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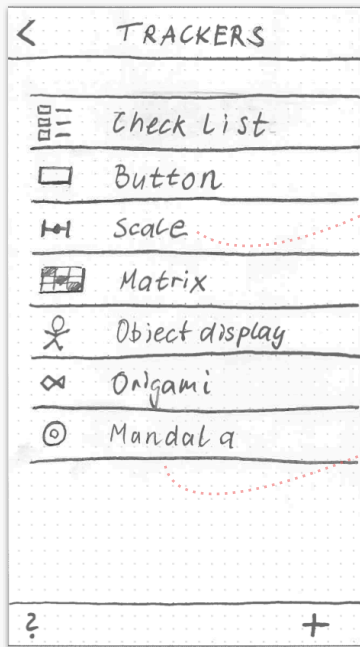
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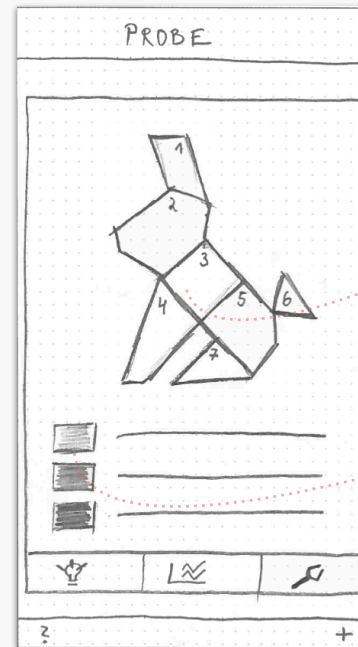
# **Trackly: A Customisable and Pictorial Self-Tracking App to Support Agency in Multiple Sclerosis Self-Care**

# Example Sketches



**a** User interface controls that are commonly predefined in self-tracking apps.

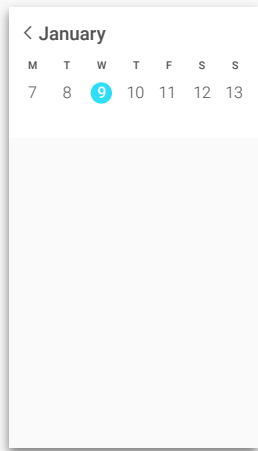
**b** Types of tracker visualisations that are being used by bullet journalists.



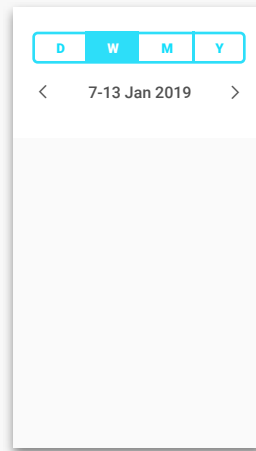
**c** A pictorial week tracker consisting of seven segments for seven days.

**d** Three parameter descriptions with a related colour scheme.

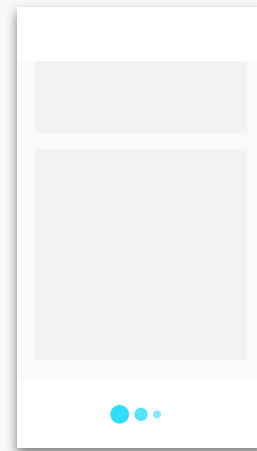
## Navigation



A. Calendar



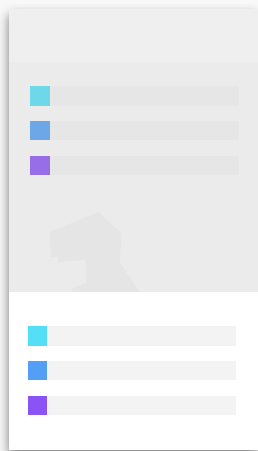
B. Calendar and filter



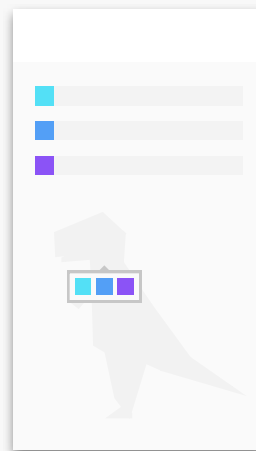
C. Continuous scrolling list

Calendar-based controls are suitable for navigating temporal data that can be aggregated and visualised in traditional charts, such as bar graphs (see Figure A and Figure B). These controls are also suitable for displaying weekly pictorial tracker. However, there are limitations to displaying monthly and yearly trackers considering the visual segments of trackers and the limited screen real estate of mobile devices. Alternatively, a continuous scrolling list can be used to chronologically display and load trackers (see Figure C).

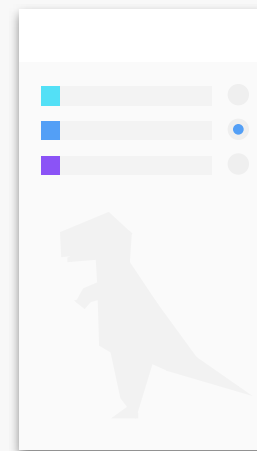
## Interaction



D. Actionsheet



E. Popover



F. Selectable list

Supporting colouring with the help of actionsheets and popover controls is common in the design of mindful colouring apps (see Figure D and E). However, pictorial tracker are typically accompanied by legends that describe parameter definitions (e.g. yellow: good mood). In this case, a selectable list can help avoid repetition and guide the focus from viewing the legend and selecting a state to colouring a segment of a pictorial tracker (see Figure F).

# Prototype: Example Trackers

Home

Habits

Mon 17 Dec - Sun 23 Dec

- Fun 😄
- Chill 😌
- Power nap 🛌
- Exercise 🏃
- Work/chores 😓

M T W T F S S

Home

Fatigue

Mon 17 Dec - Sun 23 Dec

- Energetic
- Not sure
- Tired
- Severe fatigue
- Help, I am falling asleep!

Mon 17 Dec

Home

Mood

Mon 17 Dec - Sun 23 Dec

- Happy 😄
- Pleased 😊
- OK 🙆
- A bit sad 😞
- Stressed 😡

Mon 17 Dec

Home

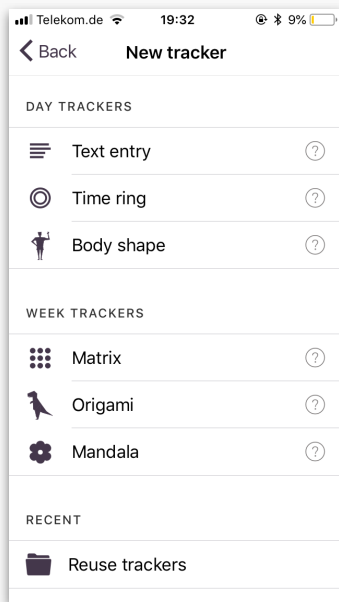
Anxiety

Mon 24 Dec - Sun 30 Dec

- Not present
- Mild
- Moderate
- Severe
- Very severe

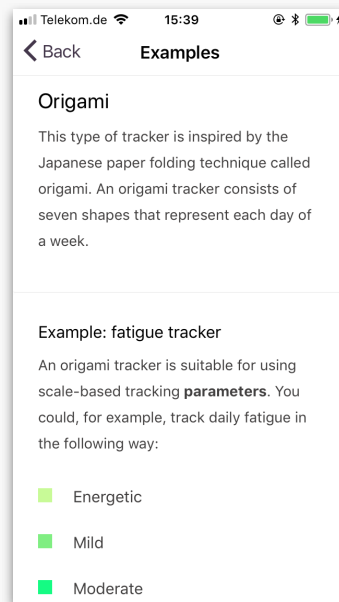
Mon 24 Dec

# Prototype: Creating Trackers



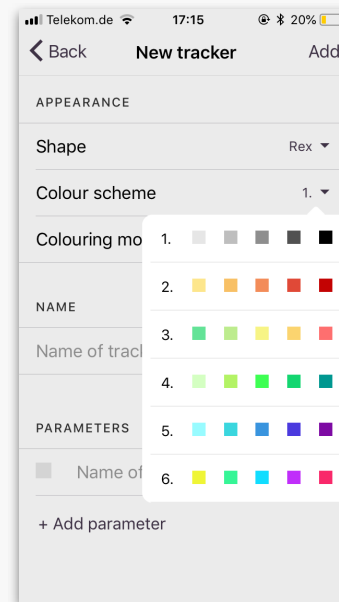
## Type of Tracker

Users can choose from different types of trackers. Week trackers consist of seven segments which represent each day. Day trackers consist of seven tracker visualisations: one for each day.



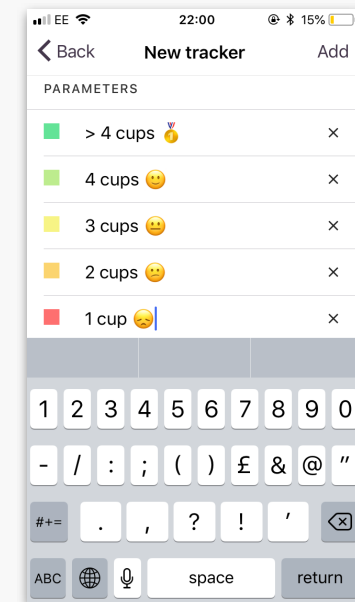
## Examples

By tapping on the question marks users can learn more about the different types of trackers and how to create tracking parameters. Each page provides a general description and examples.



## Colour Scheme

Since creating distinct and balanced colour schemes is challenging, the prototype offers a set of predefined colour schemes. Future versions will allow users to mix and add custom colour schemes.

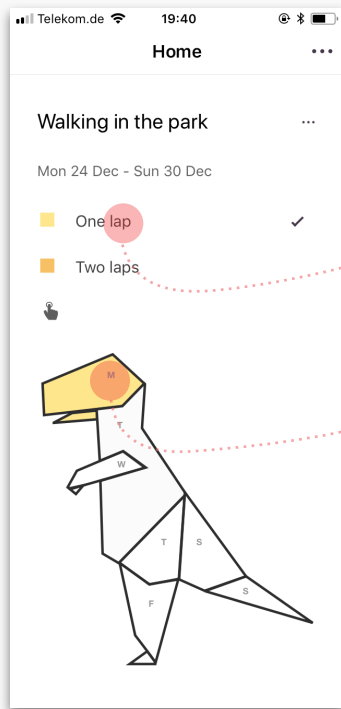


## Parameters

Custom parameters are assigned to the selected colour scheme. Users can enter text and add emojis. Parameters could, for example, represent a scale or different activities.

# Prototype: Colouring Trackers

## Tap mode

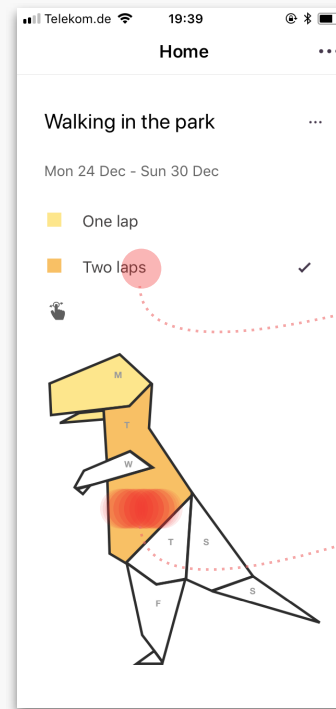


1 Select a parameter

2 Tap on a segment to colour it. In this way, you can colour segments of trackers in a quick way.

i A hint will explain the selected colouring mode, only when you tap on a blank segment the first time.

## Touch move mode

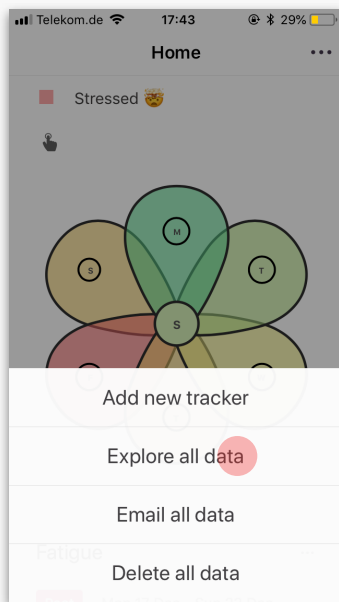


1 Select a parameter

2 The touch move event is bound the transparency of the segment colour. Touch a segment and move your finger around the screen to experience a more mindful colouring experience.

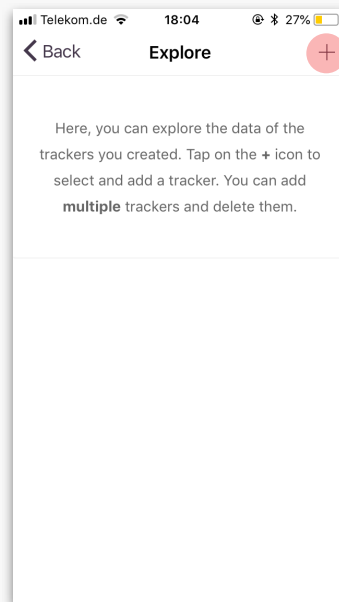
i To delete a coloured segment, just tap on the coloured segment. This works for both colouring modes.

# Prototype: Exploring Data



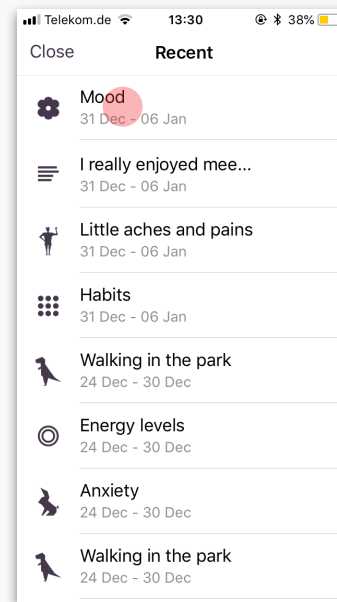
## Explore all data

Users can explore all the data that they logged with the help of tracker visualisations.



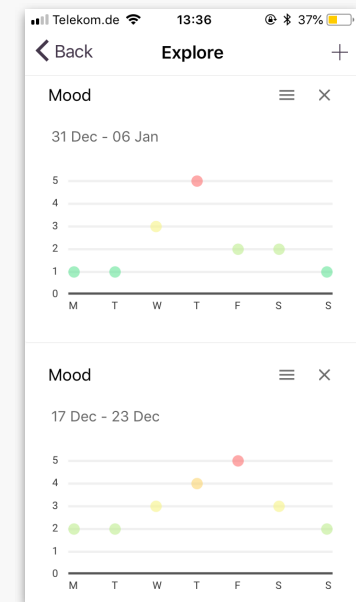
## Exploration view

The exploration view is initially blank and allows users to add and delete data.



## Selection view

Users can select different types of tracker visualisations that they created in the past.

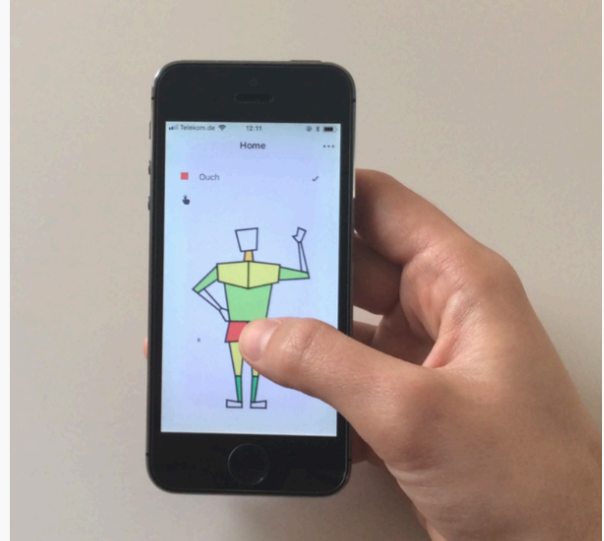
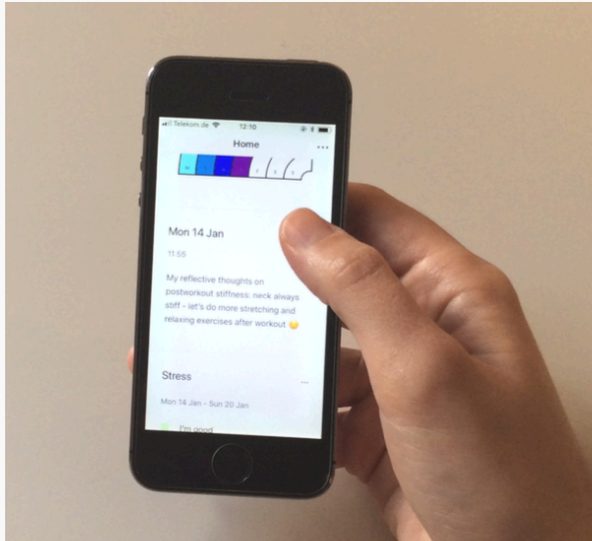
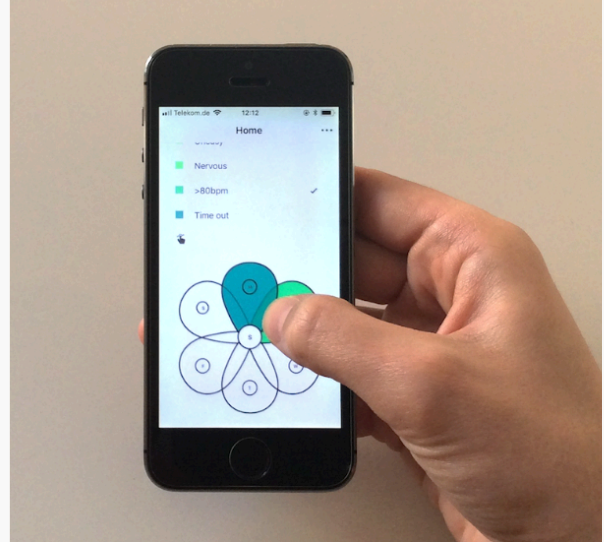
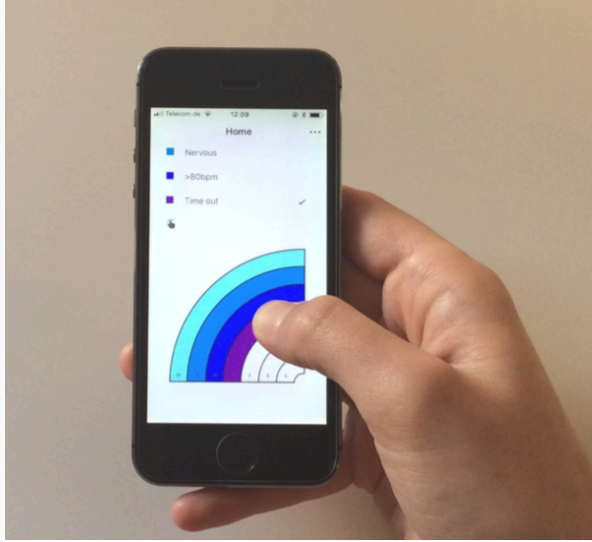


## Exploration view

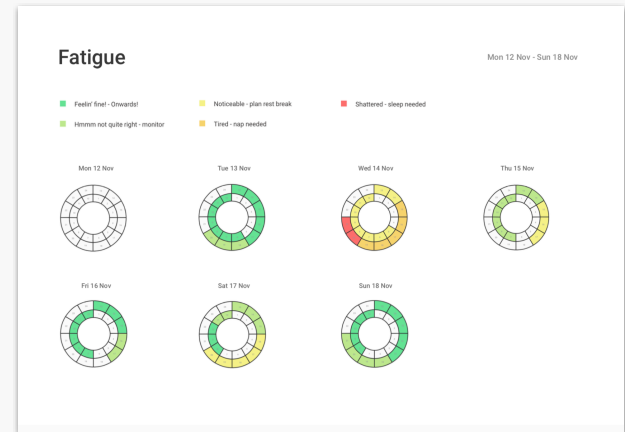
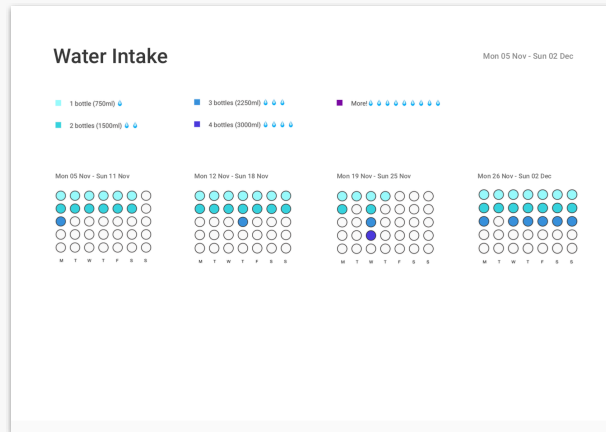
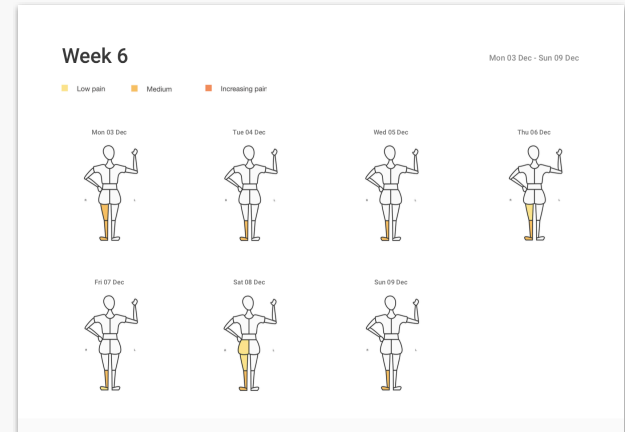
Users can, for example, view mood data that was logged with mandala trackers.



# Prototype

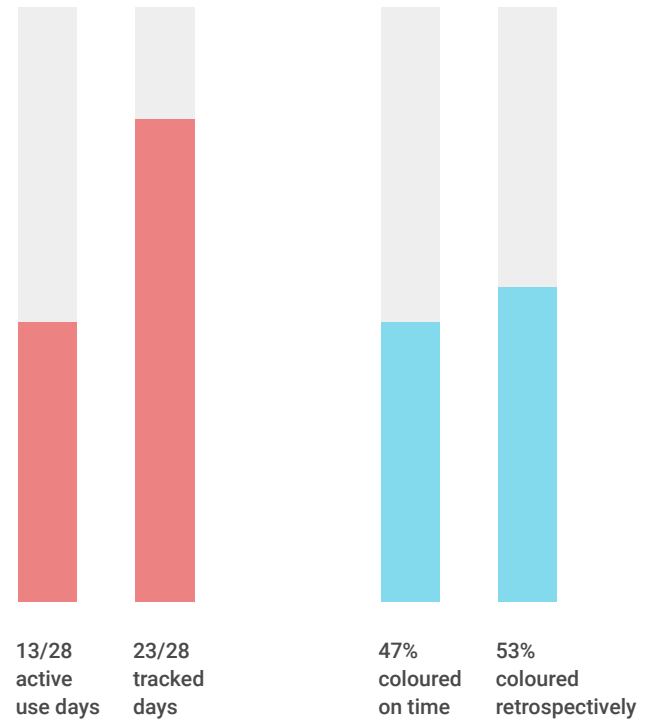


# Participant Summaries



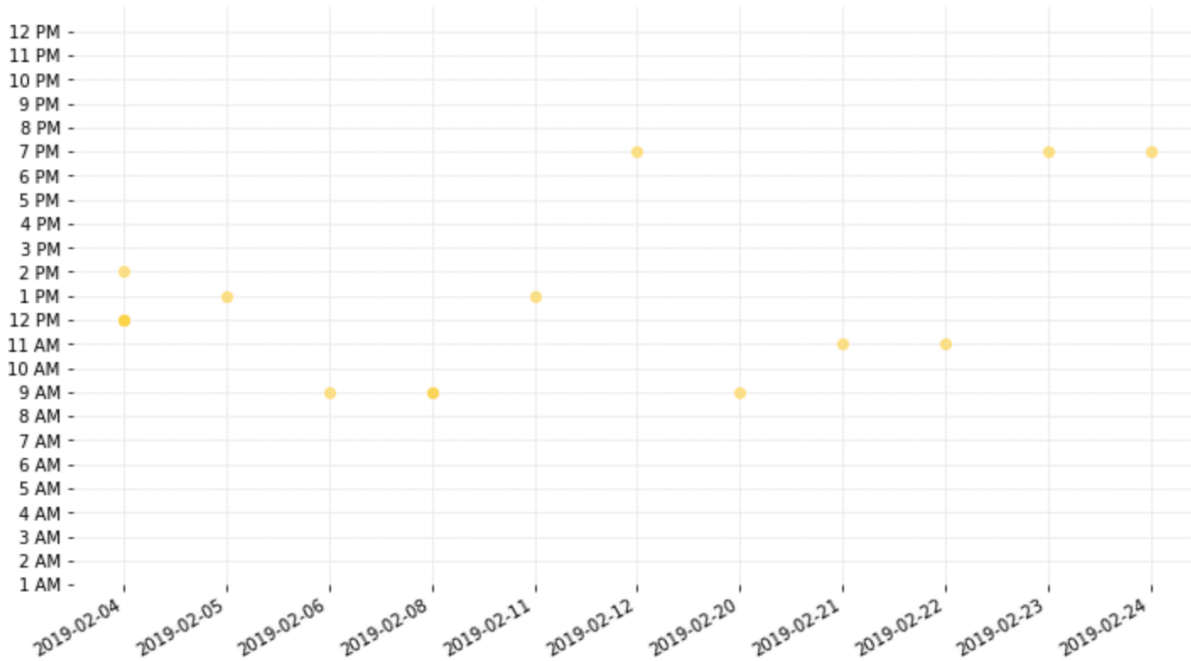
# Overview of Interactions

|            | Active use | Tracked days | Colour taps | On time | Retro-spectiv |
|------------|------------|--------------|-------------|---------|---------------|
| P1         | 4          | 24           | 509         | 97      | 412           |
| P5         | 4          | 5            | 55          | 54      | 1             |
| P4         | 5          | 13           | 192         | 112     | 80            |
| P2         | 7          | 23           | 97          | 21      | 76            |
| P11        | 8          | 8            | 239         | 239     | 0             |
| P12        | 8          | 28           | 729         | 204     | 525           |
| P10        | 11         | 27           | 0           | 0       | 0             |
| P3         | 12         | 28           | 87          | 37      | 50            |
| P6         | 17         | 28           | 208         | 150     | 58            |
| P13        | 17         | 22           | 174         | 32      | 142           |
| P7         | 18         | 28           | 2136        | 824     | 1312          |
| P14        | 20         | 28           | 1217        | 633     | 584           |
| P8         | 25         | 28           | 747         | 618     | 129           |
| P9         | 27         | 28           | 866         | 399     | 467           |
| <b>SUM</b> | 183        | 318          | 7256        | 3420    | 3836          |
| %          | 46.68%     | 81.12%       | 100%        | 47.13%  | 52.87%        |
| Ø          | 13.01      | 22.71        | 518.29      | 244.29  | 274           |



# Example Participant Interactions

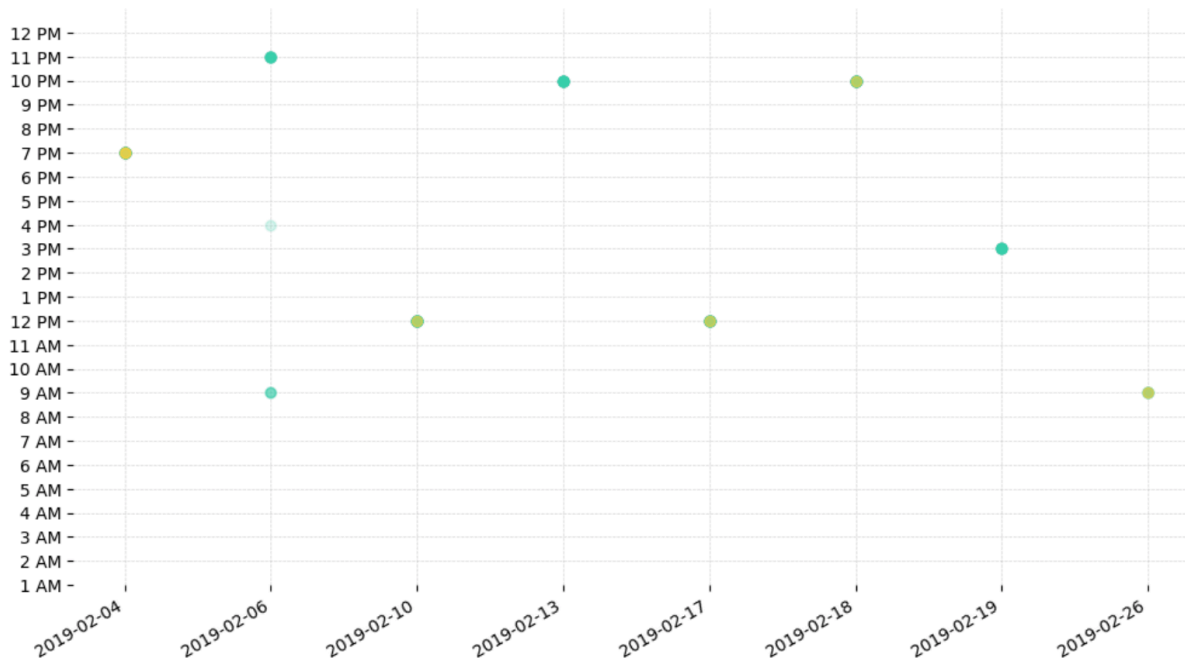
● Text entries



Participant: P10  
Active use: 11 days  
Tracked days: 27 days  
Text trackers: 26  
Text style: Logging with key words  
Content: Food, alcohol, water intake; house work, exercises (e.g. gym); abnormalities (e.g. "Woke up with tired legs")

# Example Participant Interactions

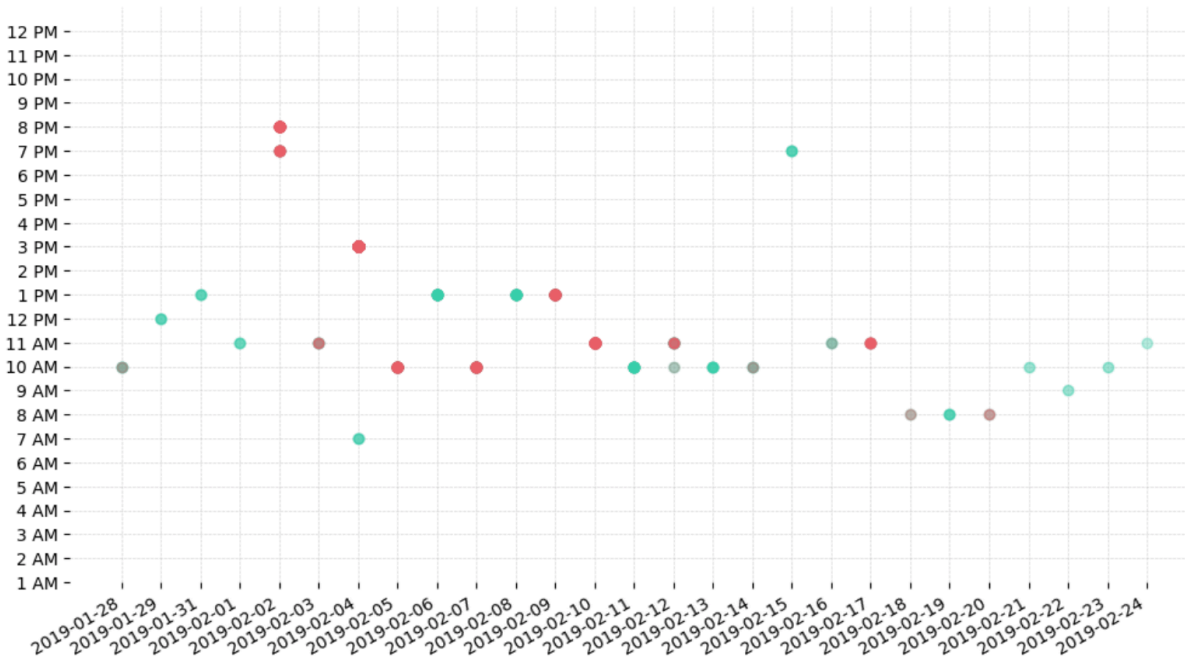
● Text entries    ● Coloured on-time    ● Coloured retrospectively



Participant: P11  
Active use: 8 days  
Tracked days: 8 days  
Day trackers: 28 body shapes, 56 time rings  
Colouring taps: 239 in total  
239 on-time  
0 retrospectively  
Text trackers: 5  
Text style: Narrative text entries  
Tracker content: Fatigue, pins and needles, numbness, pain

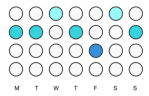
# Example Participant Interactions

● Text entries    
 ● Coloured on-time    
 ● Coloured retrospectively



Participant: P9  
 Active use: 27 days  
 Tracked days: 28 days  
 Day trackers: 28 body shapes, 21 time rings  
 Week trackers: 4 matrices, 4 flowers,  
 4 dinosaurs  
 Colouring taps: 866 in total  
 399 on-time  
 467 retrospectively  
 Tracker content: Fluid, mood, pain, fatigue

# Average Use of Trackers



**Matrix Trackers**

4.3

**Created Trackers**

13.5

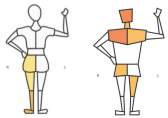


**Ring Trackers**

3.5

**Deleted Trackers**

1.7



**Body Trackers**

3.4

**Text Trackers**

3.3



**Mandala Trackers**

1.6



**Origami Trackers**

0.9

# Content of Trackers

|                  |           |                 |           |                                |           |                      |           |
|------------------|-----------|-----------------|-----------|--------------------------------|-----------|----------------------|-----------|
| <b>Symptoms</b>  | <b>29</b> | <b>Exercise</b> | <b>20</b> | <b>Non-Exercise Activities</b> | <b>18</b> | <b>Mental health</b> | <b>10</b> |
| Symptoms         | 2         | Exercise        | 4         | Sleep                          | 5         | Mood                 | 5         |
|                  |           | Walking         | 3         | Chill, Chilling                | 3         | Stress               | 3         |
| Pain             | 6         | Gym             | 3         | Work                           | 2         | Anxiety              | 2         |
| Areas of pain    | 1         | Running         | 2         | Chores                         | 1         |                      |           |
| Shooting pain    | 1         | Steps           | 1         | Admin                          | 1         | <b>Medical care</b>  | <b>2</b>  |
| Lower back pain  | 1         | Mat work        | 1         | Work/chores                    | 2         | Electro-stimulation  | 1         |
|                  |           | Stretching      | 1         | Relaxing/hobbies               | 1         | Injection sites      | 1         |
| Fatigue          | 7         | Cycling to work | 1         | Reading                        | 1         |                      |           |
| Energy levels    | 1         | Exercise bike   | 1         | Fun                            | 1         |                      |           |
| Pins and needles | 2         | Bouldering      | 1         | Rest/nap                       | 1         |                      |           |
| Spasm            | 1         | Swimming        | 1         |                                |           |                      |           |
| Bladder problems | 1         | Weights         | 1         | <b>Nutrition</b>               | <b>9</b>  |                      |           |
| Eyes             | 1         |                 |           | Selected foods (e.g. veg)      | 3         |                      |           |
| Stiffness        | 2         |                 |           | Healthy eating                 | 1         |                      |           |
| Numbness         | 1         |                 |           | Fluid intake                   | 3         |                      |           |
| Headache         | 1         |                 |           | Water                          | 2         |                      |           |
| Defecation       | 1         |                 |           |                                |           |                      |           |