Virgobit

Remote Data Collection Solutions







































Prezi

Remote multimodal health data collection and patient monitoring



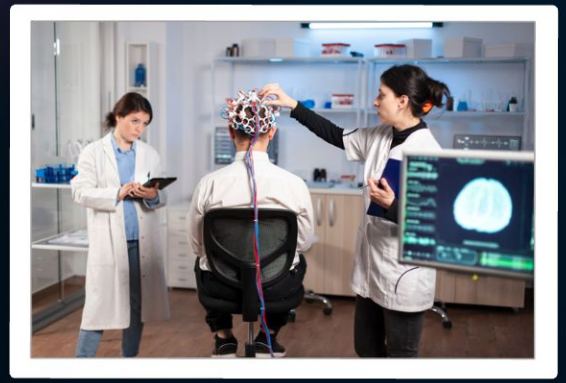


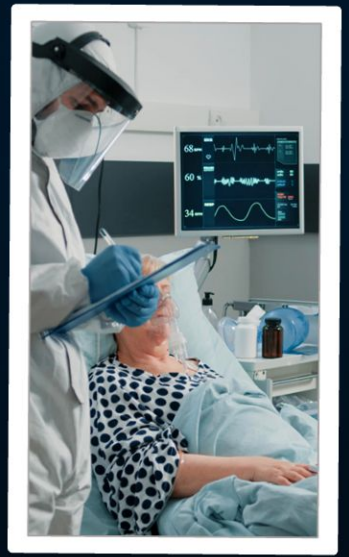
Omid Abbasi

Prezi

Current lab and clinical setups

- Accurate but limited to clinics!



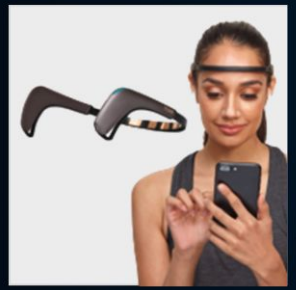




Prezi

Novel wearable gadgets

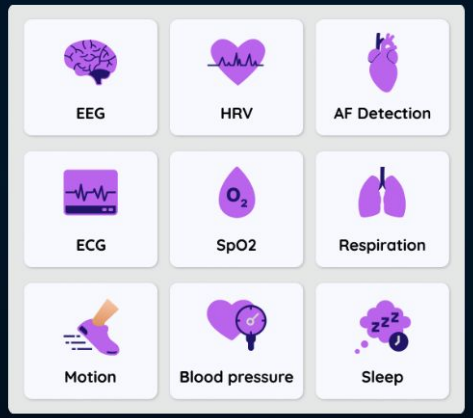
- Everywhere, anytime!



choosemuse.com



Mentalab.com





polar.com



corsano.com

Prezi

Virgobit Solutions



Prezi

Spica: Remote data collection platform

Wearable Devices | **Spica App** | **Spica Dashboard & Servers**







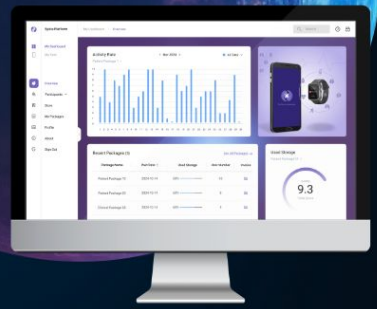
EXG, HRV, Sleep Stage, EDA, Activity



RS or gamified task Voice, motion, GPS, calls, Typing speeds, Screen, ...



WWU-Cloud
ISO 27001-Certificate



Dashboard

Patients/Participants — **Clinicians/Scientists**

Prezi

Supported Wearables

Smart Ring



- HR
- HRV
- Sleep
- Activity
- ACC

5 synced motion sensors:



- 3-axis gyroscope
- 3-axis accelerometer
- 3-axis magnetometer

Blood Sugar (CGM)



Cardiowatch





- ECG
- Sleep stages
- Motion, activity
- HRV
- Spo2
- HR, EDA

ECG belt

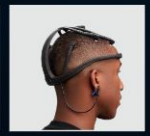
- ECG
- Body movement
- Respiration
- HR



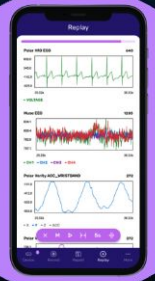


Mobile EEG









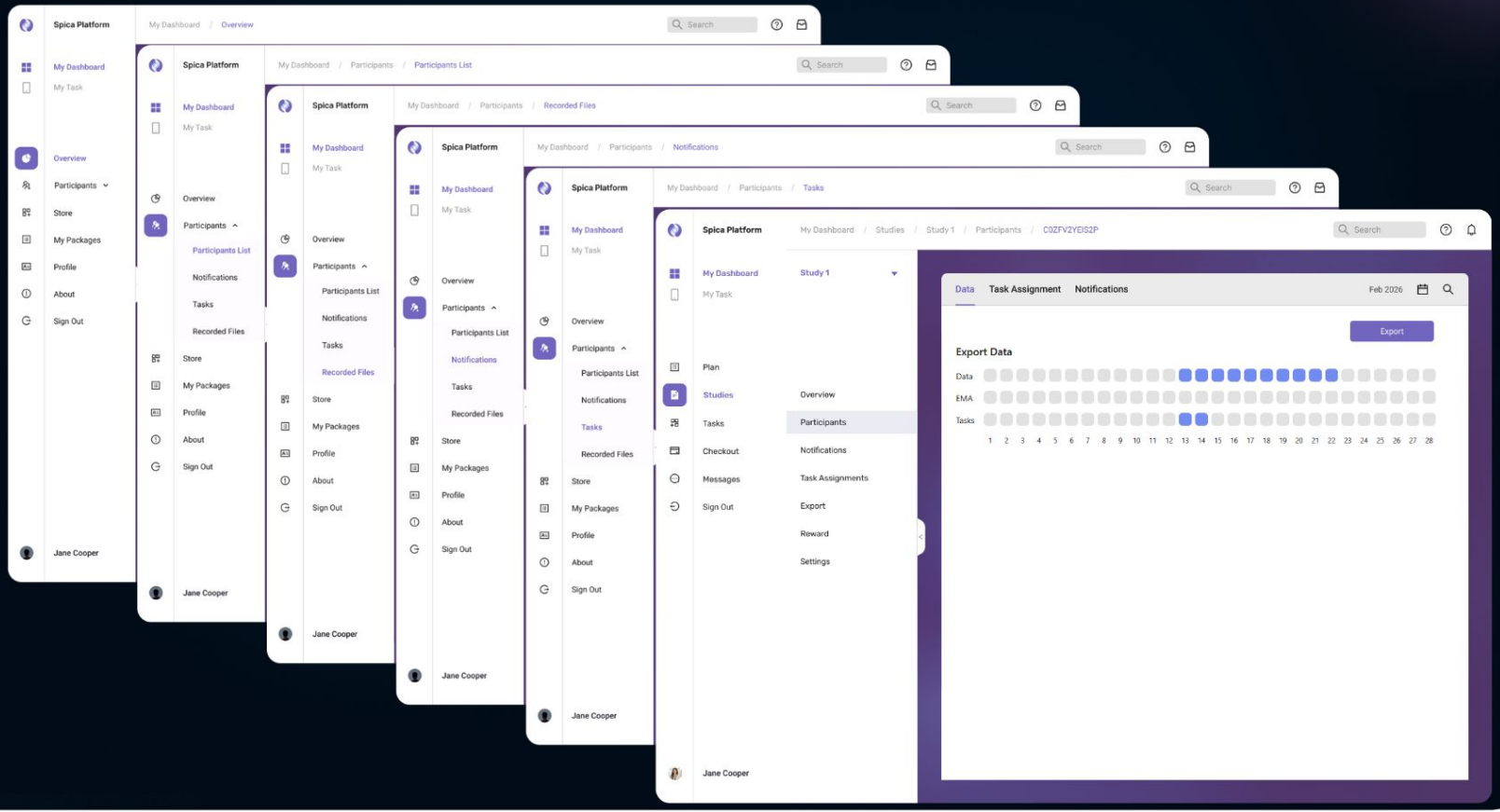
ACC, Gyro, activity, PPG, HR



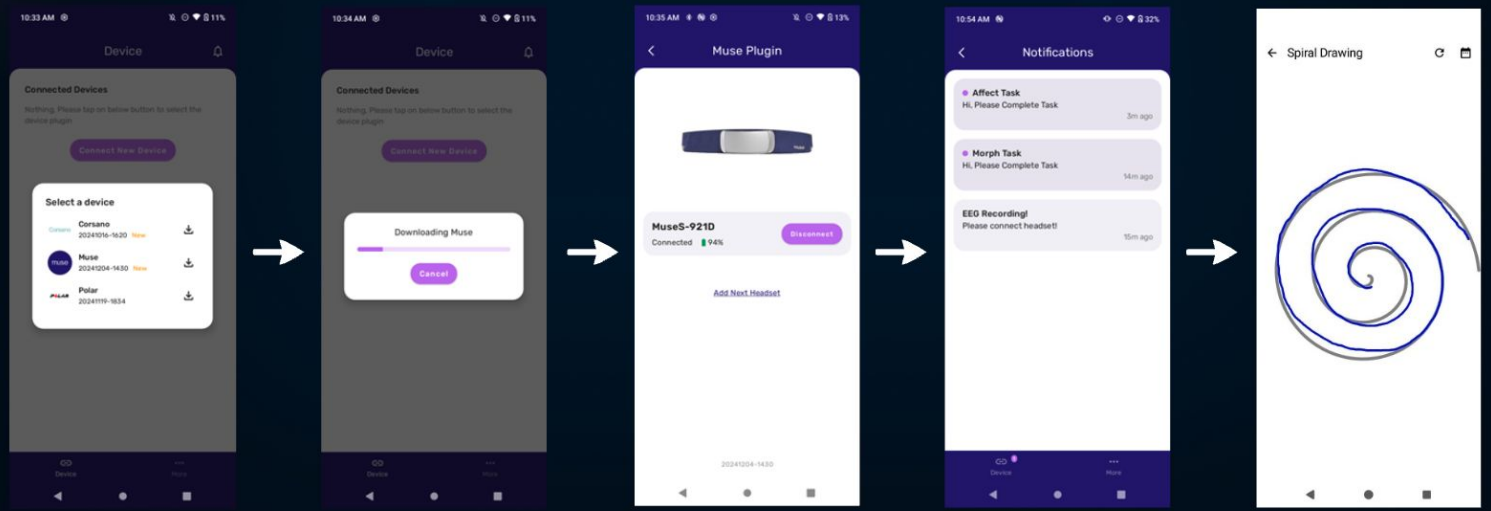


Prezi

Spica Dashboard

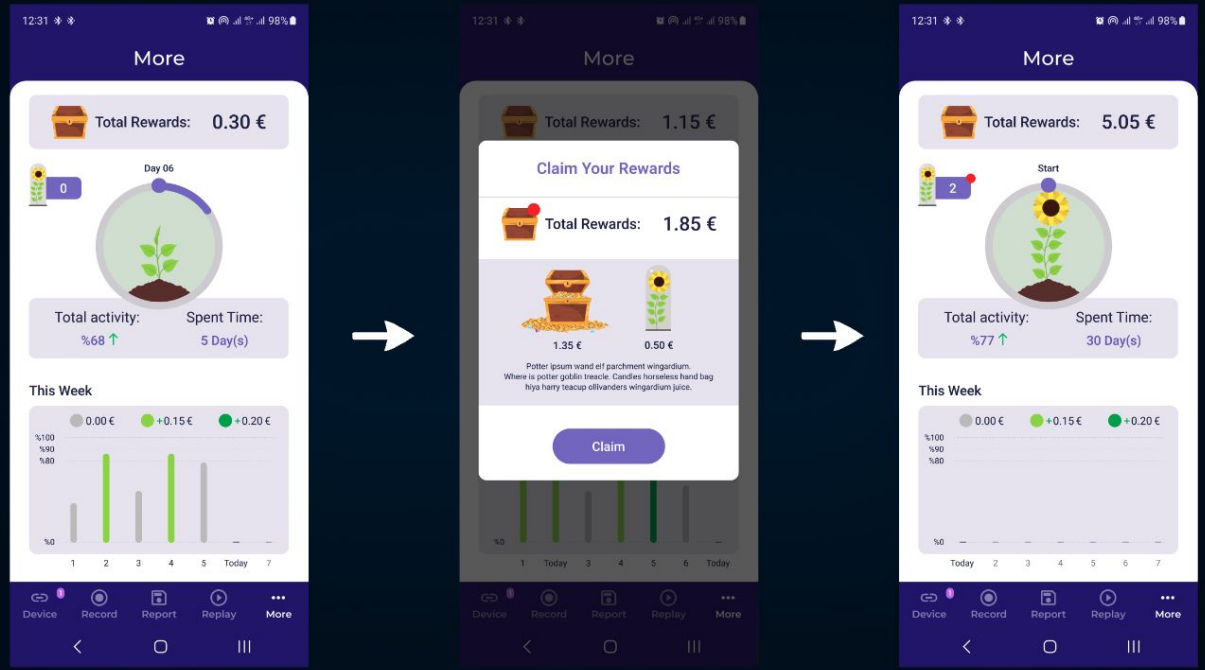


Spica Mobile App (Patient Mode)

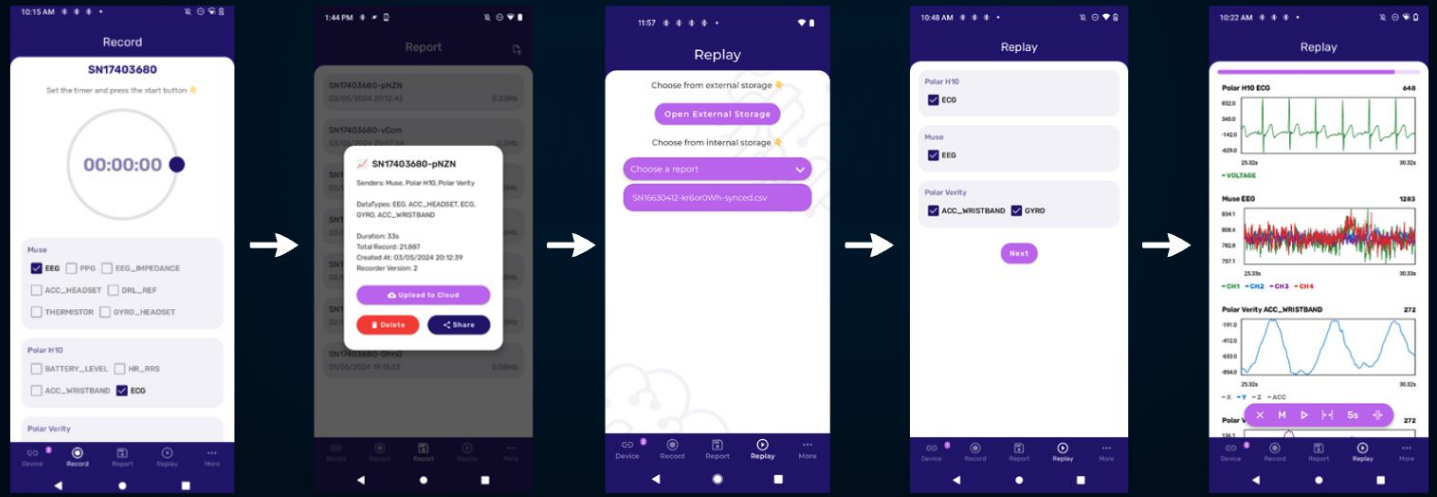


Spica Mobile App (Patient Mode)

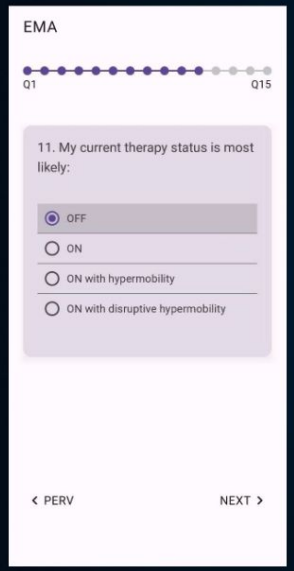
- Patient Engagement Page



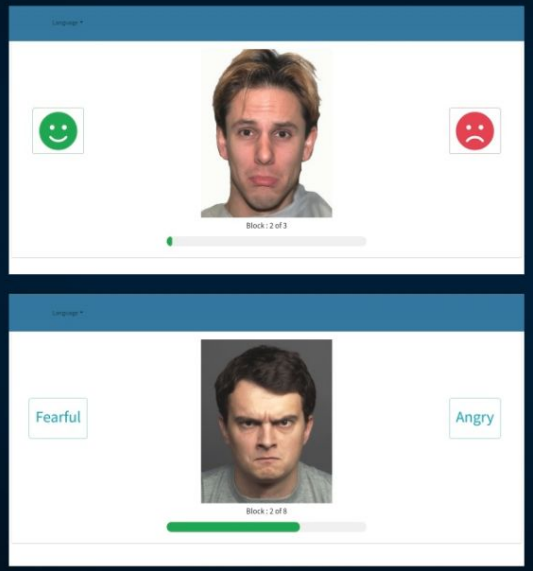
Spica Mobile App (Research Mode)



EMA & Gamified tasks

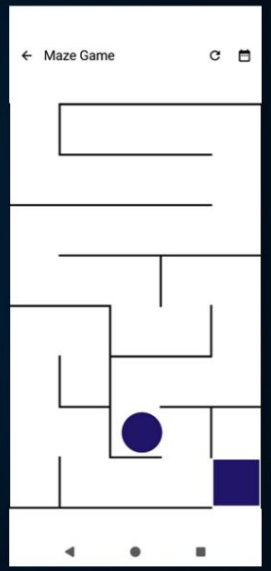


EMA



Emotional Tasks

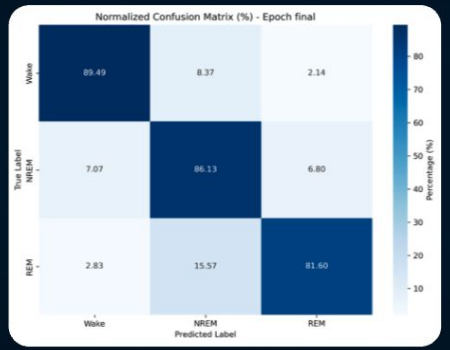


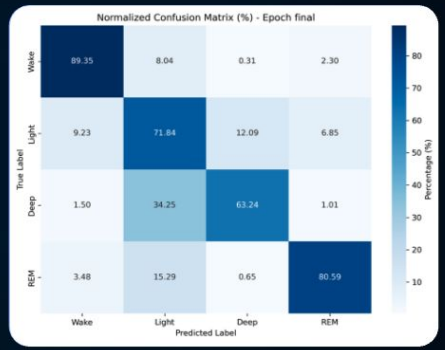


Motor Tasks

Sleep staging based on wearable PPG

Sleep staging results for three-class and four-class classification based on PPG data.





Class	F1 score
Wake	0.897
Non-REM	0.877
REM	0.746
Weighted Avg	**0.872**

Class	F1 score
Wake	0.889
Light Sleep	0.762
Deep Sleep	0.632
REM	0.749
Weighted Avg	**0.794**

Scenario 1

- Trajectories of affective disorders (SFB/TRR 393)
- Spica: Remote multimodal data collection for hundreds of Depressed patients per year

Data will be synced to servers every 24 hours



Results will be sent to servers after finishing tasks



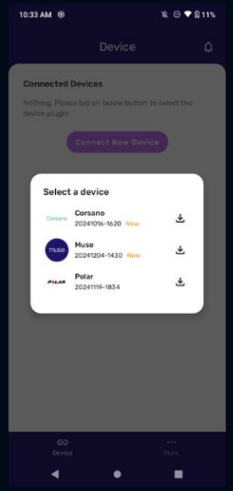
Mobile EEG

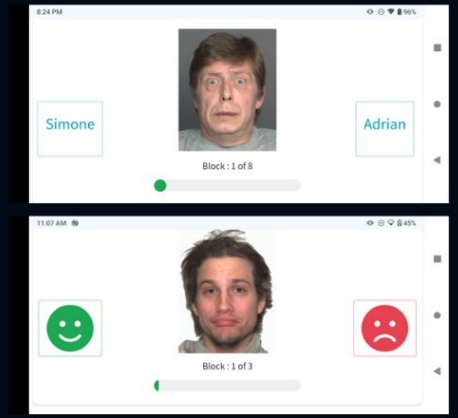
- EEG



Cardiowatch

- HRV
- HR
- ACC
- Sleep
- Activity
- Temperature





Experimental tasks

- Managed from dashboard

Prezi

Scenario 2

- Remote data collection from Parkinsonian patients
- A collaboration with Charité hospital
- Patient monitoring at home after DBS treatment

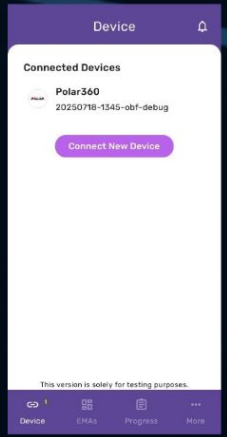
Data will be synced to servers every 24 hours

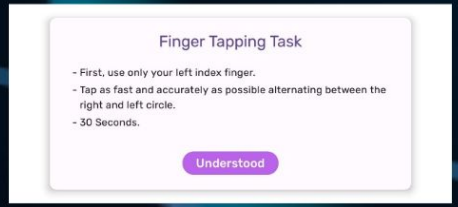
Results will be sent to servers after finishing tasks

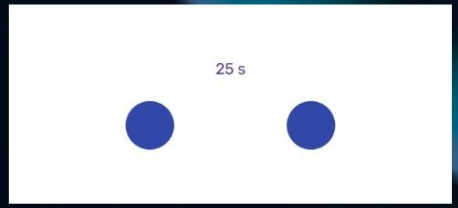


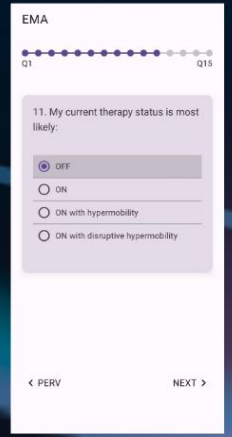
Cardiowatch

- HRV
- HR
- ACC
- Sleep
- Activity
- Temperature



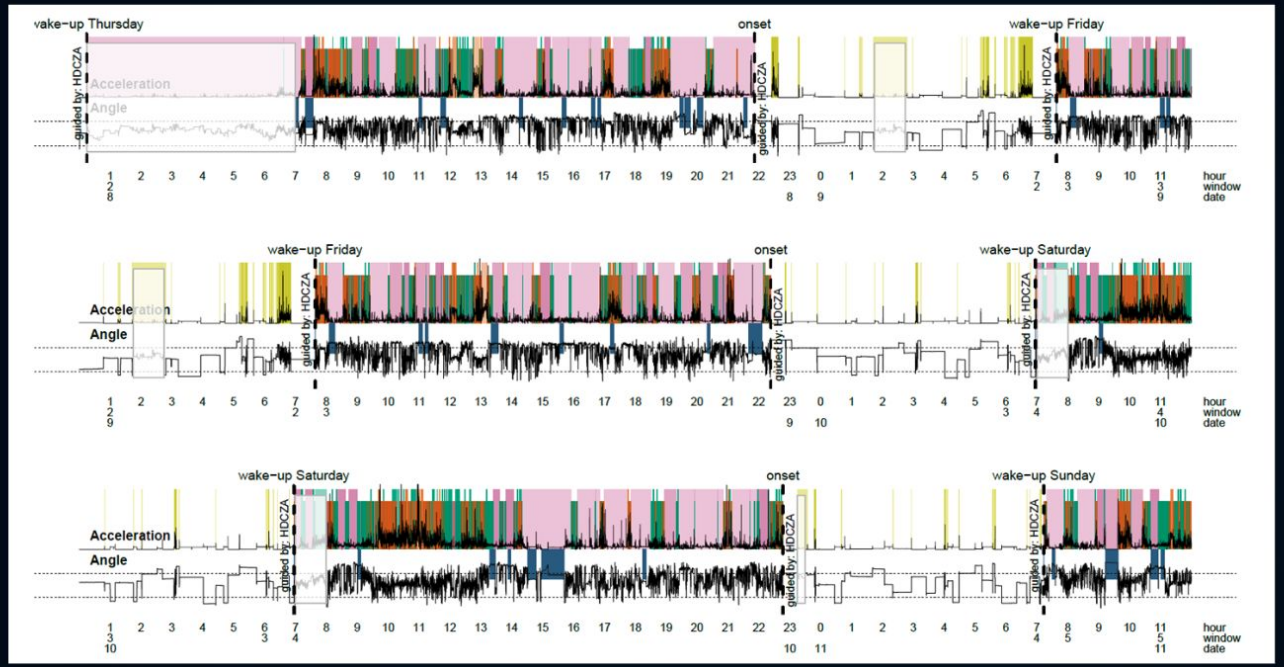






Prezi

Analysis of ACC (Example dataset)



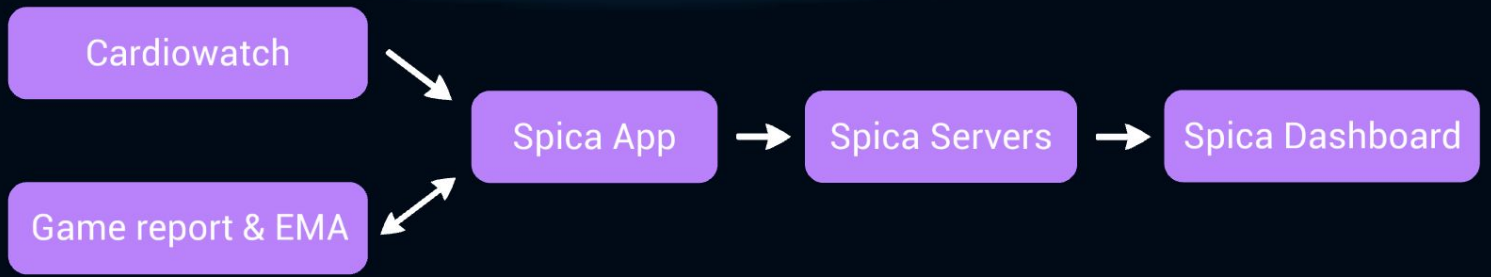
Scenario 3

KIKAN: Interactive Therapy for Children with Anxiety Disorders
(1.5 M€ funding, 3 institutes)

- Remote Physiological Data Collection
- Game Integration Support
- Large-Scale Data Acquisition
- Real-time Data Feedback to the Game
- Automated Data Upload







Prezi

Virgobit Solutions



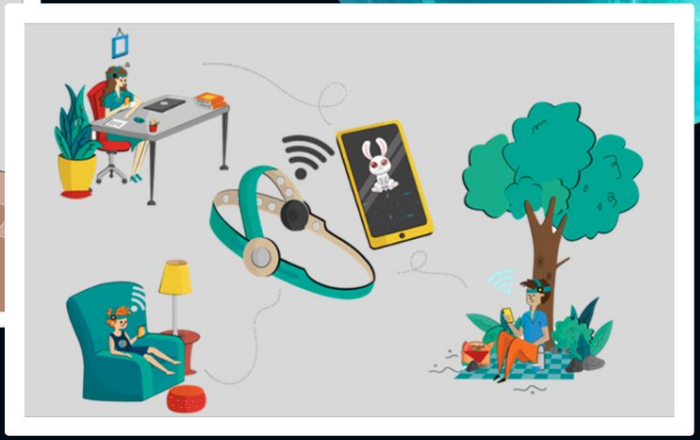


Prezi

BrainGoMo

- Smartphone-based brain training platform
- A collaboration occupational therapy centres in Münster





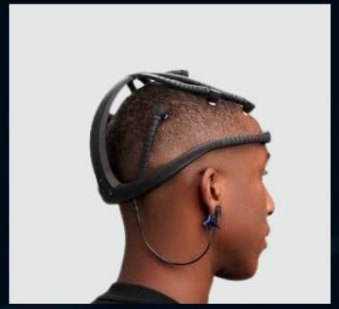
Prezi

Hardware Partner

- Neuroheadset
- Smartphone
- Webserver



choosemuse.com



brainproducts.com



mentalab.com

...

Prezi

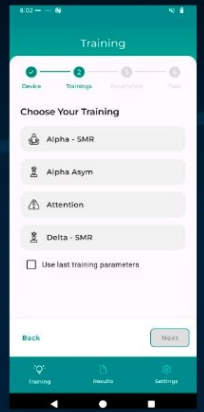
Braingomo Mobile App

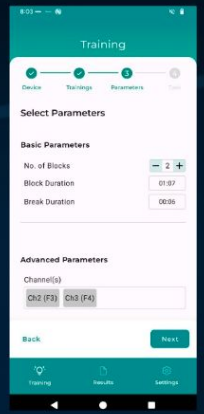
Neuroheadset

Smartphone

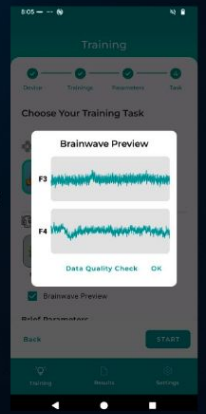
Webserver















Bra

Neuroheads

Smartphone

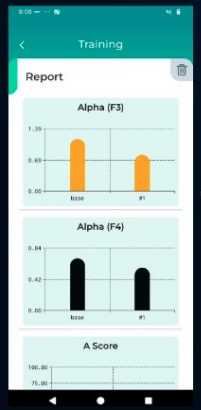
Prezi

Braingomo Webserver

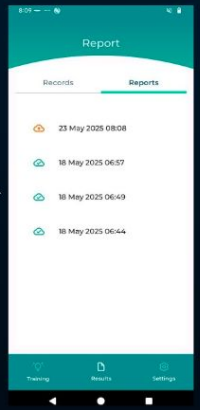
Neuroheadset

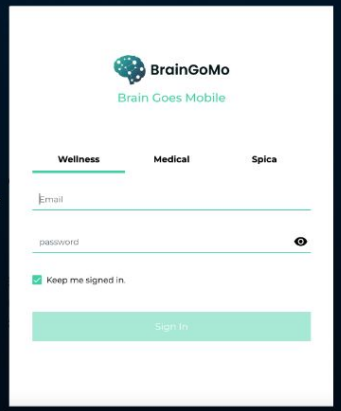
Smartphone

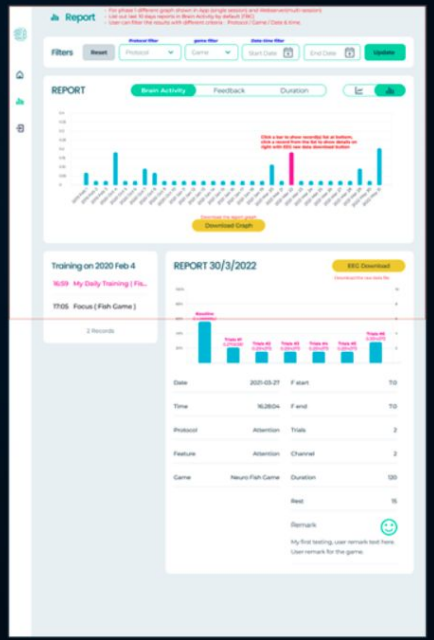
Webserver











Prezi

How we can support you

- Scientific collaboration
- Developing customized solutions
- Being your industrial partners in your grant application
- Supporting you in preparing the technical parts of the proposals or ethics application
- Subscribing to our standard solutions

Prezi

Thank you for your attention!



Omid Abbasi

abbasi@virgobit.com

Prezi