Smart Health 4 All

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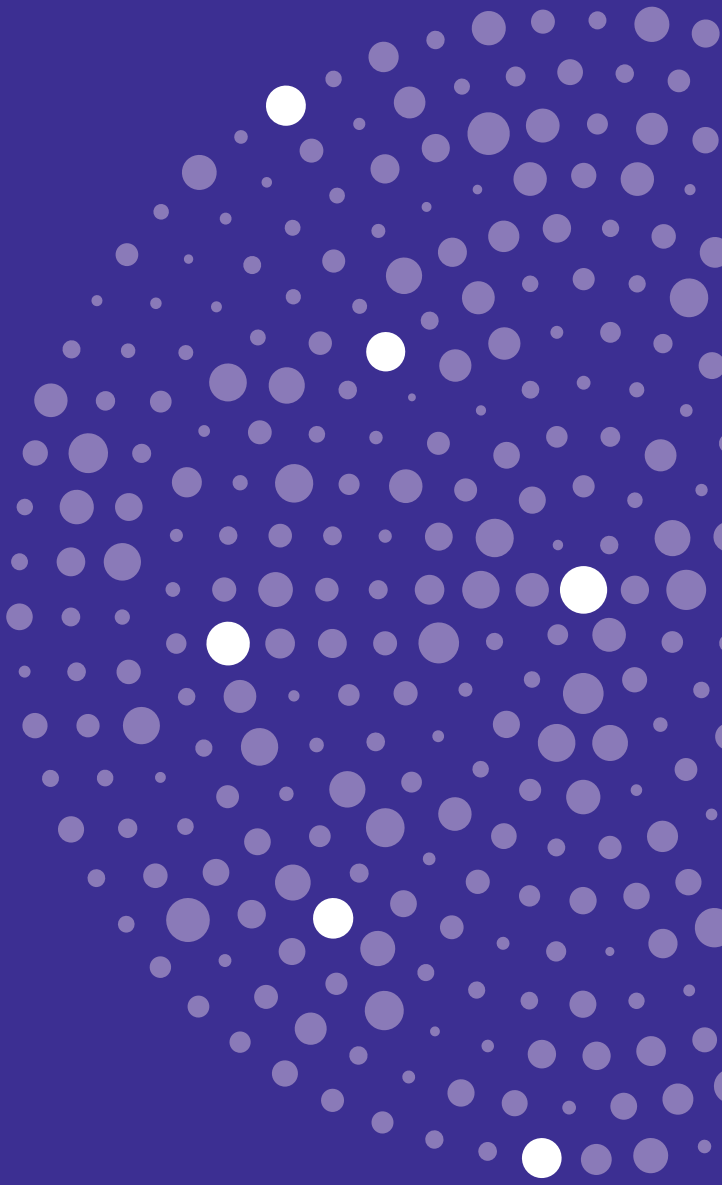


Project Smart Health 4 All

The mobilising project SmartHealth4All aims at fostering an ecosystem dedicated to the research and development, production, commercialisation and dissemination of new and intelligent technologies in the fields of Smart Health.

The project crosses different areas of knowledge, such as medical sciences and engineering, as well as medtech, eHealth and ambient assisted living.

From a clinical point of view, it focuses on the prevention, diagnosis, monitoring and treatment of diseases and other medical conditions, mainly of a chronic nature and linked to ageing.

Smart Health encompasses technologies that are increasingly networked and geared towards improving the delivery of health care and services.

It is recognized as one of the responses to the global challenge of growing health expenditure associated with an ageing population and increasing prevalence of chronic diseases.

This context provides an enormous market potential to Smart Health solutions.

SmartHealth4All was developed by 24 partners, associated to the Health Cluster Portugal, under the leadership of Siemens Healthineers.

Which involved a total investment of around 6.2 million Euro.

It is structured into 5 PPS oriented towards research and development of products and services:

PPS 1

Development and Testing Platform SMART-HEALTH-4-ALL

PPS 2

Personal Health Devices

PPS 3

Mobile Health Apps

PPS 4

Home Health Devices

PPS 5

Medication Management Devices

PPS1

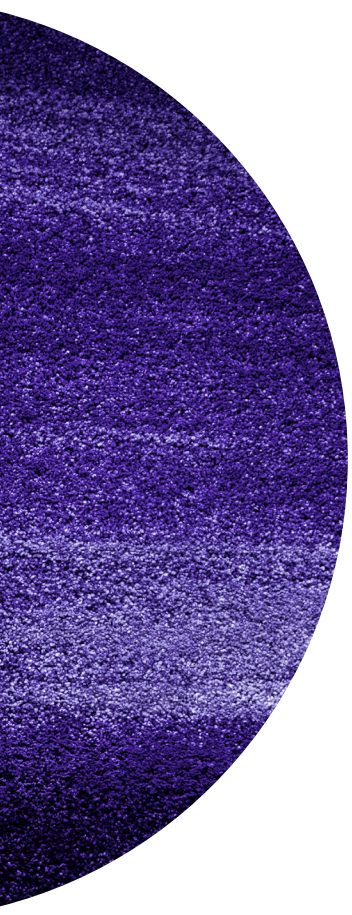
Plataform SH4ALL

Smart Health 4 All is a platform for managing clinical trials and supporting the development of medical devices.

Presented in web portal and mobile versions, with an intuitive and friendly-use design and flow.

This platform provides support from device certification, to conducting clinical studies to validate the devices and making their data available within the clinical studies.

Thus, its use is intended to reduce the complexity of the development process of medical devices and, consequently their cost, and to support the validation testing of devices and services, from proof of concept to certification.



The SH4All platform is made up of different modules to meet different needs.

Module

Supporting certification of medical devices as software

- The certification support Module provides support to companies:
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- · in the classification of the medical device;
- · the incorporation of requirements in accordance with national and European regulations, and other international standards
- · the application of good practice in the development and testing of devices
- · the risk assessment and classification of medical devices, such as software.

Module

Mini Clinical Trials System

The Mini Clinical Trials System Module is intended to be a tool for managing and conducting clinical trials.

Module

Trial Monitor with Data Analytics tools

The Trial Monitor Module visually communicates the status of ongoing clinical studies via intuitive dashboards and also provides full data analytics tools, to analyse data, scientific results and infer conclusions.

Module

Data Repository

The Data Repository Module stores all data collected by the products that communicate with the platform.

Also be noted that the Smart Health 4 All platform allows integration and communication with different products and medical devices.

PPS2

MyCareShoe

According to the World Health Organisation, there are more than 400 million diabetics worldwide.

Diabetic foot ulceration is one of the most common and serious complications of this pathology, with a significant negative impact on the quality of life of patients, which in more severe cases can lead to amputation.

My Care Shoe is a shoe for the diabetic foot that integrates innovative technologies and is based on the knowledge already integrated in the Ortomedical footwear, developed for this problem and approved by the Diabetic Association of Portugal.

The technologies incorporated in the My Care Shoe were developed to determine the
the probability of conditions that promote the appearance of ulcers and are fully integrated into the structure of the footwear without compromising the comfort and safety of the user.

This innovative detection system interacts with an actuation system fully integrated in the structure of the shoe, and allows the relief of areas of previously diagnosed greater plantar pressure.

My Care Shoe is also connected to a mobile application, which allows you to view, in real time, the pressures exerted by the foot in the different regions.

In case of hyper-pressure, the mobile application receives an alert from the system, subsequently allowing the user to trigger the system to act.

PPS2

MuscleBAN Strap

With the increase in average life expectancy, the demographic pyramid has been inverted. This paradigm shift has increased the burden of chronic diseases, namely problems related to mobility such as musculoskeletal disorders.

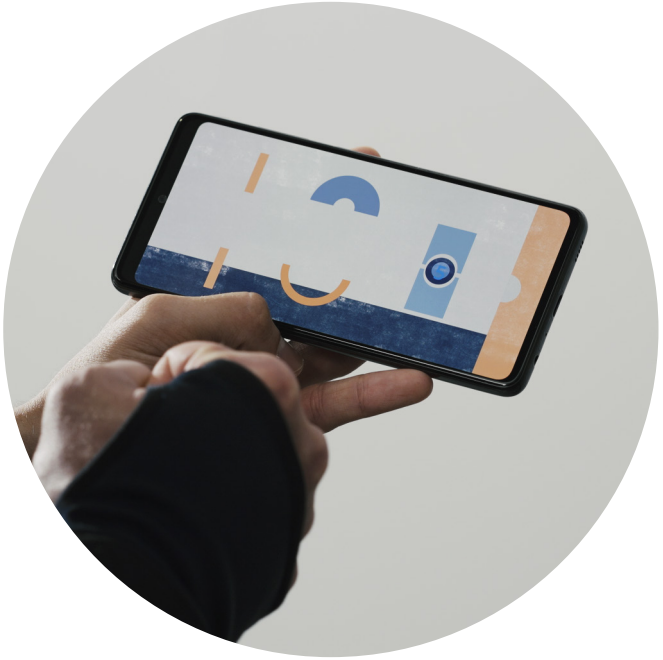
The MuscleBAN Strap is a textile sleeve that allows monitoring muscle activity during physiotherapy exercises.

Autonomously, remotely, in the comfort of your home, the MuscleBAN Strap allows the assessment of muscle activity.

This innovative product consists of dry electrodes, integrated into the textile structure, and was developed with comfort and usability in mind for the user.

Its functional finishes also make it easy to clean and maintain.

The MuscleBAN Strap is used with a mobile application that allows the realization of rehabilitation exercises, through interactive games, in a totally autonomous and remote way.



PPS3 Biosensors

Clinical trials are the most significant and
and costly aspect of the health sciences research process.

The adoption of Biosensors in remote clinical trials will reduce costs, compared to face-to-face clinical trials, and thus collect
and share remotely and in real time, multiple physiological parameters.

Thus, Biosensors is a convenient and practical alternative for continuous monitoring of vital signs, without interfering with the user's daily activities.

This product is combined with a mobile application, which allows you to consult and share the data collected, namely respiratory rate, heart rate variability, electrocardiogram and movement.

Biosensors has a version that uses dry electrodes in contact with the skin - a more economical and ecological method - but can also be used with conventional and disposable gel electrodes.

PPS3

Brain Diagnosis

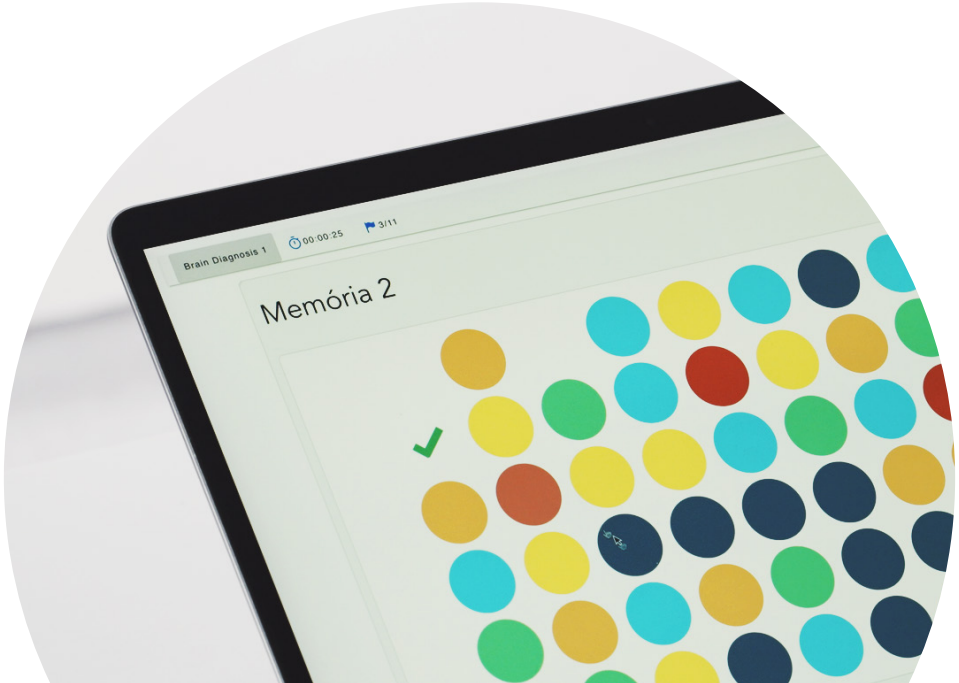
BrainDiagnosis is a digital solution aimed at identifying and monitoring cognitive changes.

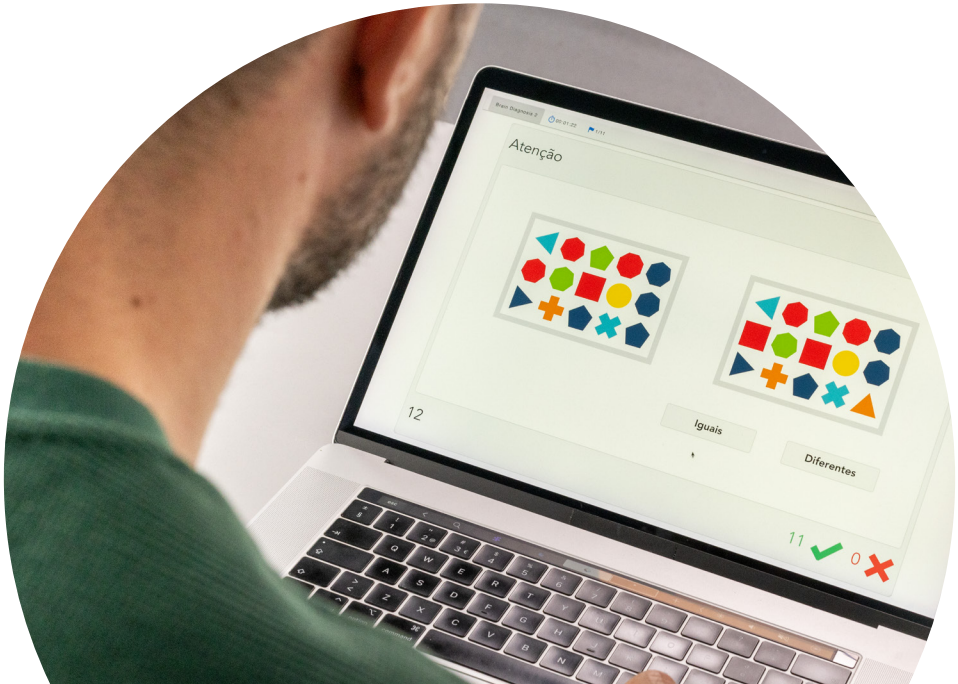
Allows the sequential measurement of cognitive performance in relevant clinical and pre-clinical conditions, through a set of tests for the assessment of different cognitive functions, such as attention, memory, language, calculation and executive functions.

It also allows frequent assessments of large populations and the identification of variations from previous performance levels.

It can be used by all individuals who have not been diagnosed with cognitive impairment and who are interested in objectively monitoring their cognitive performance.

It is also indicated for monitoring cognition in people at risk of developing cognitive problems, the effects of medication and interventions in clinical trials.





PPS4

Sleep+ Bedroom+

Sleep involves a decrease in responsiveness to external stimuli, often associated with the maintenance of good physical and psychological functioning of individuals. Recent studies have shown that poor sleep is often associated with an increased risk of developing cardiovascular, psychiatric, neurological and chronic diseases.
They indicate that the prevalence of sleep problems can be as high as 56%.

Sleep+

Sleep+ is an ergonomic and intelligent pillow, with the release of sleep-inducing fragrances, capable of monitoring user-related parameters during sleep and changing its shape to improve head positioning and consequently reduce snoring.

PPS4

Bedroom+

Bedroom+ is a bed headboard made up of intelligent sensor systems, fully embedded in the laminate structure of the piece, which monitor parameters of the bedroom environment and allow inferences on how these affect sleep, and can also be directed to control home automation solutions. The headboard also includes a decorative light system integrated into the laminate.

Sleep+ Bedroom+

The parameters measured by Sleep+ and Bedroom+ are reported to the user through a mobile application, HomeHealthDevices+. This app also allows you to obtain an assessment of your sleep quality and suggests recommendations for improvement based on the user's answers to questionnaires and sleep diaries, as well as the parameters measured, making it possible to sharing this information with health professionals.

PPS5 Aptamed

Strict adherence to medicine prescriptions is key for the effectiveness of the prescribed treatment and to avoid wasting resources.

Non-adherence to medication can have several causes. Forgetting to take medication is one of the causes of non-adherence to medication.

AptaMED is a monitoring base, connected to a mobile application, prepared to be easily adaptable to a wide range of pre-existing medication vials developed to assist the user during medicinal therapy.

The first step towards its use is programming by the taker or through integrated IoT systems in health and wellness.

At this stage, the time and day of the prescribed dose per medication is programmed into the device, which can be used for multiple medications in the case of polymedicated patients.

After programming, alerts are generated in the product on the device (or base) and on the mobile application for real-time monitoring of medication intake, to promote therapeutic adherence and real-time monitoring of medication intake.

Through the mobile application it is possible to consult the history of the doses, as well as other functionalities.

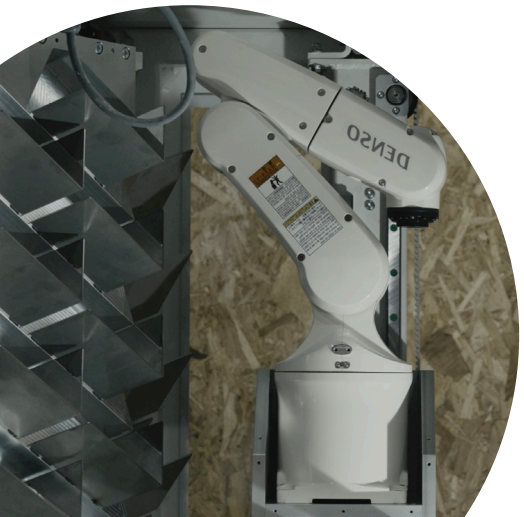
PPS5 Pharmaneq 4.0

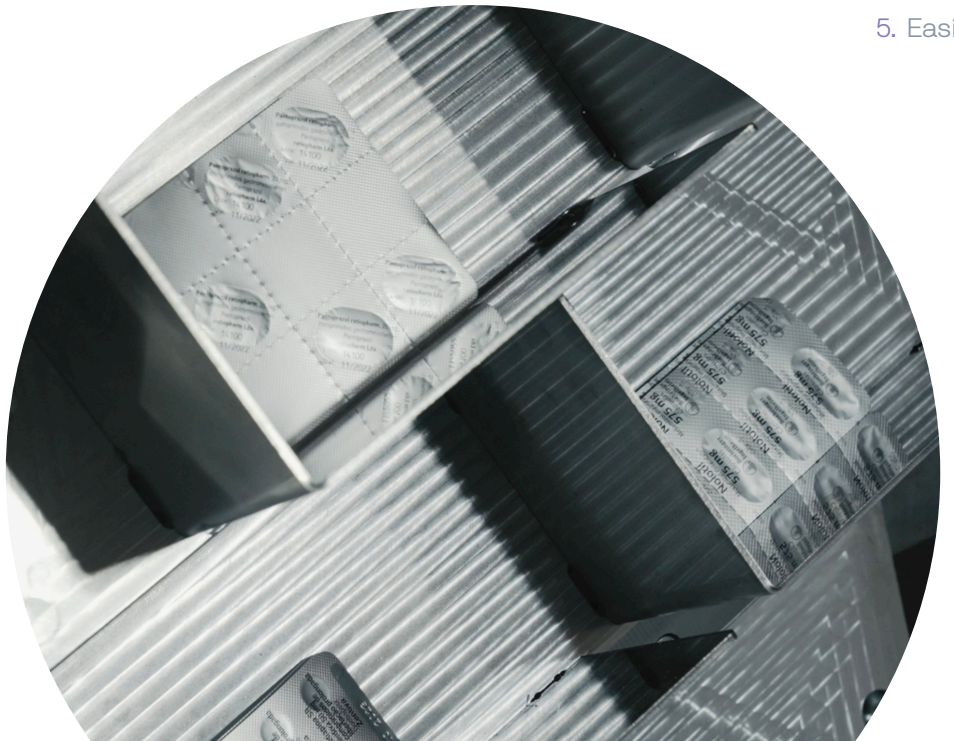
Pharmaneq 4.0 is an equipment for hospital pharmaceutical management and control, which integrates the entire cycle of the medication from prescription to
administration, fully complying with national and international pharmaceutical standards.

The innovative, scalable and easy-to-operate just-in-time medicine delivery system is capable of automating all tasks and processes included in the cycle of the medicine distribution system. Which, until now, totally relied on the human component.

This solution will increase the efficiency of the processes involved, contributing to:

1. Reduction of errors in the dispensing of prescribed medication to the patient;
2. Improved storage of the medicinal product before administration to the patient;
3. Facilitation in the dispensing process of the patient's daily medication series, also allowing for unscheduled deliveries;
4. Reliable traceability in medicine administration;
5. Easier pharmacy management.





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More information at:

www.smarthealth4all.com