Using digital detectives to monitor Parkinson's

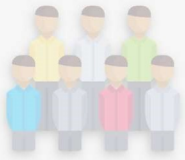
Julio Vega

You might know them

and another 5.2 million people...

@julio_ui

Parkinson's Disease?



SYMPTOMS

Quality of Life

Cognitive

Daily changes

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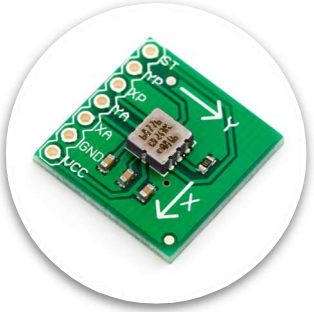
Sensing Parkinson's

Uncomfortable

Intrusive

Motor Focused

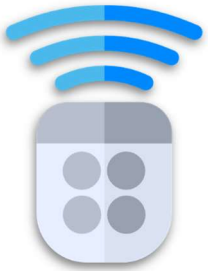


Single device

The potential of the digital world

Personal

Internet



Ambient

SKIP

Our goal

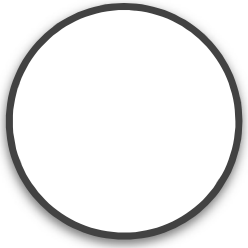
Personalised

Smartphone

24/7

Monitor PD

Outside the lab



Invisible

1 year

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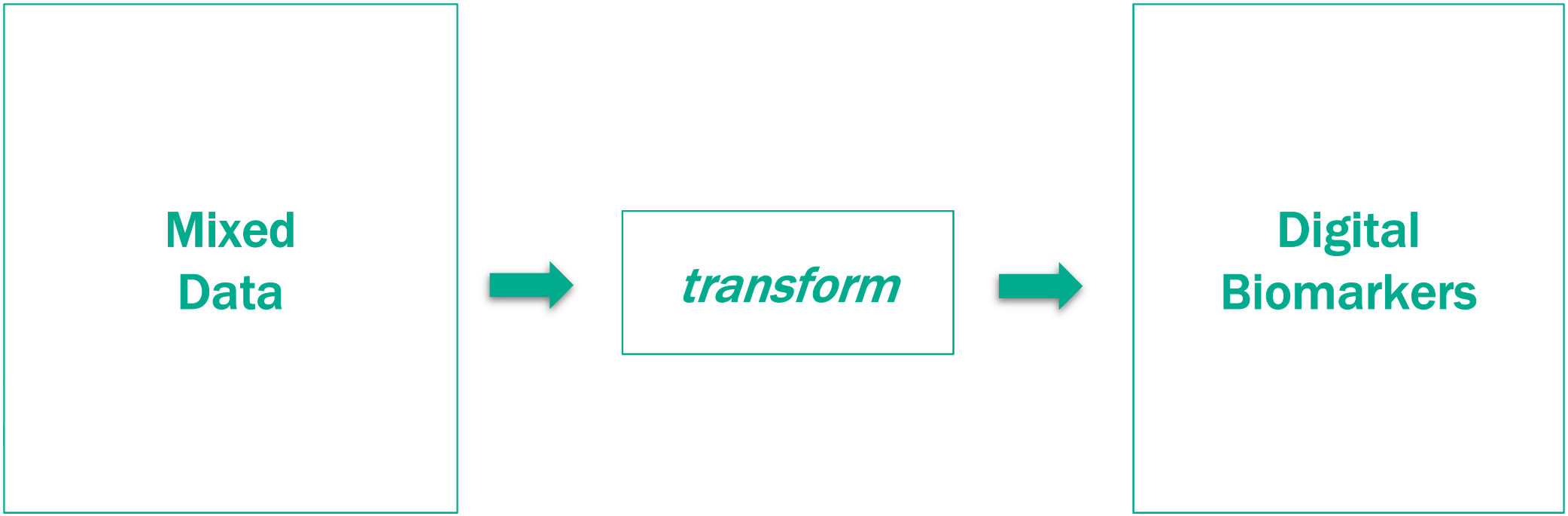
In more detail



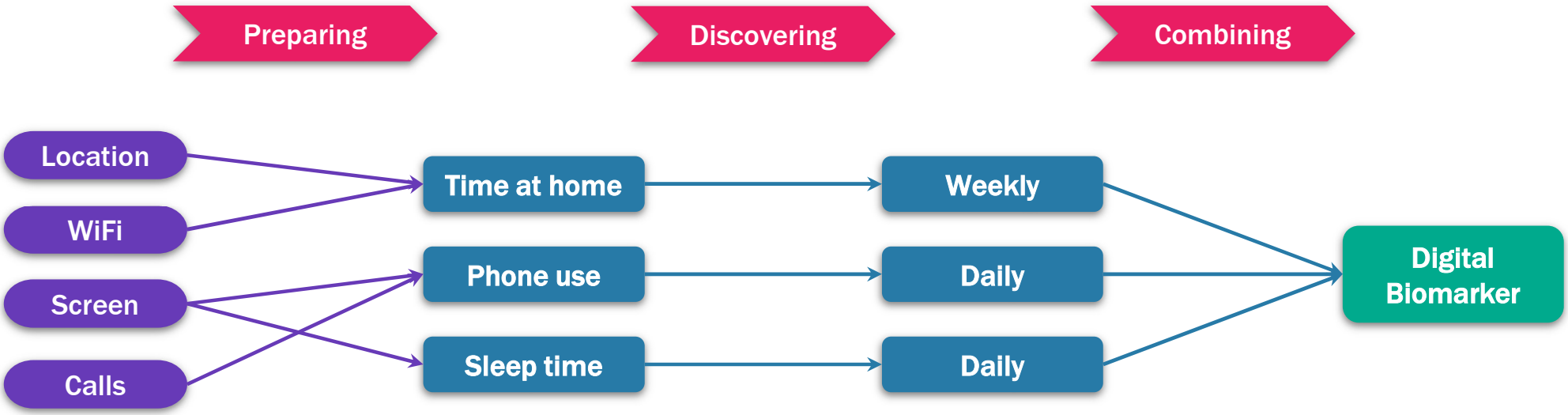
In more detail

Profile of Living

Social Interaction

Phone Use

Profile of Living



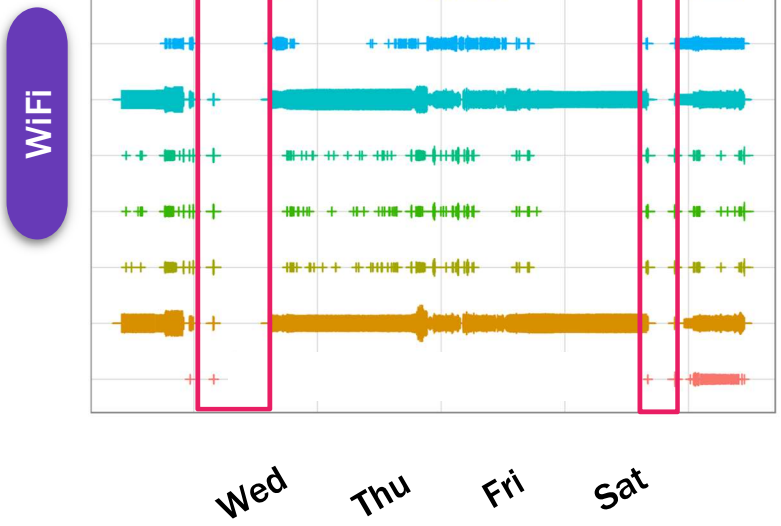
Social Interaction

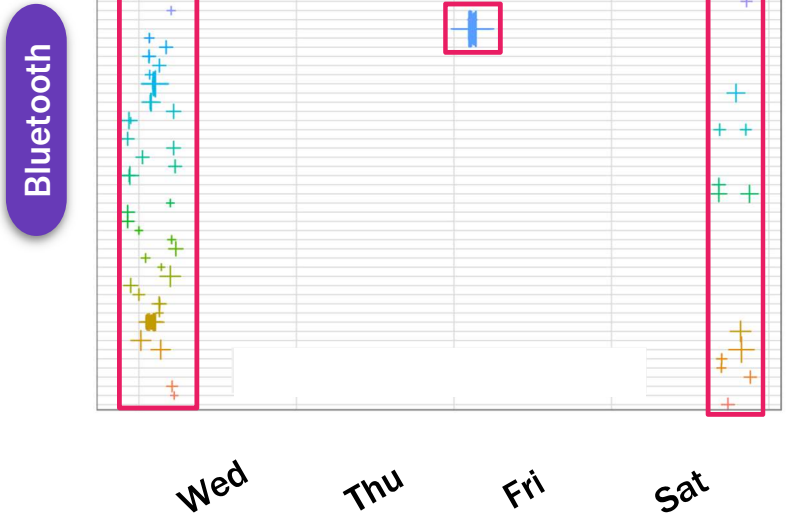
Digital Biomarker

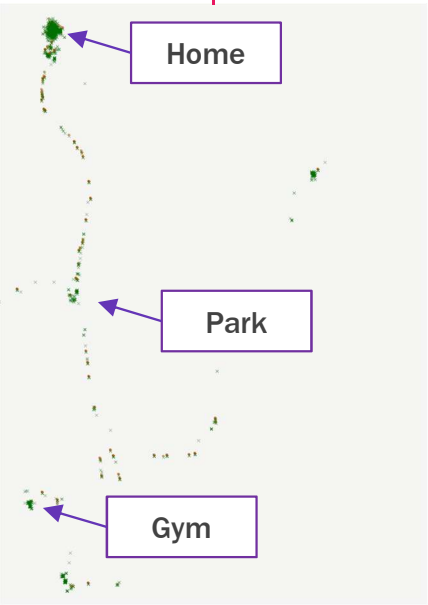
Time outside home

Social Interactions

Frequented places







Location

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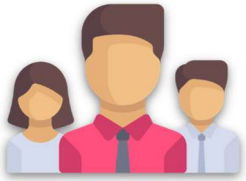
What are we doing?



11 participants

22 sensors per participant

6-week visits

How do we know it works?

Validate the Profile of Living vs symptom changes

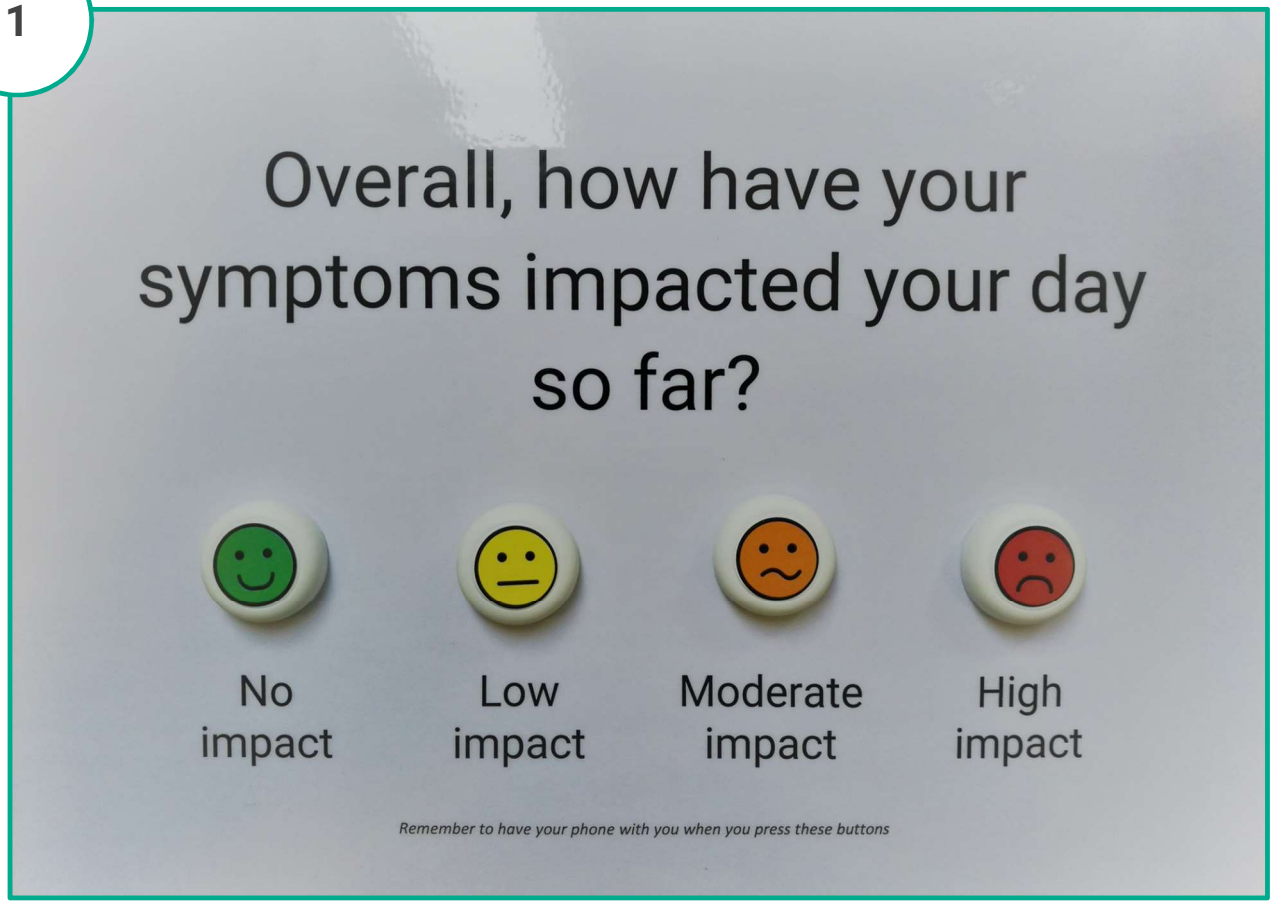
Every 6 weeks
Clinical Scores

Every day
Self-Reporting

Go tech!

Buttons

1

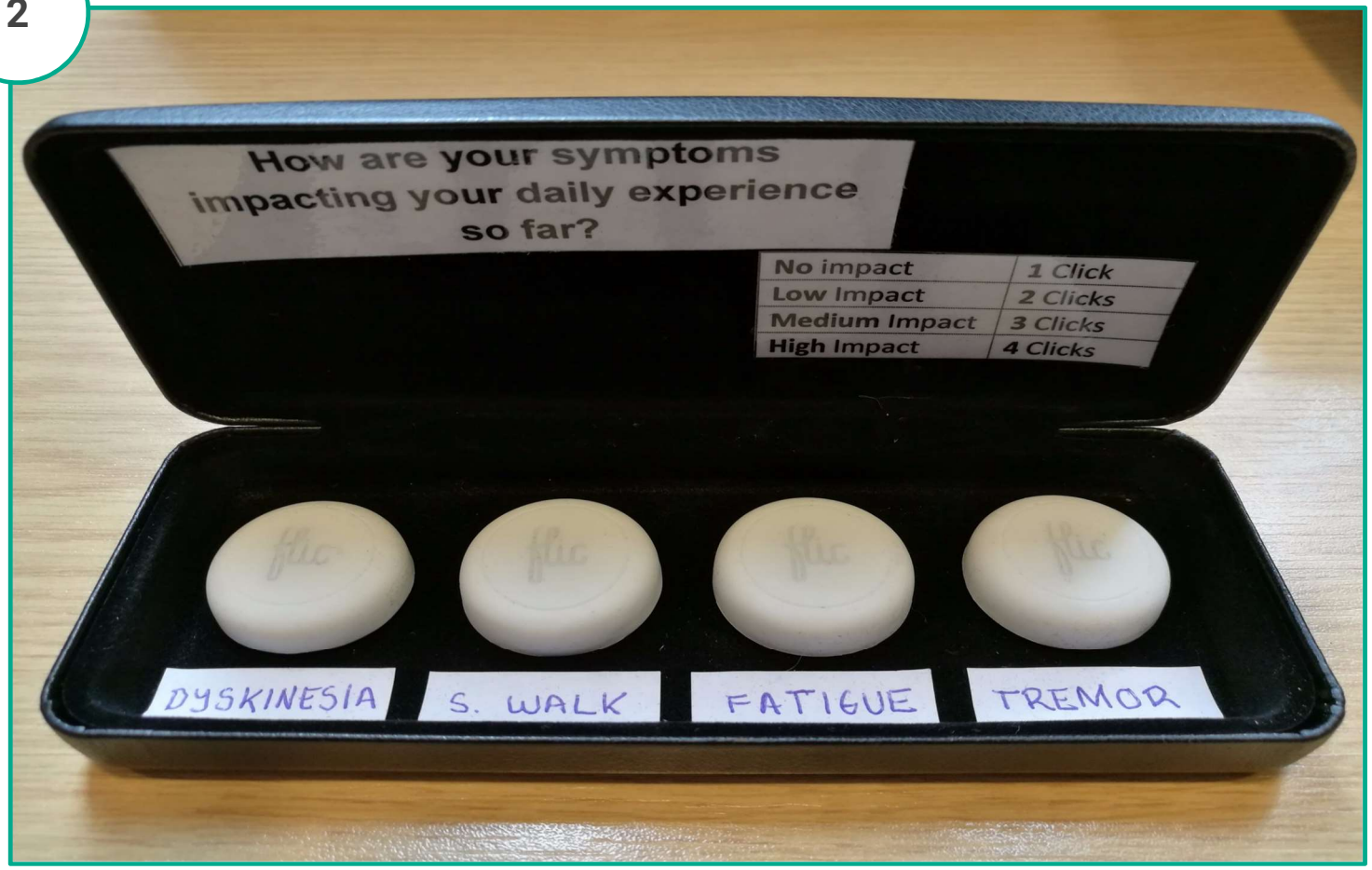

Overall, how have your symptoms impacted your day so far?
No impact
Low impact
Moderate impact
High impact
Remember to have your phone with you when you press these buttons

Buttons

1a

Buttons 2.0

2



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But tech can fail...

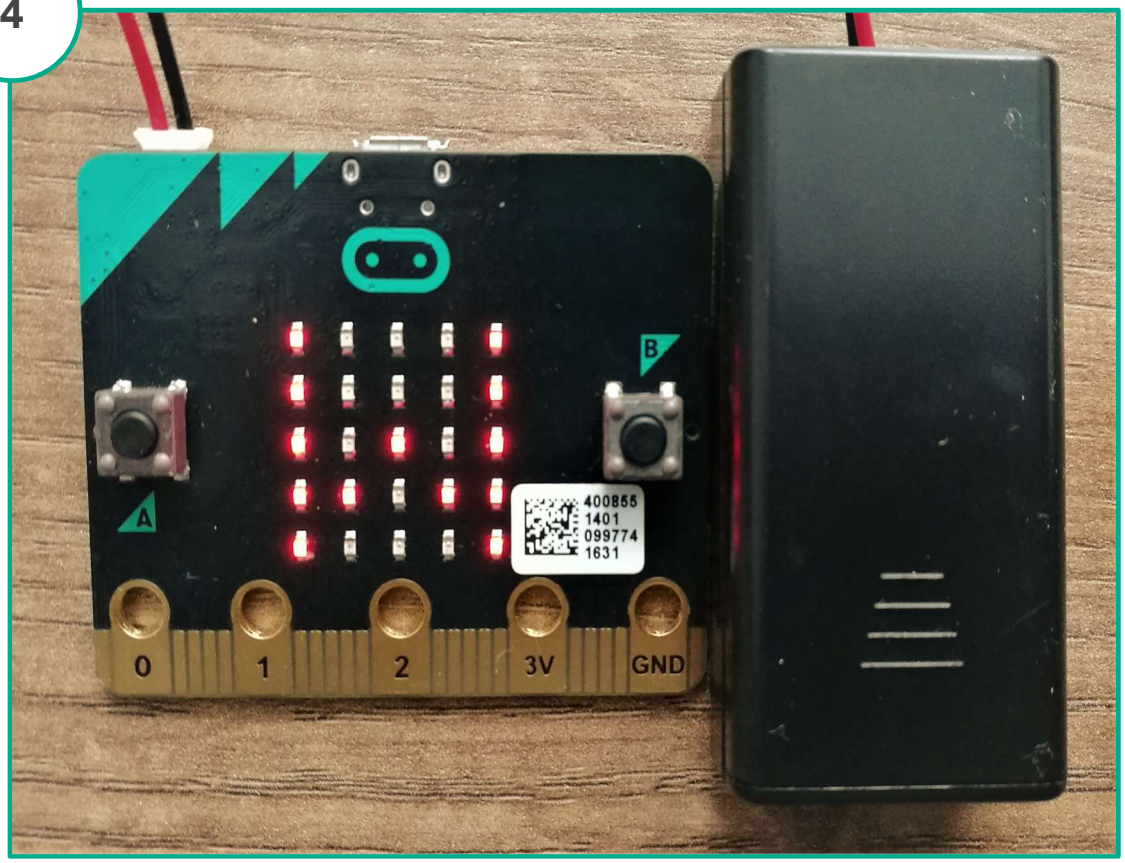
Trying even more tech

3

Cube with NFC tags

Trying even more tech

4

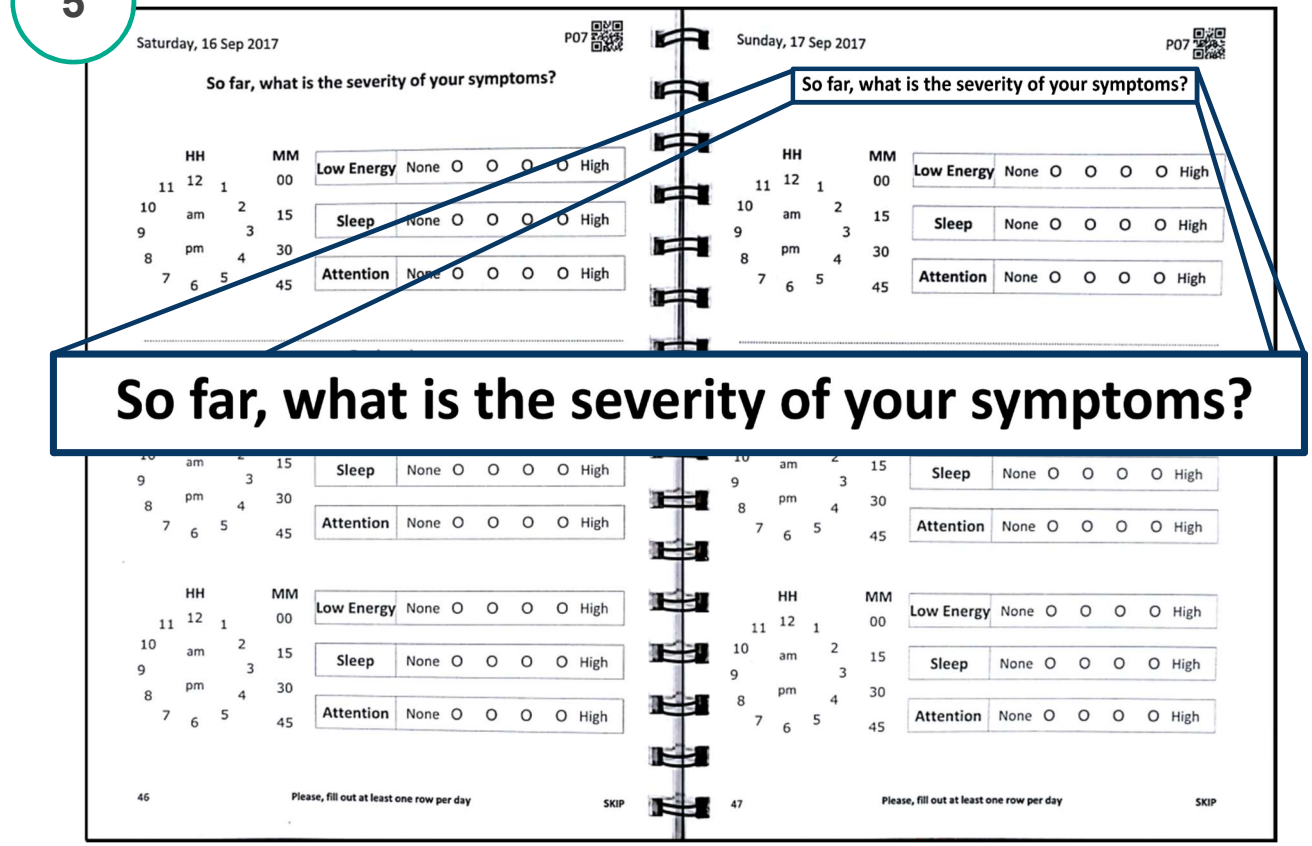


Micro:Bit

BACK TO ANALOGUE

Paper Diary

5



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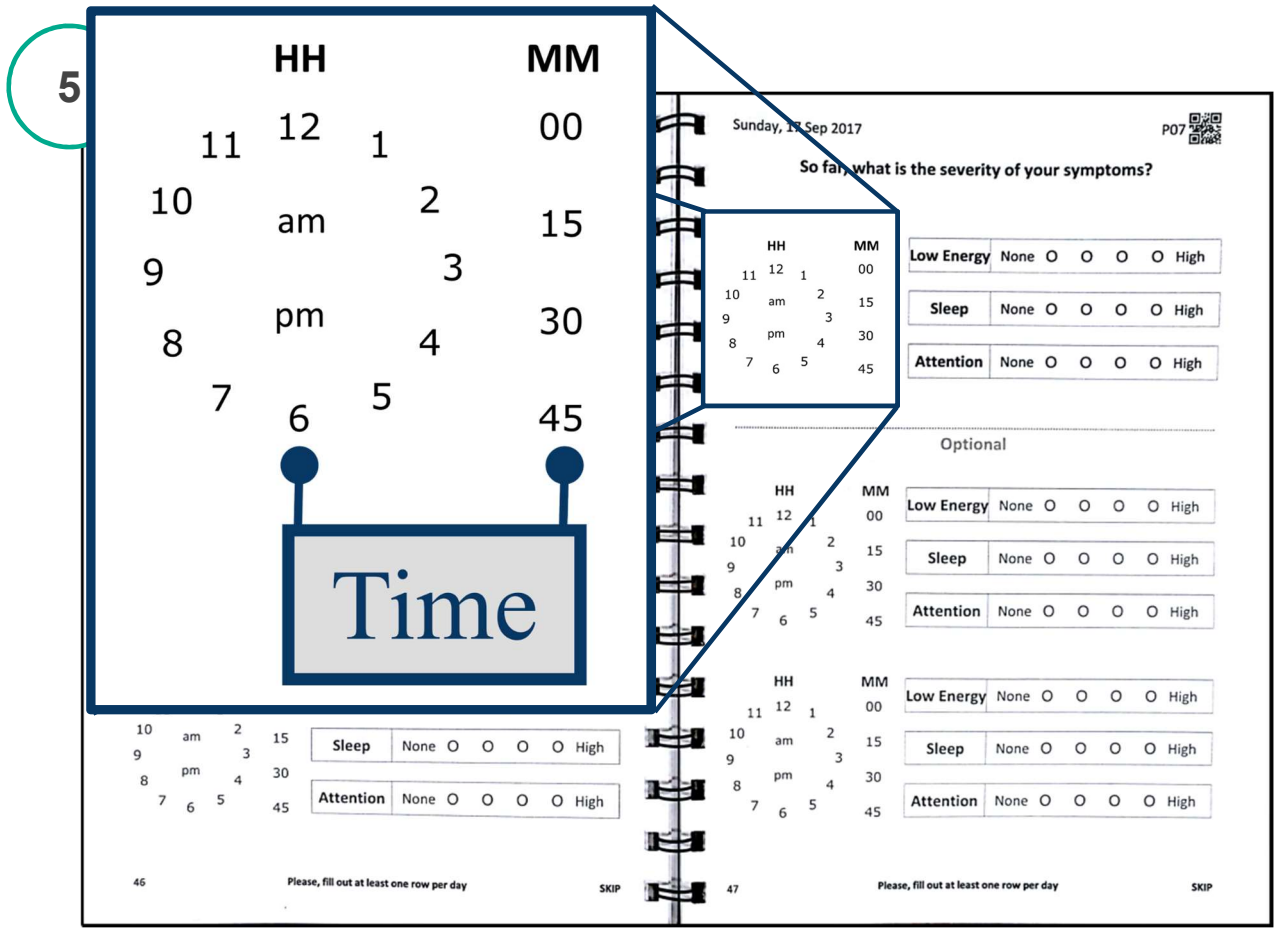
Paper Diary



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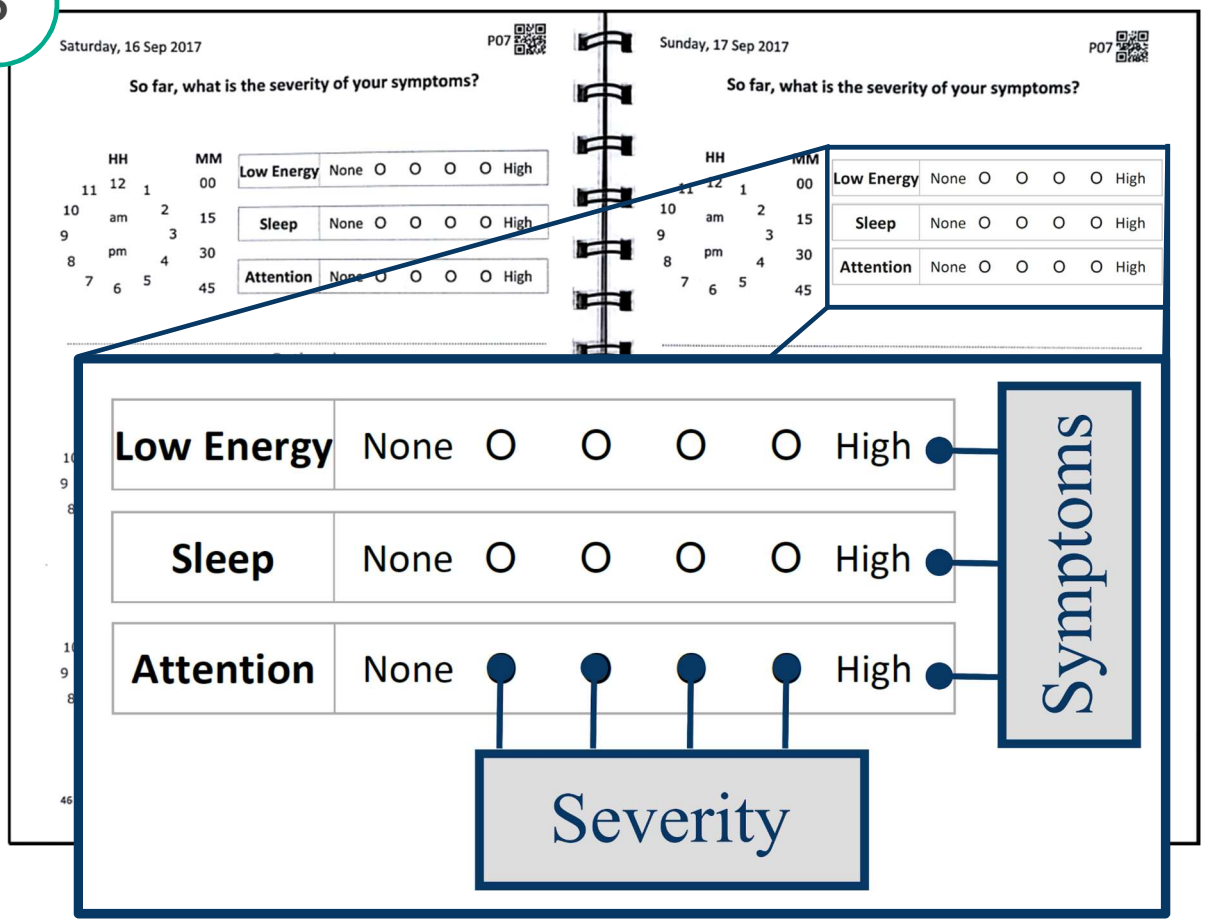
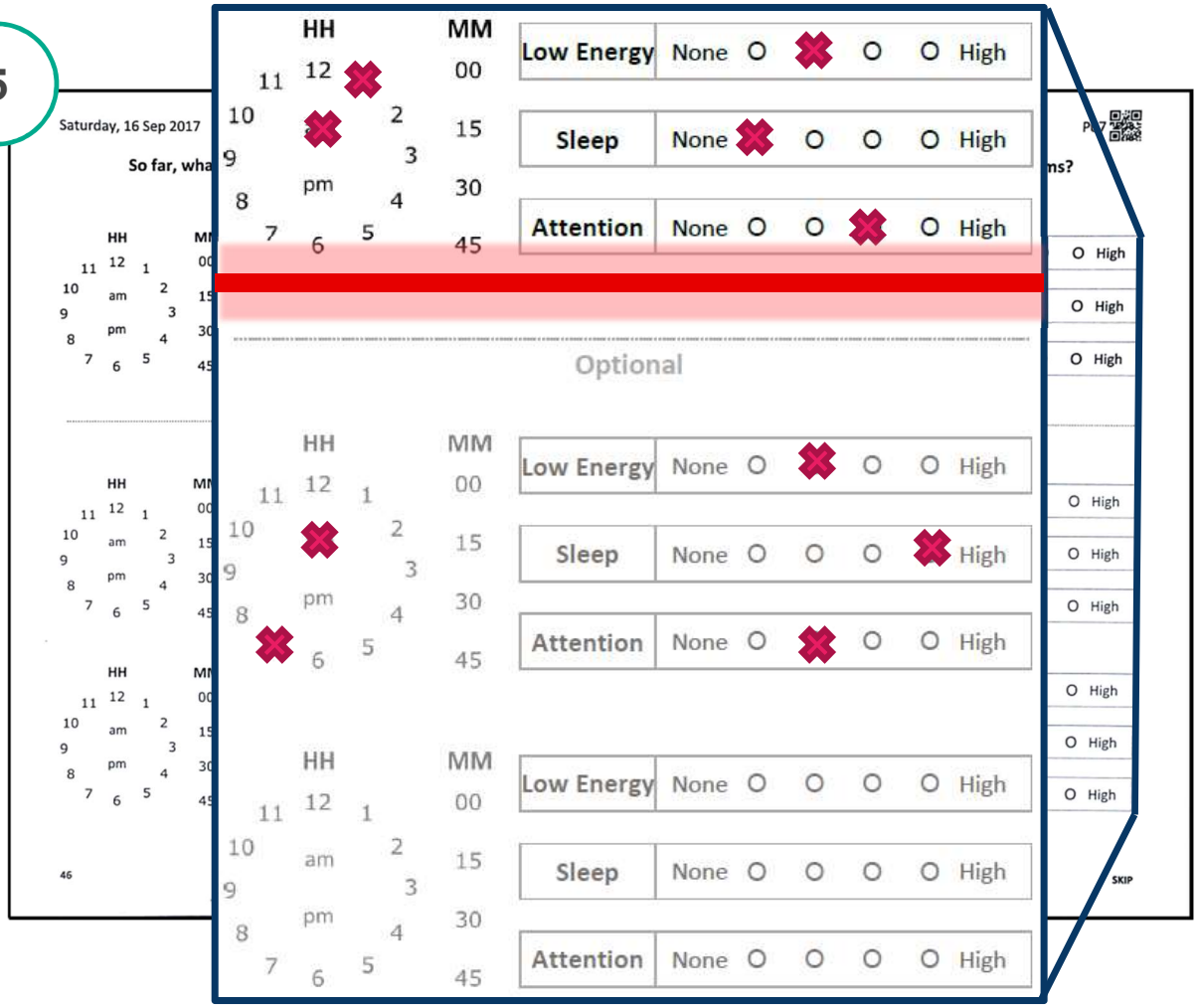
Paper Diary

5



Paper Diary

5



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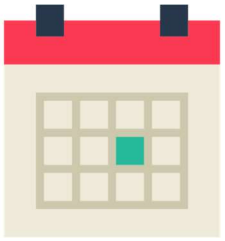
Did the diary work?

7 participants



49 days
(once a day)

Answer rate
98%

Why 98%? It was simple, flexible, and physical

What did our participants think?

Simplicity

Writing Support

Flexibility

Self-awareness

Handwritten Notes

Physical Reminders

We recommend other researchers to:

Enable physical reminders

Reduce demand

Offset effect of tremor

Design for self-awareness

Consider effects of handwritten notes

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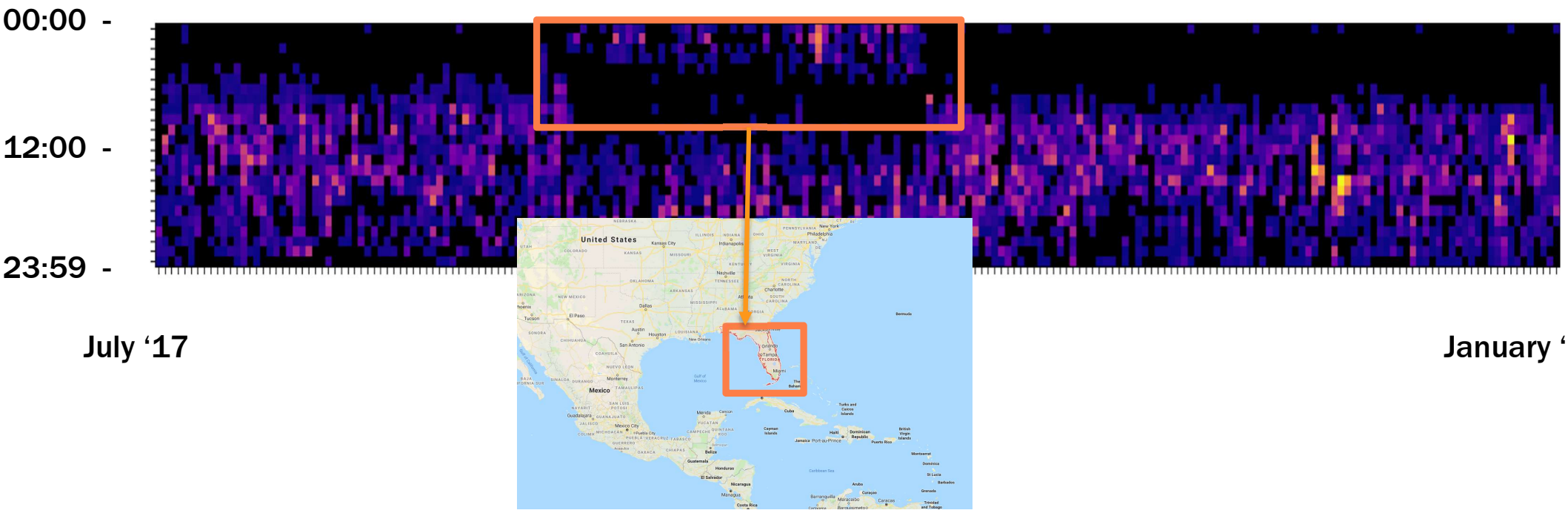
Let’s be detectives

What is this?

Movement



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What is this?

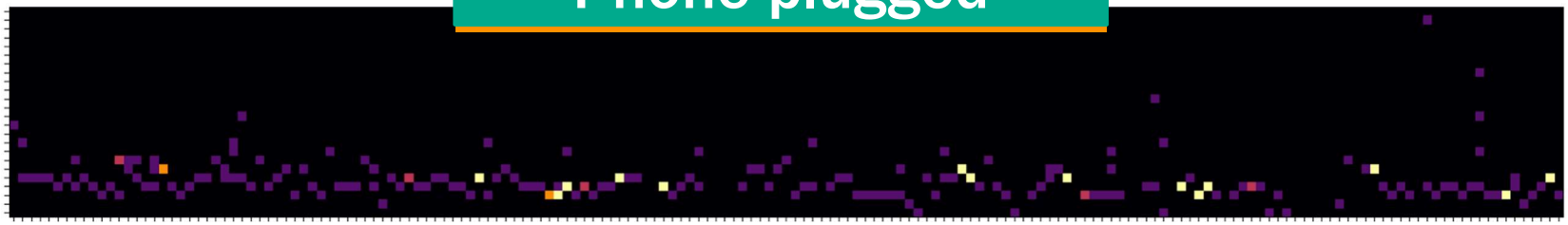
Phone unplugged

hours

days

Phone plugged

hours



days

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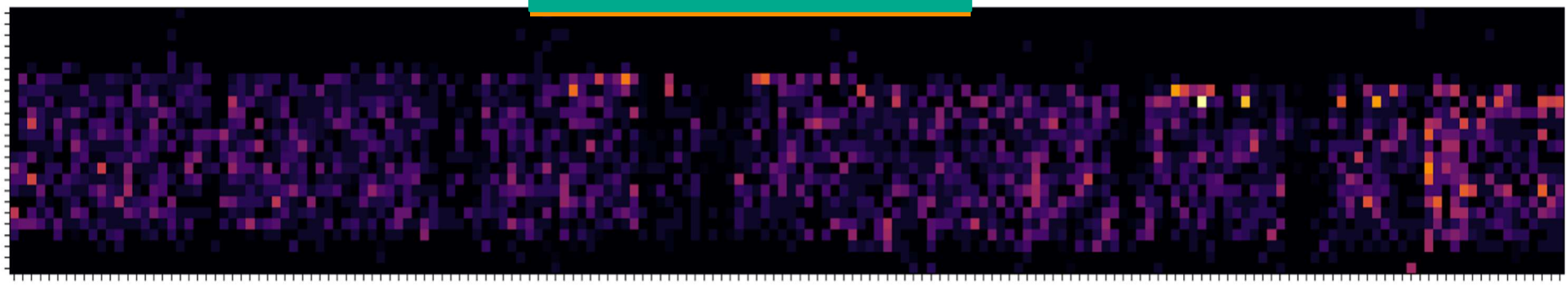
What is this?

Phone use



hours

days

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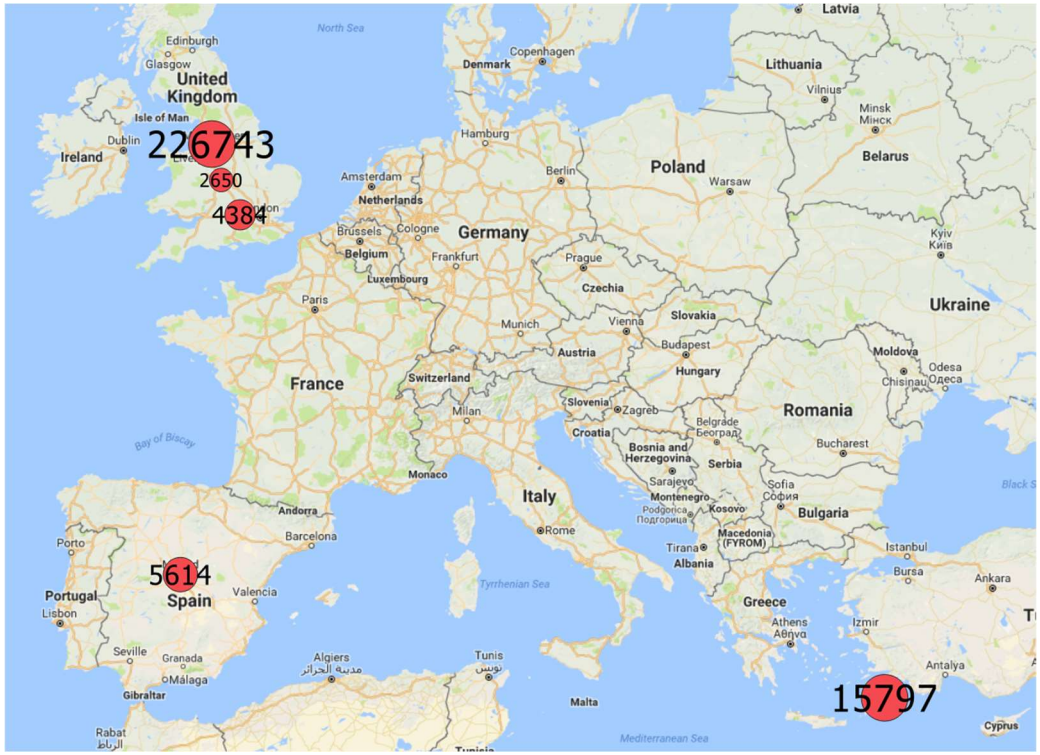
What's the latest then?

Social Interaction

- Time at home
- Calls (in/out)
- WiFi networks
- Travelled distance
- Travelled space
- Sleep interruptions

Phone Interaction

- Phone use (sessions, unlocks)
- Keyboard typing



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Want to participate in future studies? Drop us a line!