

XoSoft

Soft modular biomimetic
exoskeleton to assist people with
mobility impairments

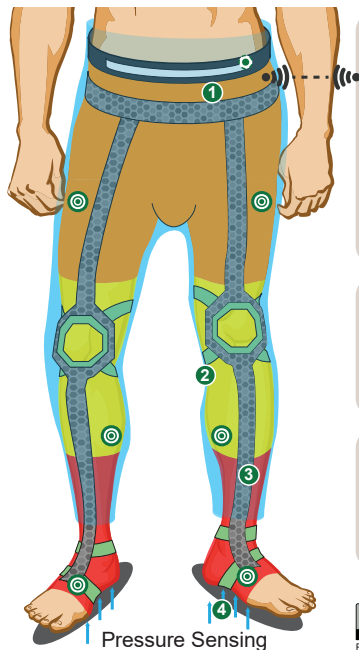
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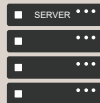
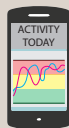
The project has received funding from the European Union's Horizon 2020 framework programme for research and innovation under grant agreement No 688175.

Product Description

XoSoft is a modular soft lower-limb exoskeleton to assist people with walking impairments. It consists of an ankle, knee and hip module, which can be used individually or in combination based on the user's requirements.



Communication and connected health



1 Central processing hub

Data gathering
Actuator control
Communication
Power

Soft sensing and actuation

- 2 Variable stiffness joint
- 3 Multi-joint actuation
- 4 Smart soft mechanical sensing
- ⊙ Inertial sensors (for 3D kinematics)



User Groups

As a medical device, XoSoft assists people with low to moderate levels of reduced mobility. The XoSoft soft exoskeleton will support people with mobility issues in order to improve health and quality of life.



Primary Users

- Elderly person
- Individual with mobility impairments
- Stroke patient



Secondary Users

- Doctor
- Physiotherapist
- Carer
- Family member

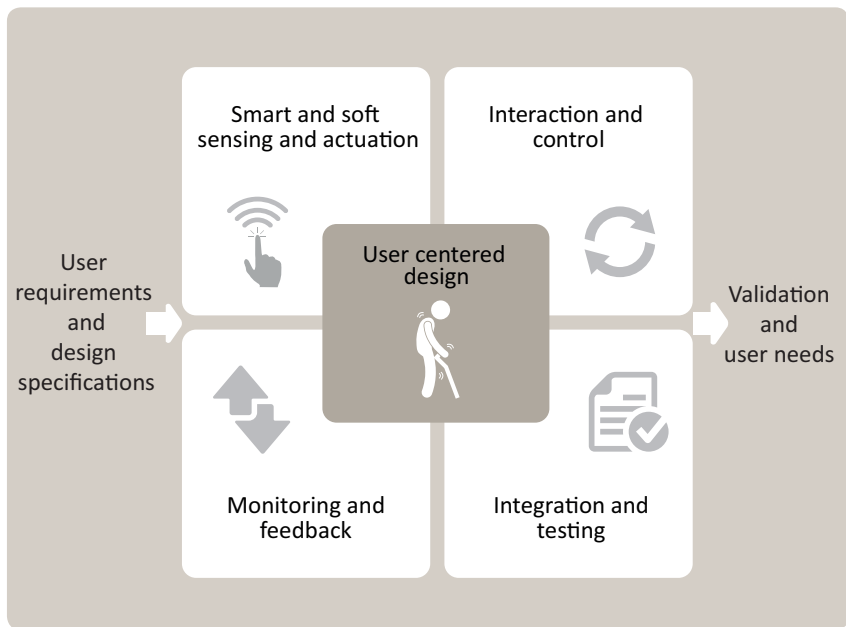


Tertiary Users

- Social welfare
- Health insurance
- Policy maker
- Advocacy group

User Centred Approach

The user requirements and design specification are established before concept technology development starts. The design is realised in the selection of technologies, which are developed based on their ability to deliver the user centered design solution.

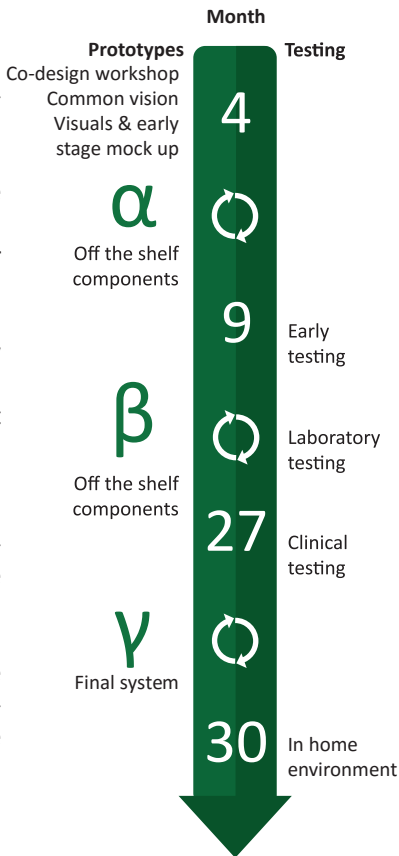


Prototype

Alpha version: This version is designed using existing technologies and is achieved by month 9. Its purpose is to inform and fuel inventive thinking and to accelerate the design process. It is also a mechanism to ensure the design process remains user centred.

Beta version: During the project new technologies to the system will be replaced and incorporated. The different Beta versions of the system are tested during laboratory setups. The last Beta version will include the full sensing and actuation system but with limited autonomous functionality. This version will be used in the clinical testing.

Gamma version: The final version of the system will be fully autonomous as a person would use it and is ready for the home trials.



Business Case

Key activities

- Component development
- Manufacturing
- Production cost reduction
- Product certification



Customer relationship

- Primary users
- Secondary users
- Tertiary users



Key partners

- Primary users
- Secondary users
- Tertiary users
- XoSoft consortium members and their networks



Value position

Enable user to improve their mobility and increase their independence to have a quality of life or ensure healthy aging.

XoSoft is easy to use, convenient and comfortable at an affordable price.



Customer segments

By 2020

Stroke Patients

16 million/year
5% market penetration
800'000

Elderly Persons

74.4 million
1% market penetration
744'000

Healthy Population

496 million
0.1% market penetration
496'000



Key resources

- Sensors, actuators and materials
- Mechatronic development
- Movement lab and test partners
- Cloud infrastructure



Channels

- OSSUR's worldwide distribution network
- O&P workshops



Project Partners

The XoSoft consortium is a well-balanced combination of partners with complementary knowledge areas and skills, including key players from industry and academia.



Project Details

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Duration:
1 February 2016 - 31 January 2019

Funding Programme/Call Topic:
Horizon 2020/ICT-2015 (RIA)

Budget:
5.4 million euro

Area:
ICT Robotics

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