


SCRIPT


SCRIPT PROJECT STROKE REHAB @HOME

Day 2- Track 3
11:00-12:30

SCRIPT CONSORTIUM
13 Mar, 2014

www.scriptproject.eu

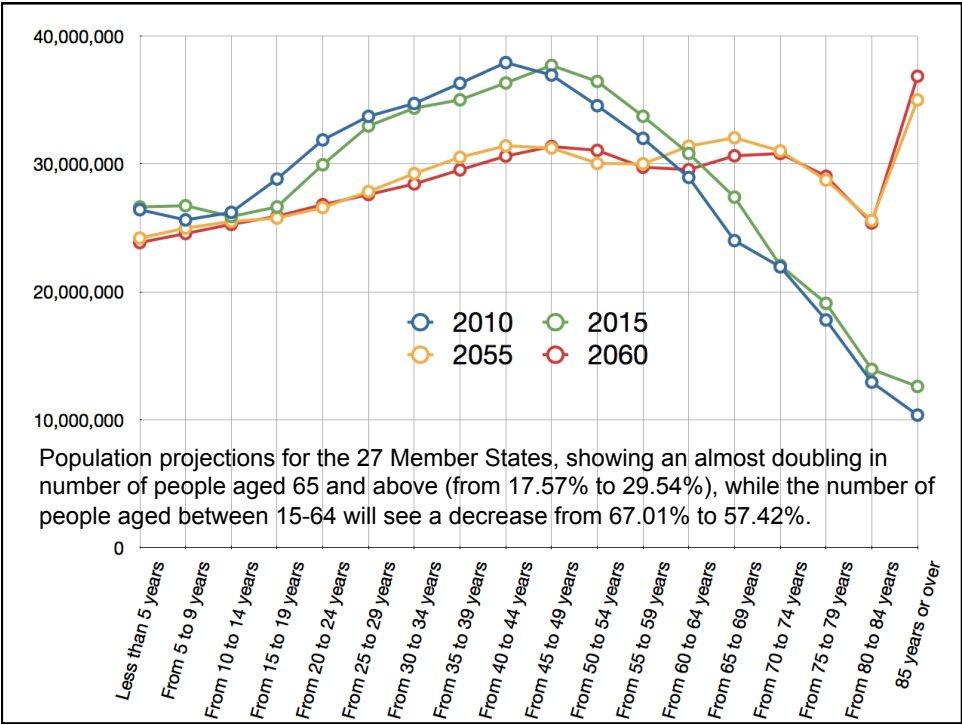
 **eHealth**
Better Healthcare for Europe

 SEVENTH FRAMEWORK
PROGRAMME

Presentations at ERF14



- Wednesday 12th
 - SCRIPT Project and its user-centered development
- Thursday 13th, Track 3, 11:00
 - SCRIPT Project preliminary evaluation results
- Friday 14th, Track 4, 08:30
 - Project Accompany, companion in support of independence
- Friday 14th, Track 2, 11:00
 - Robots for the frail elderly



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Supervised Care & Rehabilitation Involving Personal Tele-Robotics

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University of Hertfordshire

MOOG

IRCCS San Raffaele
Pisana

The University of Sheffield

UID

RUROBOTS
Cognitive Science at Work

UNIVERSITY OF TWENTE

Roessingh
Research and
Development

hello, technology

Budget: €4,643,983

EC funding: €3,331,961

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4

SCRIPT OVERVIEW

WHAT IS THE PROJECT ABOUT?



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5

OUR AIMS

Two prototype robotic devices, both of which can be used for hand & wrist rehabilitation



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- Use rehabilitative technologies at the **patient's home** to enable better management and delivery of therapies to stroke patients
- Focus on **hand and wrist** exercise; as this presents the **least researched area** with the **most functional relevance** and potential for contribution to **personal independence** for stroke patients.
- Look at differences between passive and active actuated devices.
- Using **interactive games**, provide an **educational, motivational and engaging** interaction, therefore making a therapy session more enjoyable for patients.
- Enable **remote management** and **support of the patient**.
- Deduce from **summative evaluation** in this project, **the impact on health and recovery** and its **potential cost** implications.

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6

CHALLENGES

Some of the questions



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- Can we design our device in a way that patients will find it usable?
- Would patients actually use the device at home?
- Would it be effective in helping with the recovery?
- Can we manage with the remote supervision?
- Would we manage to make an affordable prototype?
- What market potentials are there?

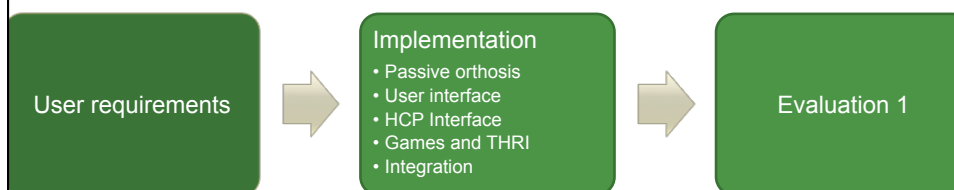
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7

SCRIPT Year 1



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8

Video available on project YouTube channel:
<http://www.youtube.com/channel/UCXad1tAgsxsJyLn533RGvqQ>

PROJECT OVERVIEW

Prototype 1 – progress to date



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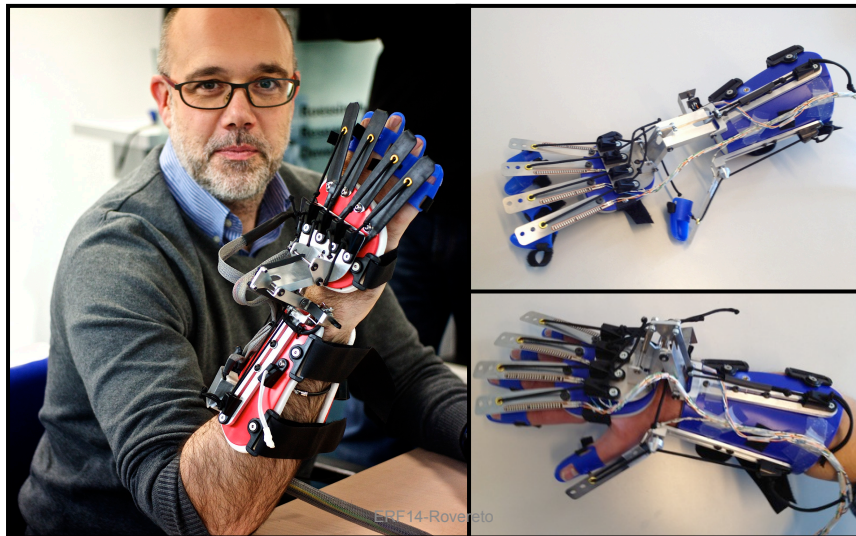
9

ORTHOSIS

SCRIPT Prototype 1: Passive Orthosis



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ORTHOSIS

SCRIPT Prototype 1: Intended Use



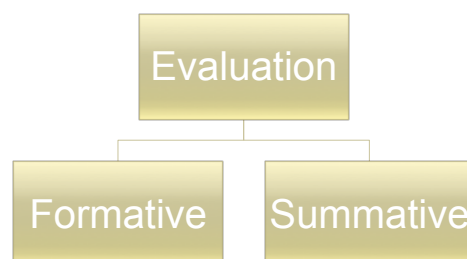
- SCRIPT Prototype 1 (SP1) is a **wrist, hand and finger orthosis** that assist individuals after stroke that suffer from impairments caused by spasticity and abnormal synergies.
- Stroke impairments are characterized in the wrist and hand by excessive involuntary flexion torques that hinder the hand in many to most activities in daily life. **SP1 can passively offsets the undesired torques.**
- SP1 cannot actively generate or control movements. **The patient needs to participate actively** to perform movements and thus needs to have some residual muscle control to successfully use the device.

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SYSTEM EVALUATIONS

Two branches of evaluation were considered



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FORMATIVE FINDINGS



Features of a home-based self-rehabilitation system SCRIPT

- Balance between independency and receiving supervision
- An interactive system
- Time
- Motivating system
- Fun system
- Inspiring system

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13

SUMMATIVE EVALUATION



Process

- Summative evaluation SCRIPT1
 - Standardisation of procedures for SE1 execution
 - Six weeks of SCRIPT1 training at home by 24 chronic stroke patients
 - Pre, post and follow-up evaluation of user acceptance and clinical outcome in 21 patients (+3 dropouts) [20 completed pre+post; 11 completed follow-up, ongoing]
- Summative evaluation SCRIPT2 [in advance]
 - Preparation of SE2 protocol

14/01/2014

SCRIPT Review 2

14

SUMMATIVE EVALUATION

SE1 findings



- Summary of SE1 findings (so far)
 - Feasibility is good (motivation and usability high)
 - Reflected in actual training duration of 15 min/day
 - People are able to use it independently at home!
 - Clinical improvements observed
 - More pronounced in arm function than in activity
 - Variation between patients (several good responders)
 - Better perceived arm performance in daily life!
 - Both post-training and sustained after 2 months

14/01/2014

SCRIPT Review 2

15




Questions?

The SCRIPT project is partially funded by the European Commission under the 7th Framework Programme.

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16




THANKS
FOR YOUR
ATTENTION!




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