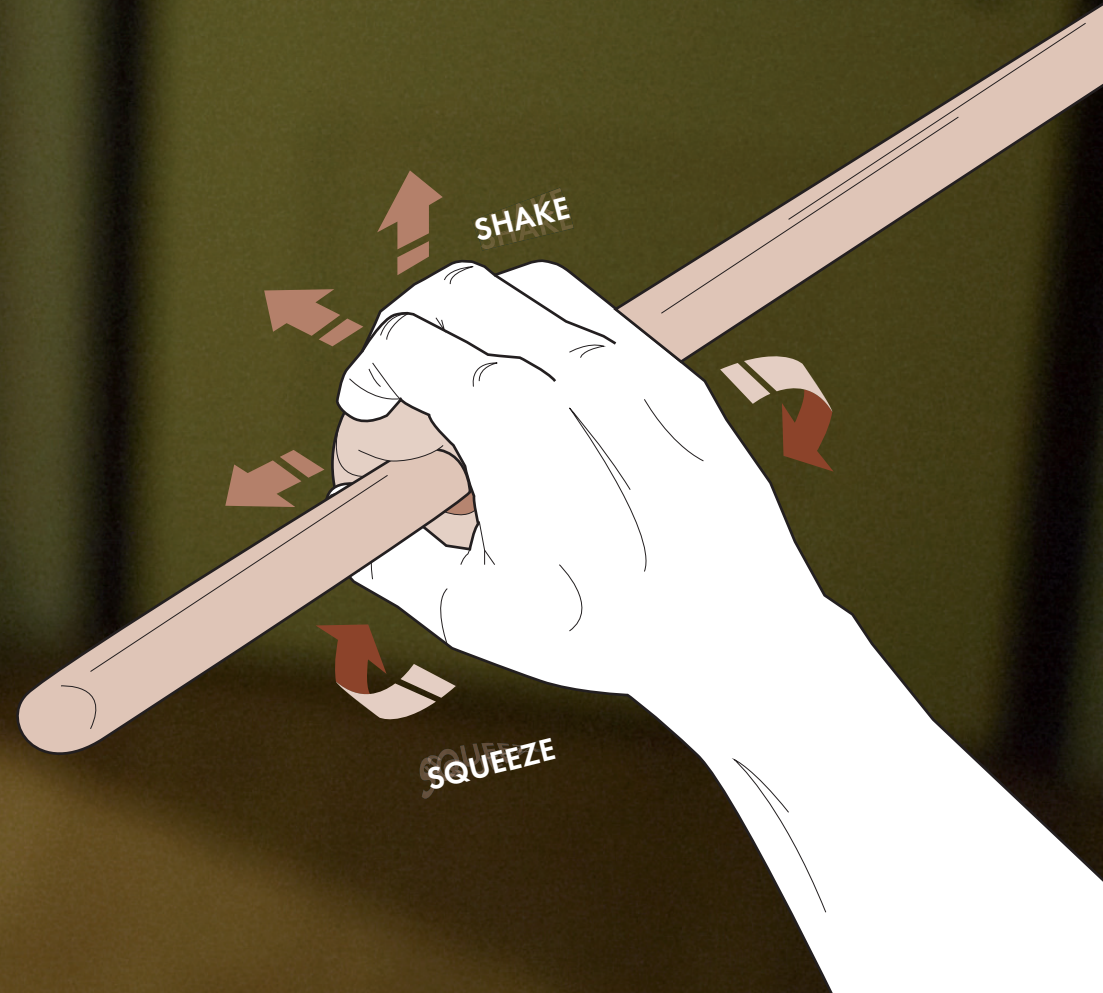
mobile coach



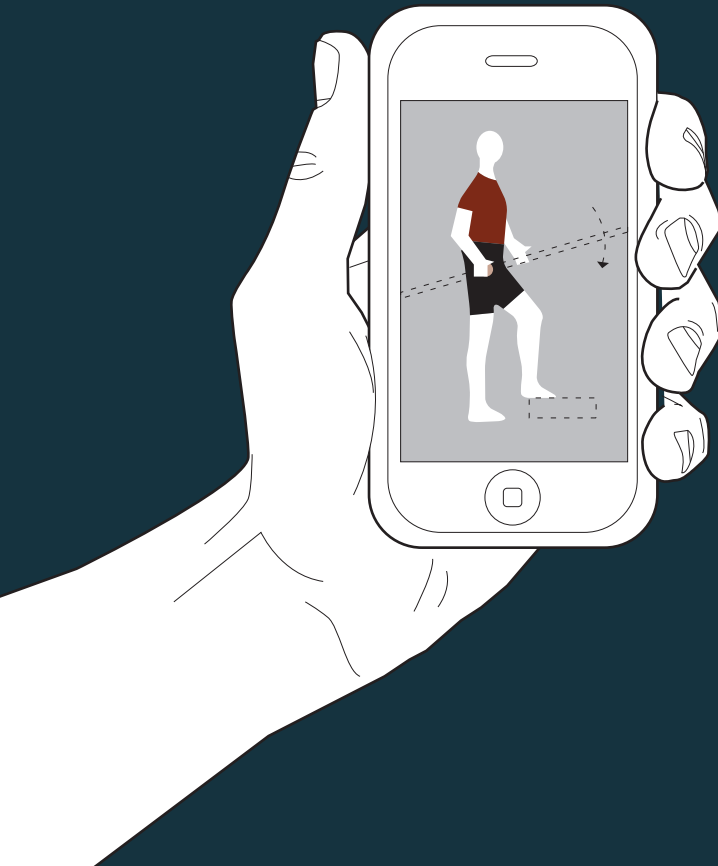








## INDOOR VITA PARCOURS



- Daily reminder



- “Home course” & progress indication



- Playful exercises



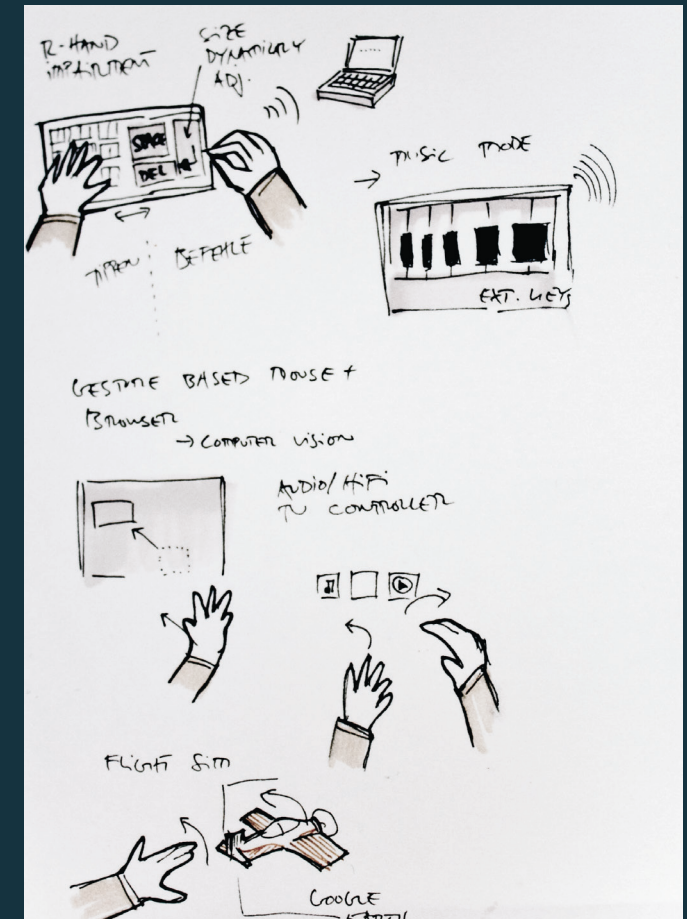
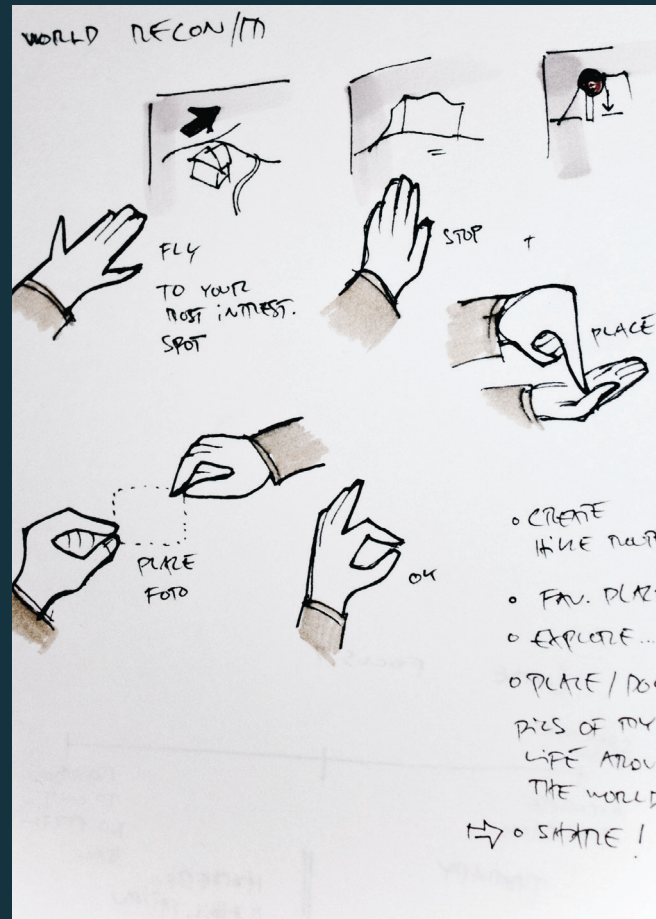
- ADL integration



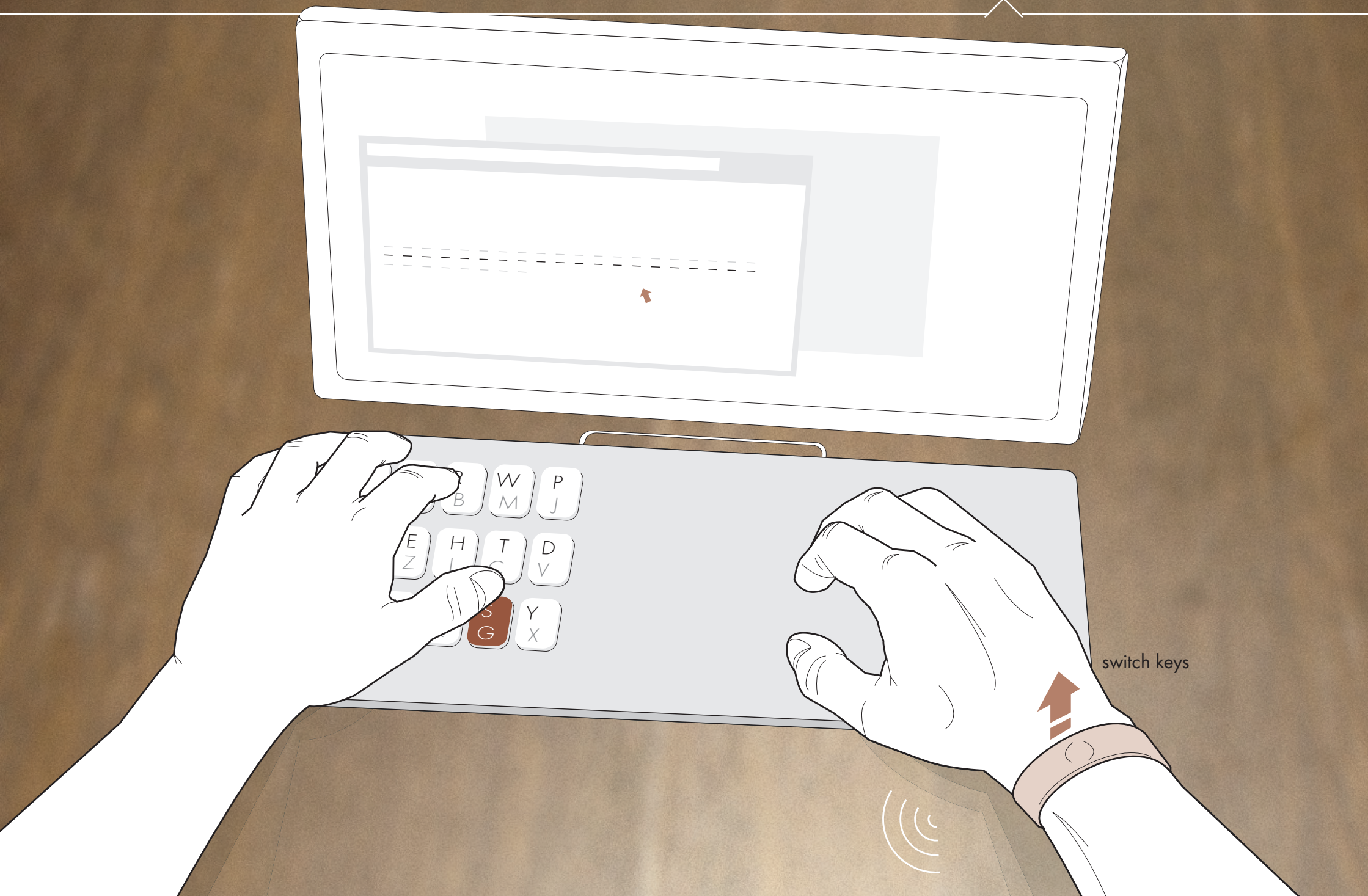
- Personal music  
(non interactive) as motivation



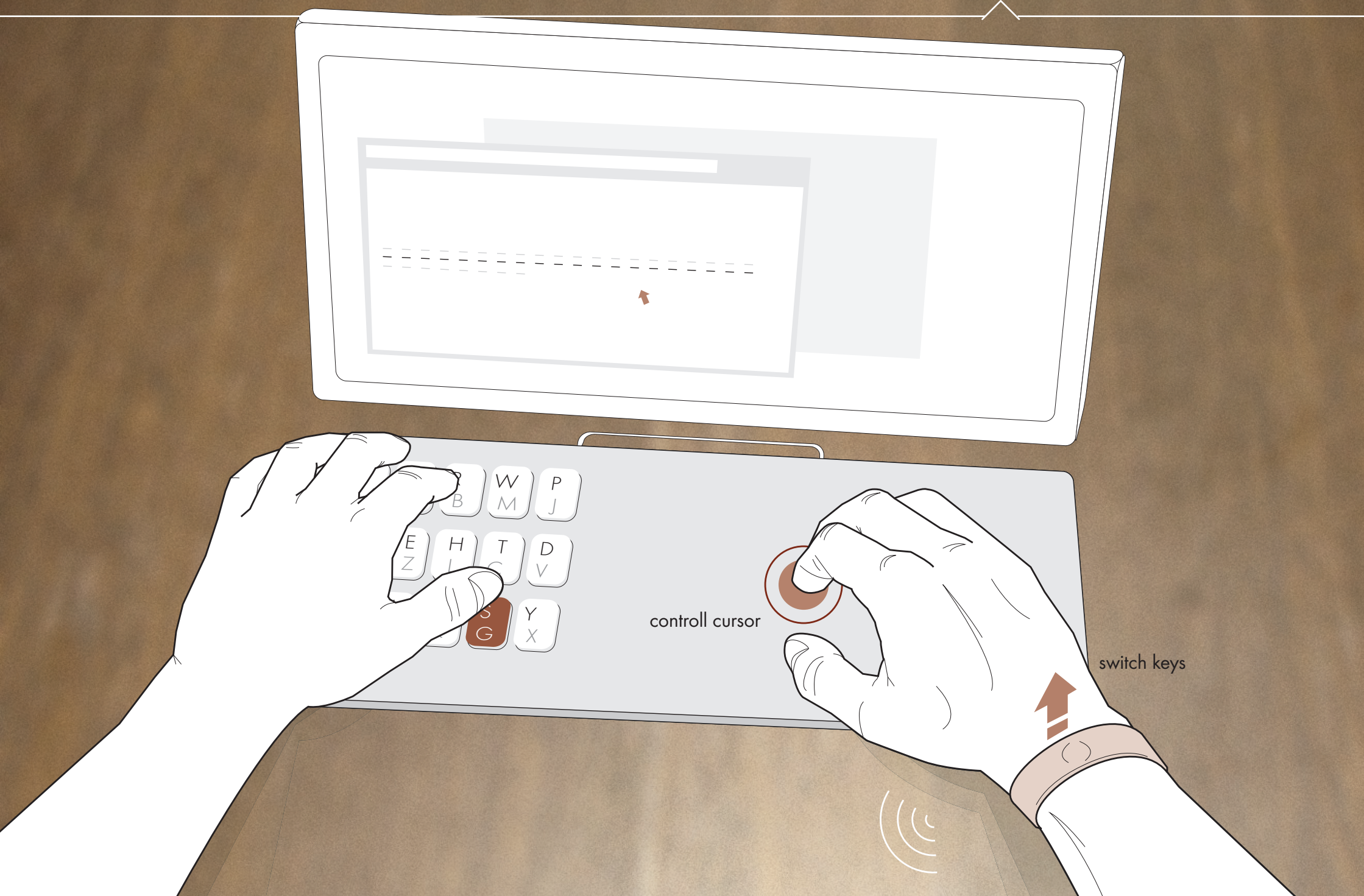
## KEY | STROKE







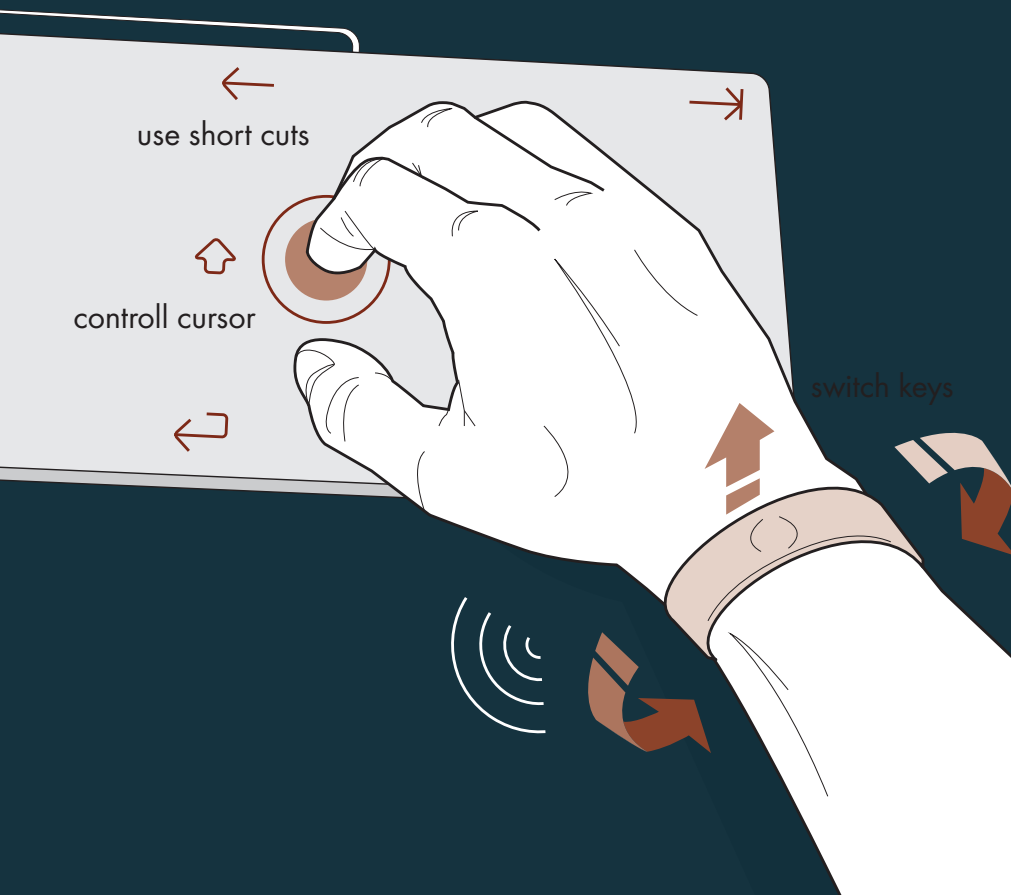








## KEY | STROKE



- Additional short cuts



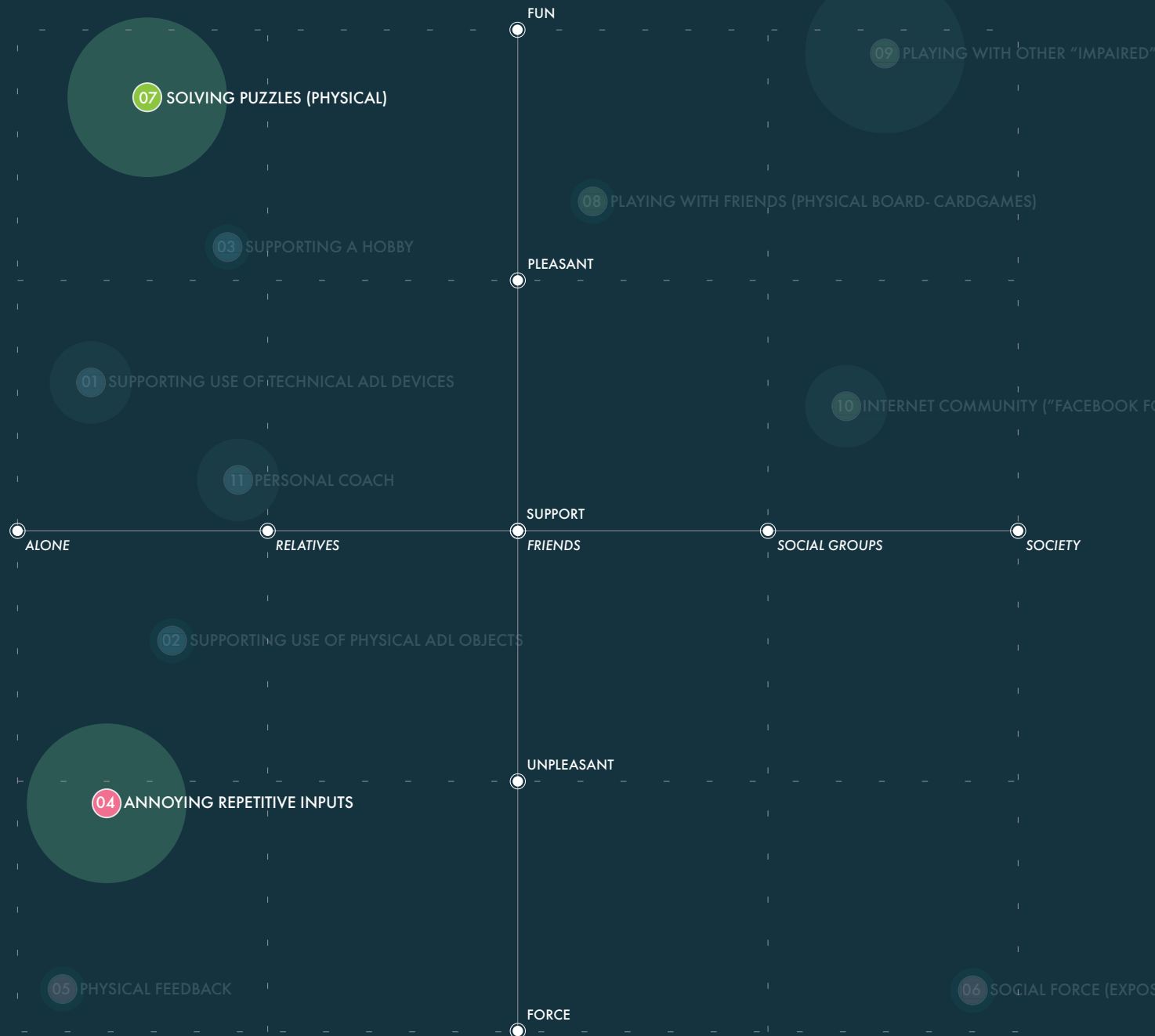
- Dynamic complexity



- Application oriented gestures

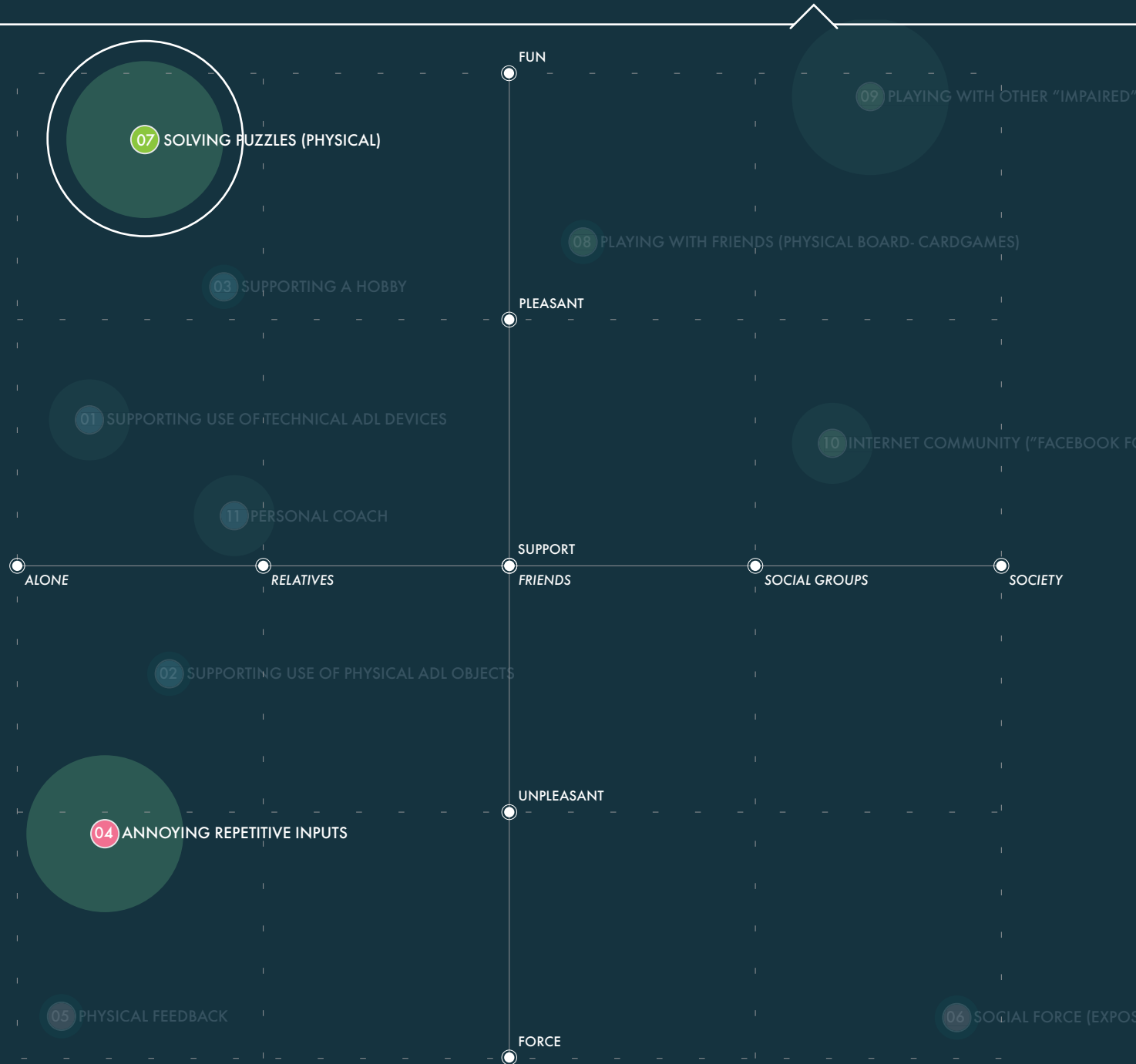
## GROUP 2

Dinis & Sam Focus

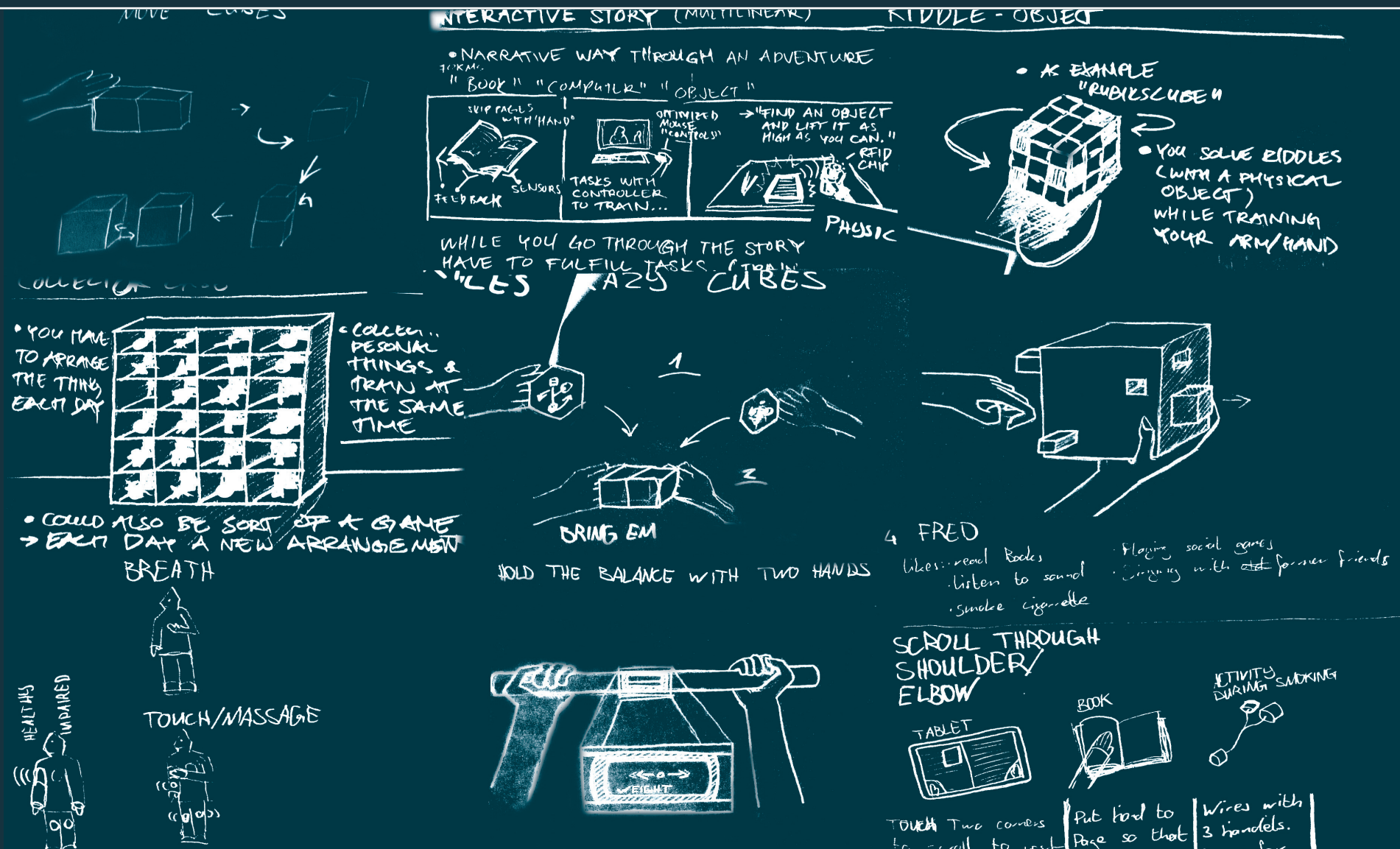




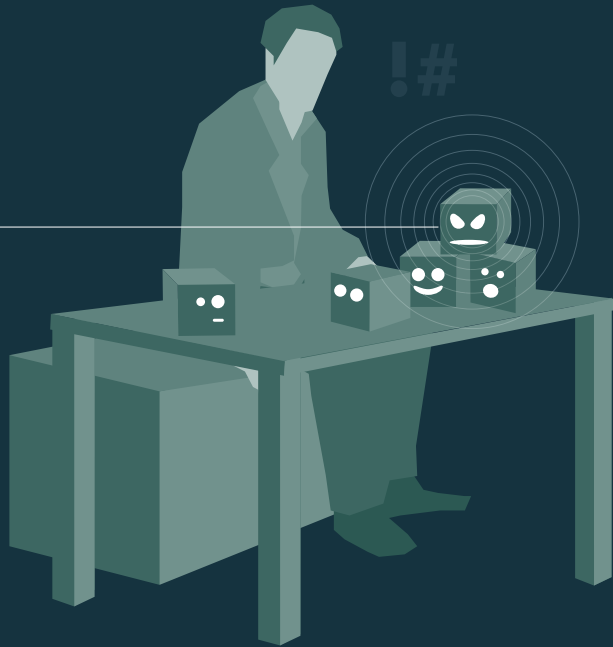
# SOLVING PUZZLES



# LITTLE GUARDIANS



## LITTLE GUARDIANS

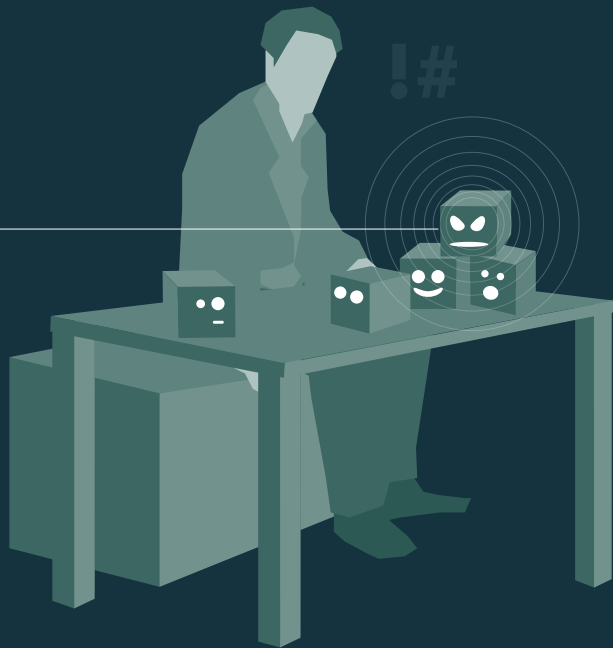


1

### 5 CUBE CHARACTERS ON TABLE

- evil / shy / curious / happy / doofus
- male and female cubes
- they want to attract attention through sound, light or movement

## LITTLE GUARDIANS



- 1** 5 CUBE CHARACTERS ON TABLE
- evil / shy / curious / happy / doofus
  - male and female cubes
  - they want to attract attention through sound, light or movement

- 2** INTERACT WITH CUBES
- magnetic ring on healthy hand
  - they like the impaired hand and detest the healthy one
  - fulfill their needs (shake me, hug me, ...)
  - explore the endless possibilities



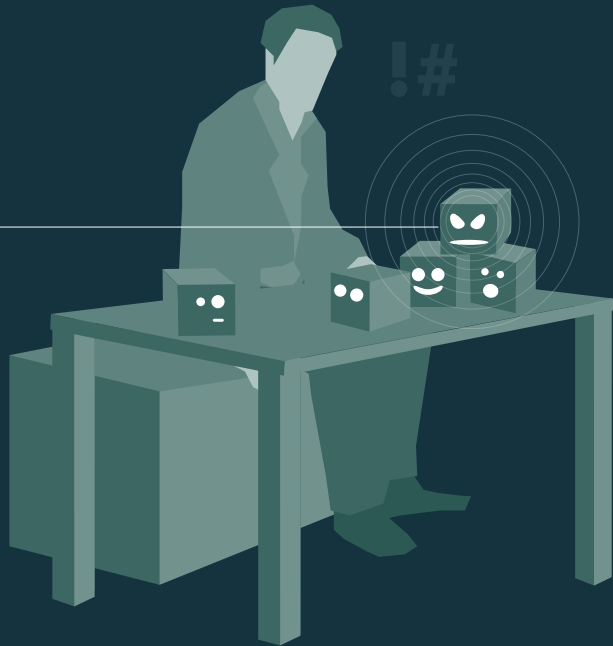


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### INTERACT WITH CUBES

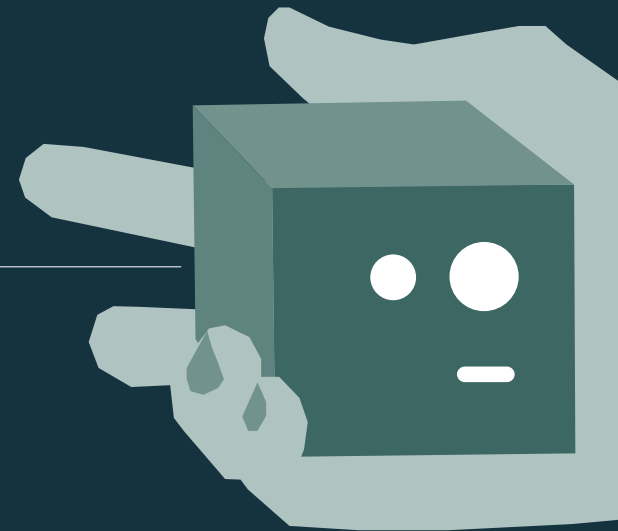
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3

### CHECK CHARACTER GROWING

- cubes start as babies (basic needs)
- during play they grow up
- they develop more needs
- training gets more complex



## LITTLE GUARDIANS

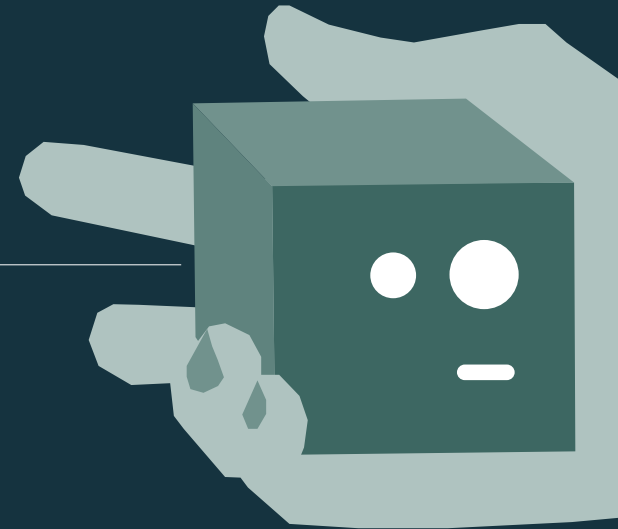


NO CHOICE  
- responsibility

REPETITIVE  
- reminding to train

**1** SELF-CONSCIOUS  
- feeling to be needed and guarded

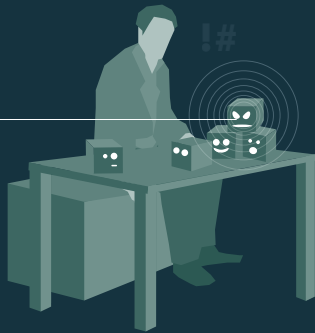
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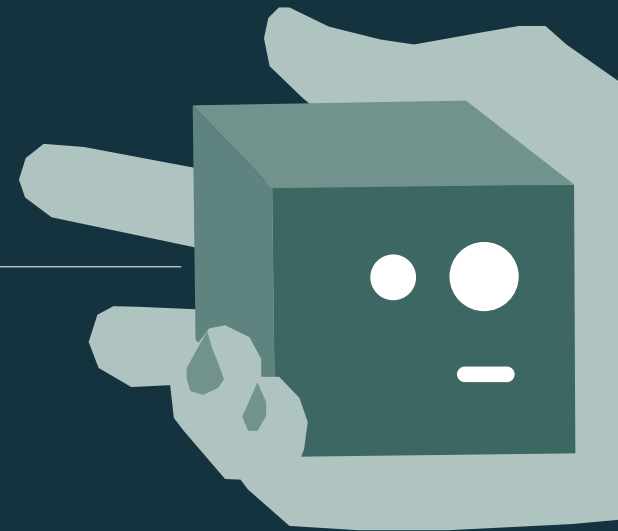
1 SELF-CONSCIOUS  
- feeling to be needed and guarded

2 DIRECT FEEDBACK  
- connection to hand movement

CURIOSITY  
- how do they react

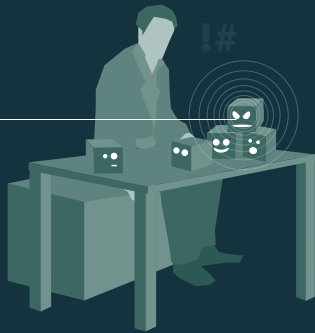
MOTIVATION  
- dynamic complexity

SUPPORT  
- acceptance of paralysed hand



3 CHECK CHARACTER GROWING  
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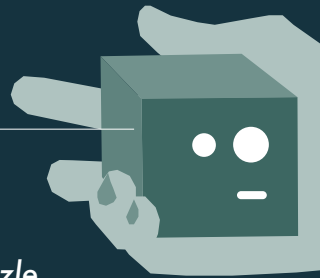
FUN  
- exploring / to puzzle

WILL TO CARE  
- visible progress of their needs

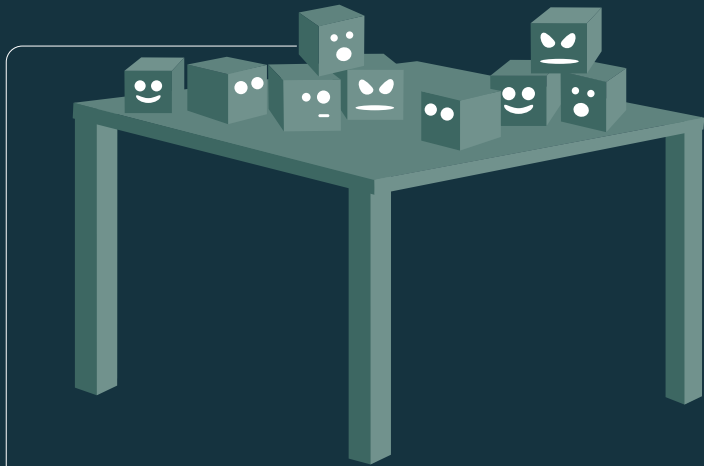
LONGTIME MOTIVATION  
- variety

SOCIAL  
- helping

**3** CONSCIENCE  
- little guardians



## LITTLE GUARDIANS



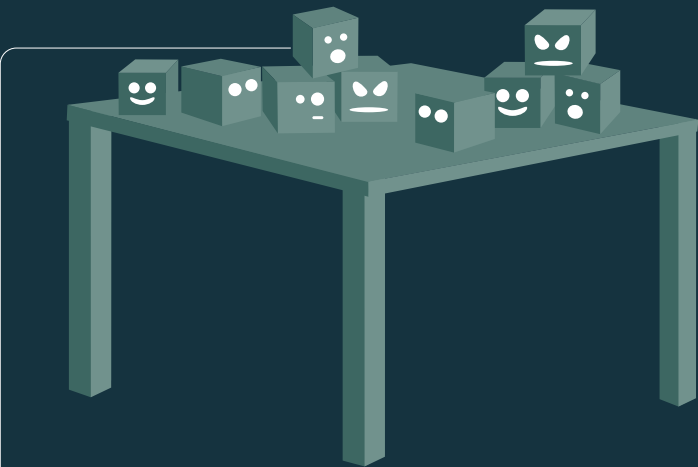
4

### COLLECTING AMBITION

- various characters to collect
- various interactions between little guardians



## LITTLE GUARDIANS

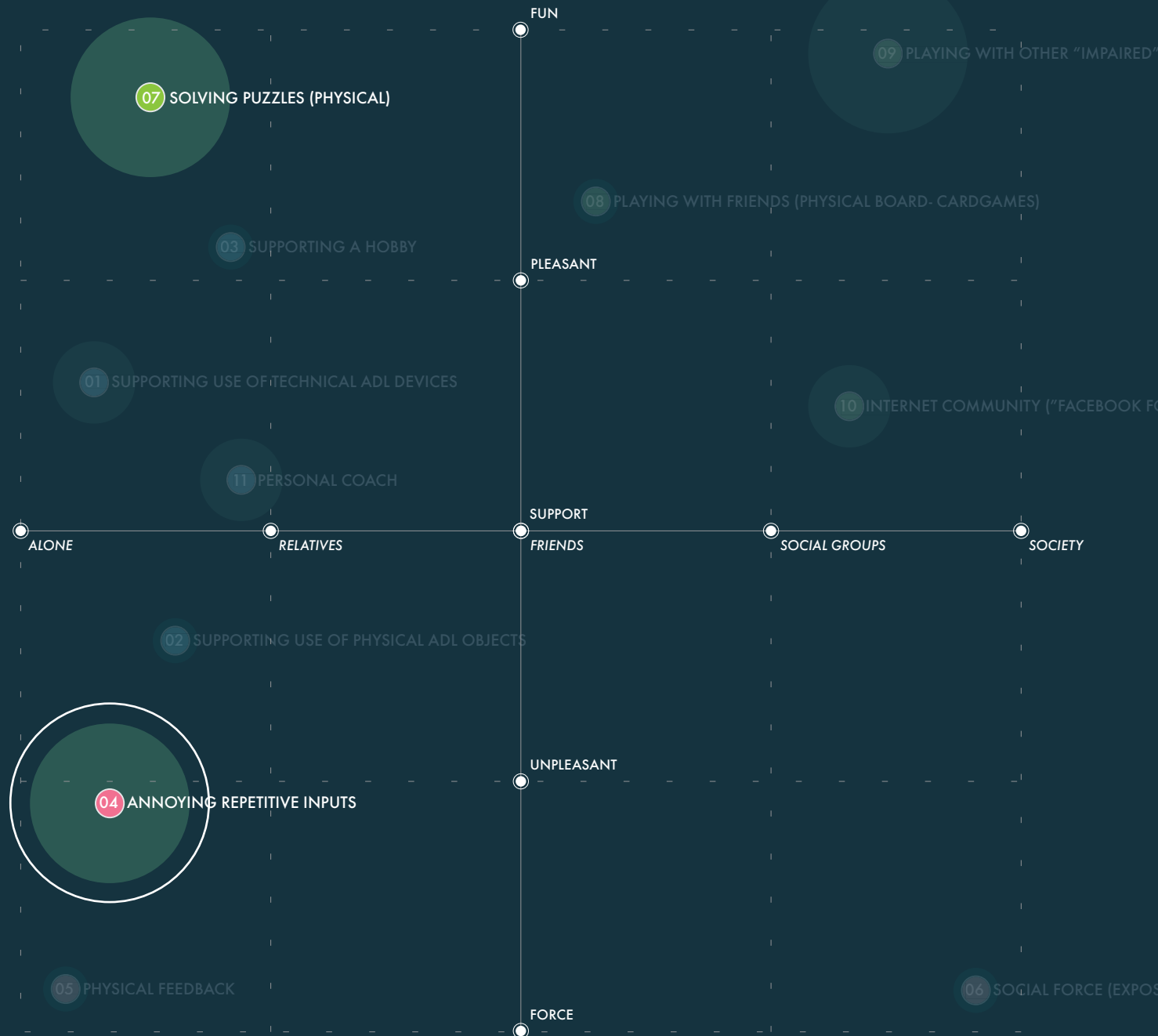


- 4** COLLECTING AMBITION
- various characters to collect
  - various interactions between little guardians

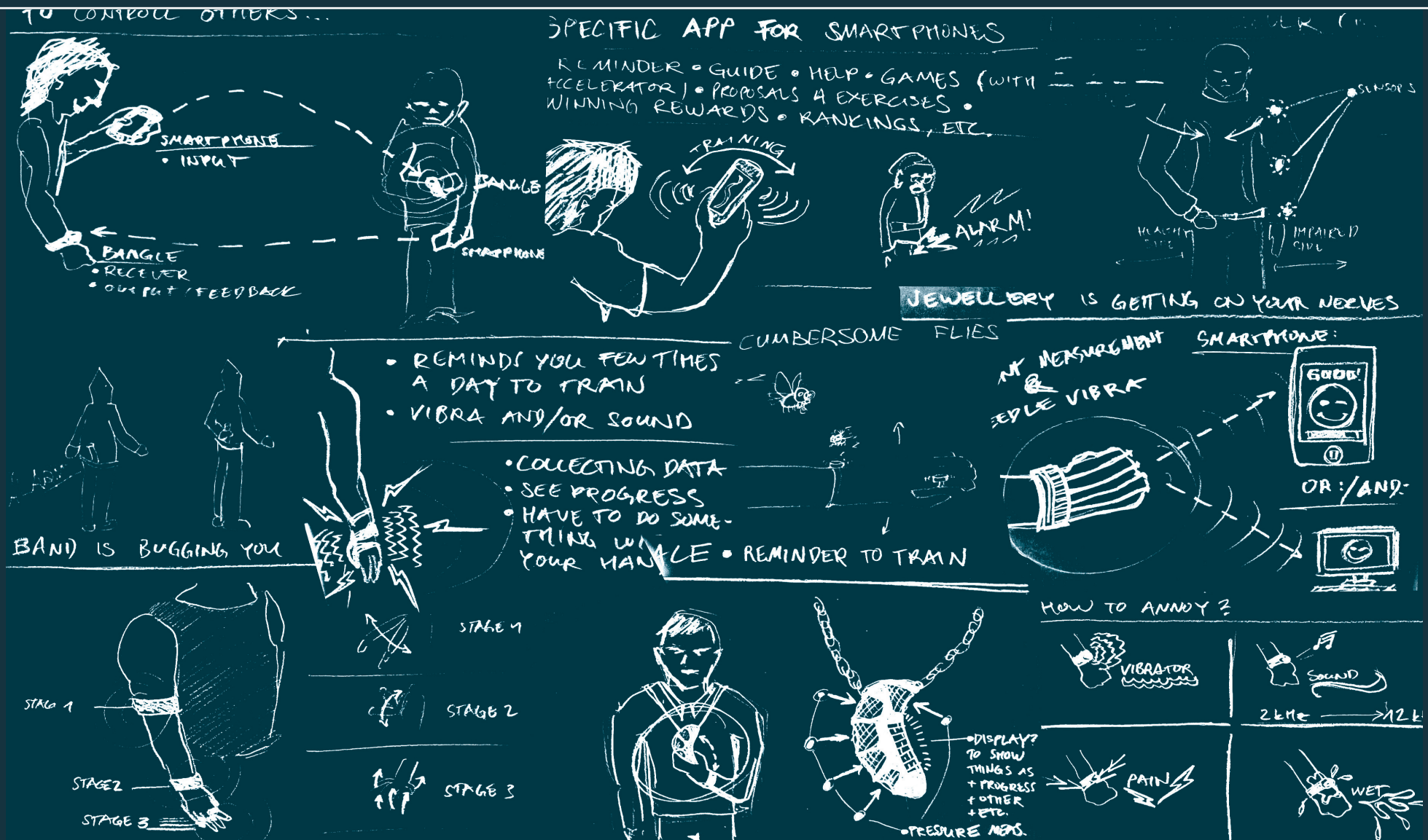
- 5** SOCIAL INTERACTION
- they remember each other
  - visit other little guardians
  - build "guardian"-friendships



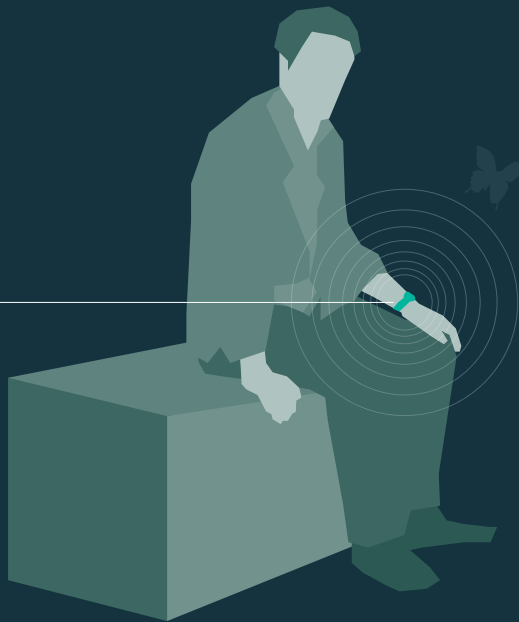
# REPETITIVE INPUTS



# SPRIT BUTTERFLIES







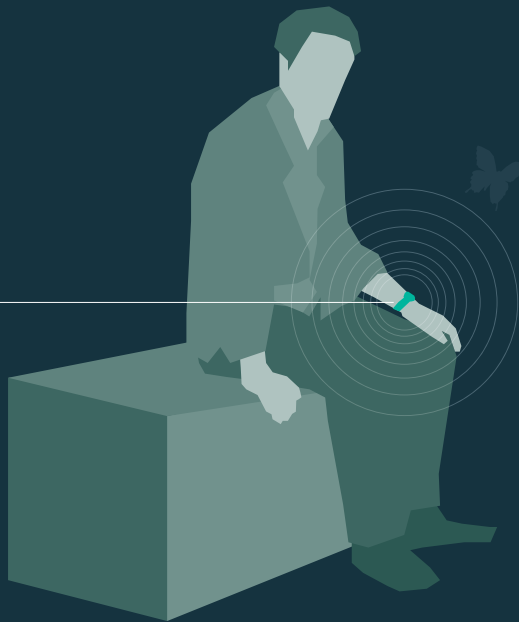
1

#### BRACELET AT PARALYZED ARM

- wearing bracelet during the whole day
- at some points of time a butterfly is coming
- vibration & sound when a butterfly is close



## SPIRIT BUTTERFLIES



1

### BRACELET AT PARALYZED ARM

- wearing bracelet during the whole day
- at some points of time a butterfly is coming
- vibration & sound when a butterfly is close

2

### CATCH THE BUTTERFLY

- sense the direction you need to move
- vibration & sound is guiding
- dynamic difficulty (how far to move)
- sound & vibration disappear when caught



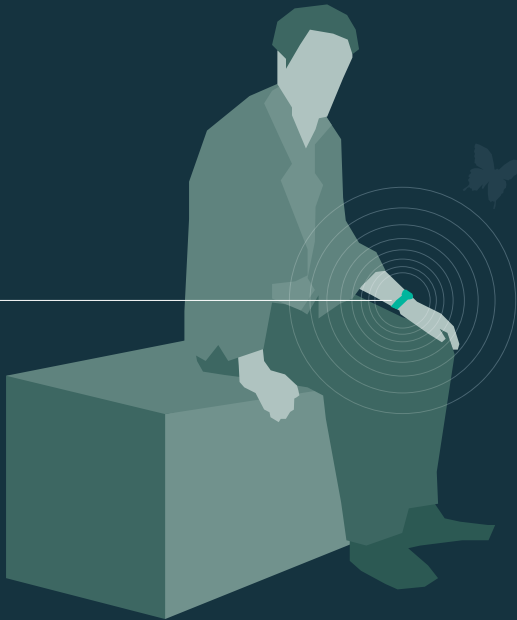


## SPIRIT BUTTERFLIES

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### BRACELET AT PARALYZED ARM

- wearing bracelet during the whole day
- at some points of time a butterfly is coming
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# 2

### CATCH THE BUTTERFLY

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- dynamic difficulty (how far to move)
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# 3

### CHECK YOUR CATCH

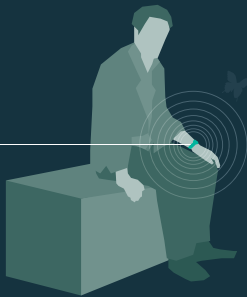
- see how the butterfly looks like
- read infos about the species
- compare your speed
- discover your progress & skills
- share rewards & butterflys
- collect & explore more







## SPIRIT BUTTERFLIES



### NO CHOICE

- *efficient training*

### URGENT

- *no excuses*

### REPETITIVE

- *reminding to train*

# 1

### HAPTIC OUTPUT

- *hand therapy - reminding the brain*

### SOUND OUTPUT

- *gently expose in public*

# 2

### CATCH THE BUTTERFLY

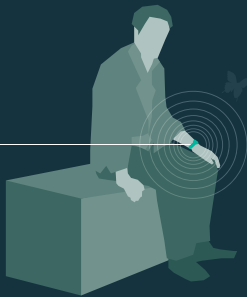
- *sense the direction you need to move*
- *vibration & sound is guiding*
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1 HAPTIC OUTPUT  
- hand therapy - reminding the brain

SOUND OUTPUT  
- gently expose in public

2 HAPTIC FEEDBACK  
- faster relearnig of controls

SOUND FEEDBACK  
- connection to hand movement

SHEER WILL  
- ambition to chatch it

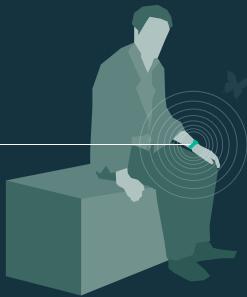
CURIOSITY  
- which butterfly is it

MOTIVATION  
- dynamic complexity



3 CHECK YOUR CATCH  
- see how the butterfly looks like  
- read infos about the species  
- compare your speed  
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- share rewards & butterflys  
- collect & explore more

# SPRIT BUTTERFLIES



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- efficient training

## URGENT

- no excuses

## REPETITIVE

- reminding to train

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## HAPTIC OUTPUT

- hand therapy - reminding the brain

## SOUND OUTPUT

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## HAPTIC FEEDBACK

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## SOUND FEEDBACK

- connection to hand movement

## SHEER WILL

- ambition to chatch it

## CURIOSITY

- which butterfly is it

## MOTIVATION

- dynamic complexity



## FUN

- collecting/ exploring

## SHEER WILL (TO GET BETTER)

- visible skills

## LONGTIME MOTIVATION

- visible progress

## SOCIAL

- sharing/ chatting/ helping

3

## USEFUL

- real information about butterflys

## CONSCIENCE

- therapist supervision

## IPHONE

- popular/ up-to-date/ non-medical





4

#### INTENSIVE TRAINING

- button at bracelet to activate
- playing very intensive
- to collect a lot
- to train very focussed





## SPIRIT BUTTERFLIES

4

### INTENSIVE TRAINING

- button at bracelet to activate
- playing very intensive
- to collect a lot
- to train very focussed



5

### IMPAIRED COLLECT/ HEALTHY NEED IT

- app for healthy people (they need your butterflys)
- impaired can "sell" or trade the butterflys
- self-awareness/ to be needed





## SPIRIT BUTTERFLIES

4

## INTENSIVE TRAINING

- button at bracelet to activate
- playing very intensive
- to collect a lot
- to train very focussed



5

## IMPAIRED COLLECT/ HEALTHY NEED IT

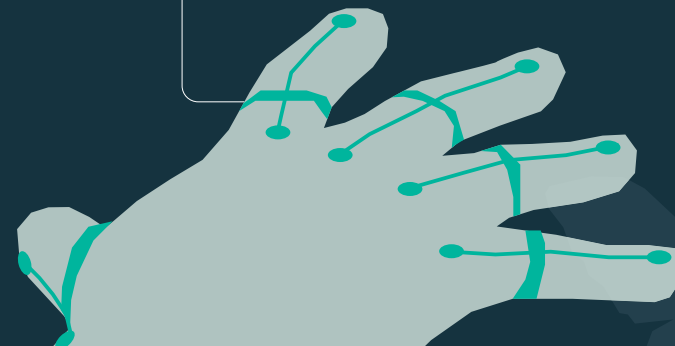
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- impaired can "sell" or trade the butterflys
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6

## UPGRADE FOR PROFESSIONALS

- fine motor skills training
- hand flexure training
- individual finger training





## DISCUSSION



INDOOR VITA PARCOURS



KEY | STROKE



LITTLE GUARDIANS



SPIRIT BUTTERFLIES