TELECARE AND ASSISTIVE TECHNOLOGY

FUTURE ANALYTICZ Ltd.

TEAM AND COMPANY BACKGROUND

- Team consists of Czech and Slovak experts on eHealth and processes in healthcare
- Based on R&D experience in cooperation with universities and TT spin-off company
- Data scientists, analytics, developers, project managers, data integration and standards specialists, system integrators, doctors, nurses, physiotherapists and rehabilitation specialists
- Spin-off CTU in Prague(Czech Technical University), research and education background
- Quality management system certification EN ISO 13485
- Future Analyticz Ltd. (start-up established February 2023)

TELEMEDICINE SOLUTIONS

- HomeBalance - telerehabilitation
- Cloud portal for telemedicine
- Leader in telemedicine/research solutions with specific focus on chronical diseases and elderly monitoring
- Main focus: Chronical diseases (Diabetes and Hypertonics), wearables data interpretation, healthy lifestyle adherence, telerehabilitation (movement disorders, neurodegenerative disesases)
- DNA analysis (whole-genome sequencing/genotyping of specific variants) of predisposition to chronic diseases, algorithmic recommendations to lifestyle & quality of life

UNIVERSITY COOPERATION

- Education – student, academic, research mobility
- Research – project cooperation in biomedical engineering, telemedicine & eHealth
- Clinical trials based knowledge and research support
- Big patient data analysis, AI supported care
- Technology & know-how transfer, spin-off & start-up support, legal support and knowledge

CURRENT PRODUCT INSTALATIONS

Czech Republic
- Rehabilitation centers — 2
- Medical spa — 2
- Hospitals — 3
- Physiorehabilitation ambulances — 7
- Universities (research, education) — 3

Slovak Republic
- Universities (research, education) — 1
- Physiorehabilitation ambulances — 2

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COMPETITORS

MediTouch https://meditouch.co.il

SAHealth https://www.sahealth.sa.gov.au/

Khymeia https://khymeia.com/

Reflexion Health https://reflexion.com

IREX https://gesturetekhealth.com/

VERA https://www.cmrehabnetwork.nhs.uk/

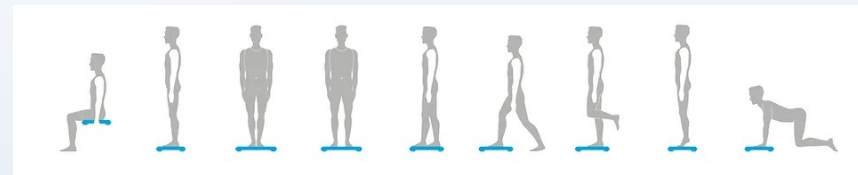BPMPathway https://www.bpmpathway.com

UseCase Examples

- **Rehabilitation**
- **Chronic disagnoses**
- **Diabetes**
- **Hypertenstion, chronical heart failure**
- **Healthy lifestyle and preventive care**
- **Assistive technology – elderly, homecare**

Our mission
Efficient delivery of health care to the patient's home environment

TELEREHABILITATION

- Range of services based upon sophisticated information system and Interactive system for distance training and therapy certified as a medical device for the treatment in the field of rehabilitation and physiotherapy
- Intended for the treatment of balance disorders in adult patients using a platform and visual feedback
- Suitable for use at home and clinics, assisted living houses, complementary therapy care
- Patient side smart device connected to modern technology helps to fulfill the therapeutic plans
- Therapeutic plan set individually by the physiotherapist; therapist is available to the patient throughout the therapy on-line
- Therapy progress sent to the Homebalance Cloud System, health evaluation report on patients improvement available

Smart device + Distance therapy + Therapist supervision = Homebalance Care
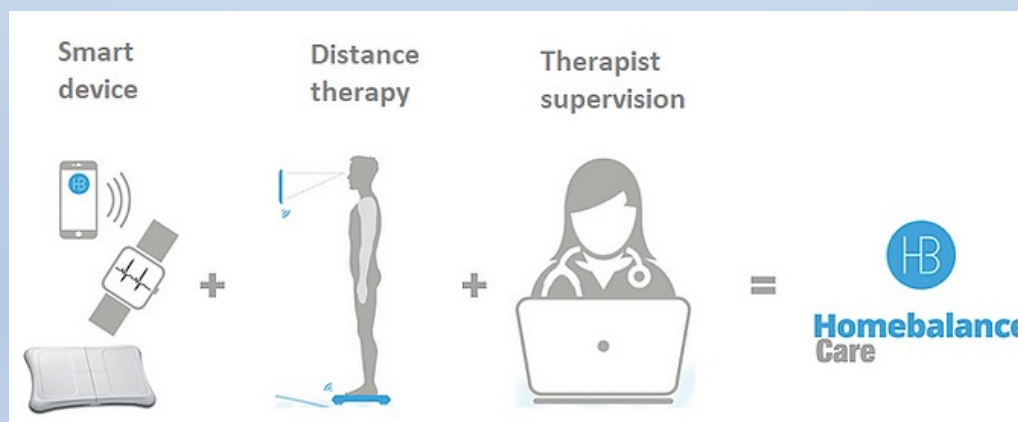
TELEREHABILITATION

Patient's Benefits

- The comfort of home, enough care, regular exercise, adherence to care, affordability
- Individualized therapeutic plans
- Possibility of remote communication with the physiotherapist
- A fun form of exercise, motivation and monitoring of physical activity
- Comparison of health status before and after completion of therapy

Provider's benefits

- One person will serve more patients, while maintaining the quality of care
- Possibility of export selected statistical data into patient records of hospital information systems
- Higher number of therapies without difficult installations
- Remote monitoring of rehabilitation in the home environment
- **Certified medical device (MDR, ISO 13485)**


Homebalance
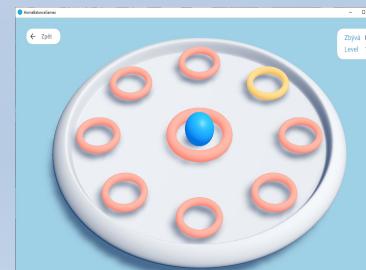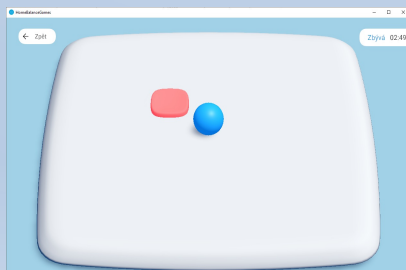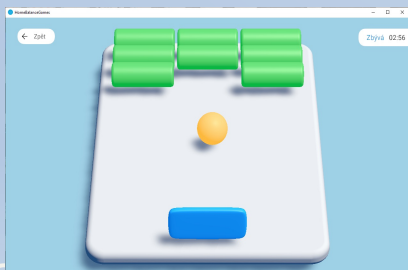
TELEREHABILITATION

Market size and potential

- Global telerehabilitation market size valued at USD 1.1 billion in 2020, expected to expand at a compound annual growth rate (CAGR) of 24.5% from 2021 to 2028
- Growing is driven by several factors: pandemic, increasing prevalence of chronic diseases such as stroke, heart diseases, arthritis, spinal cord injuries, orthopedics
- Growing awareness of its benefits, such as increased access to healthcare for individuals in remote or rural areas and cost-effectiveness.
- The telerehabilitation market in the Middle East is expected to grow at a high rate in the coming years, driven by the growing adoption of telehealth solutions in the region
- WHO estimates that 15 million people worldwide have a spinal cord injury, and another 15 million people experiencing a stroke each year, with 250.000-500.000 new cases each year. Many of these individuals require rehabilitation services to improve their mobility and quality of life.

TELEREHABILITATION

It helps

- Patient from Czech with Homebalance saved 20 days of clinical care, patient had further treatment at home with the help of telecare enabled (insurance limit 85days / claimed only 65 at clinics); 239 other patients similarly that year at average rehabilitation center in Czech

- Typical care setup of patients after stroke validated by clinical study: 6 weeks care at clinics followed by 3 months of in-house care; telecare 20 times on-line session per month vs. 5x clinics physical visit, long-term monitoring of the patient in telecare is prevention of relapse & return to the clinics

- Cooperation with Rehabilitation centre Kladruby (most important rehabilitation clinics in CZ, research cooperation, clinical studies, clinical usecase development)
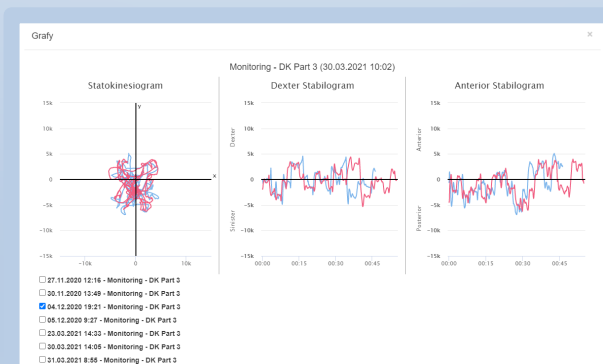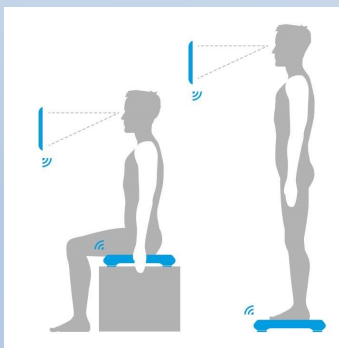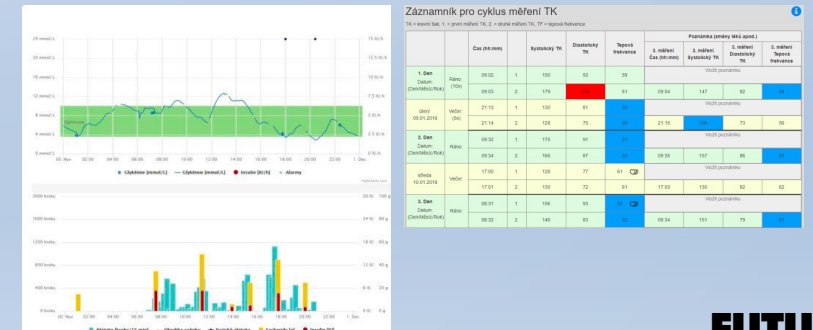
TELECARE TECHNOLOGY

- TeleCare system to support a healthy lifestyle and prevent civilization diseases

- Telemonitoring of patients with chronic diseases using wearable technologies

- The therapist can remotely adjust the therapy

- Designated algorithm evaluates patient data and, through a mobile application, provides recommendations in the field of a healthy lifestyle, serving to improve the patient's health and psychological state, as well as to prevent chronic diseases

Inputs

- Consolidated data from the HealthKit database via API or GoogleFit via API
- User entry questionnaire – family history, habits, health goals
- Entered information about consumption of alcohol, drugs and cigarettes on an occasional (once a week/month) or daily basis
- Information about the current subjective state (mental state)
- Data captured from devices that do not support HealthKit (e.g. medical devices that capture and evaluate accurate heart rate variability (HRV), etc.)
- System and context data (eg date, time, etc.)
- Data from system sensors (e.g. barometer, GPS, etc.)
- Data using external applications (e.g. weather data, etc.)
- Data from DNA analysis
- Data from biochemical analysis of biological samples (blood, urine)

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TeleCare Technology

Adherence & care recommendations delivery

- Selected factors (parameters) affecting a person's health, the algorithm provides the user with recommendations in the field of healthy lifestyle in a daily, weekly and monthly cycle and an overall overview via a mobile application.
- Included data based on DNA analysis. Each person's DNA is unique, therefore each person needs a different recommendations based on predisposition to the development of one of the chronic diseases, and monitoring selected physiological and lifestyle parameters is therefore important to prevent the manifestation of these diseases.
- The key for patient adherence is **structured information**, **algorithmic core** and automated **recommendations delivery**
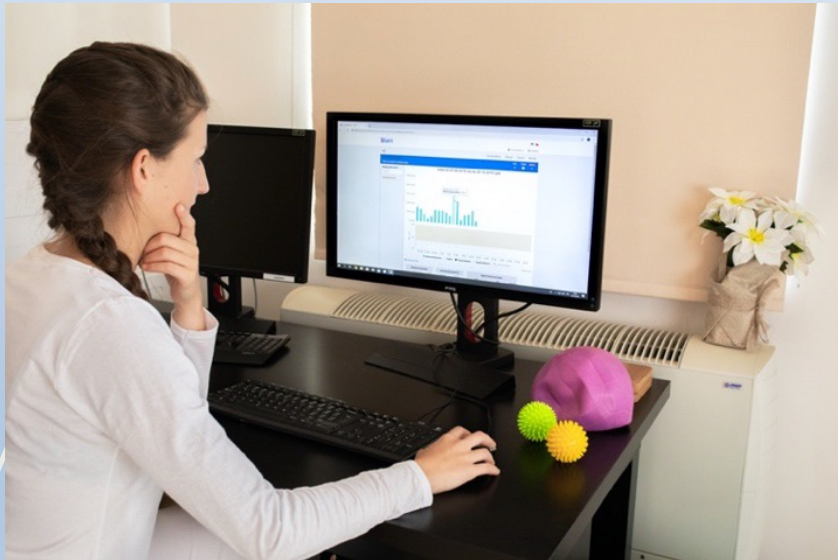
- Patient diary / electronic events monitoring
  - System records
  - Patient messages
  - Context events
  - Compliance with therapeutic plan
- Motivation messages
- Scaled questionnaires
- Medication reminder
- Decision support tools
- Therapeutic plan modifications
- Static decision engine vs. AI supported

TeleCare Technology

Technology background

- Patient-side device design 2019, MDR certification, EN ISO 13485 ✅

- Server-side technology design and implementation 2010 (MS SQL, .NET) ❌

- Cloud web-interface clinical side ergonomy & design problems ❌

Actual needs
- Server-side Technology re-design
- Cloud web-interface clinical-side design
- Integration to clinical IS
- Migration to **IRIS4H**

*caelestinus healthtech incubator

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