training and monitoring of daily-life physical INTERACTION with the environment after stroke

From 2011-11-01 to 2015-01-31, closed project | INTERACTION Website

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>Topic(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR 3 872 936</td>
<td>ICT-2011.5.1 - Personal Health Systems (PHS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EU contribution:</th>
<th>Call for proposal:</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR 2 620 000</td>
<td>FP7-ICT-2011-7 See other projects for this call</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coordinated in:</th>
<th>Funding scheme:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>CP - Collaborative project (generic)</td>
</tr>
</tbody>
</table>

Objective

Continuous daily-life monitoring of the functional activities of stroke survivors in their physical interaction with the environment is essential for optimal guidance of rehabilitation therapy by medical professionals and coaching of the patient. Such performance information cannot be obtained with present monitoring systems. It is the objective of the INTERACTION project to develop and validate an unobtrusive and modular system for monitoring daily life activities and for training of upper and lower extremity motor function in stroke subjects. The system will be unobtrusively integrated in clothing (e-textile), include fabric-based and distributed inertial sensing, and provide telemonitoring and adaptive on-body feedback capabilities. Telesupervision facilities will enable a clinical expert at a distance to evaluate performance effectively, coach the patient and influence training. Monitoring will be based on ambulatory sensing of muscle activation (EMG), interaction forces and body movements. The physical interaction with the environment during reaching and grasping will be assessed by relating interaction forces and movements. This provides information about power exchange between the human body and the environment, dynamics of the environment and task performance. Balancing the body will be assessed from ground reaction forces and relative foot placements. EMG provides information about neural control of movements, including abnormal synergies and spasticity. The assessment is made context aware by task identification and estimation of the dynamics of the environment from the sensed quantities. The system will first be validated in a lab setting, comparing the system against current clinical measures. It will subsequently be demonstrated during the actual daily life of stroke survivors.

Related information

<table>
<thead>
<tr>
<th>News</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sensor-fitted suit to analyse stroke patients’ movements</td>
</tr>
</tbody>
</table>

Coordinator contact

Peter Veltink
Coordinator
UNIVERSITEIT TWENTE
DRIENERLOLAAN 5
7522 NB ENSCHEDE
Netherlands
EU contribution: EUR 623 521

Activity type: Higher or Secondary Education Establishments
Administrative contact: Benno Pals
Tel.: +31 53 4893702
Fax: +31 53 4891069
Contact the organisation

Participants
UNIVERSITAT ZURICH
RAMISTRASSE 71
8006 ZURICH
Switzerland
EU contribution: EUR 391 899

Activity type: Higher or Secondary Education Establishments
Administrative contact: Giuseppina Iacovo
Tel.: +41 44 255 8806
Fax: +41 44 255 4649
Contact the organisation

SMARTEX S.R.L.
VIA LUNGO IL FICARELLO 3
59100 PRATO
Italy
EU contribution: EUR 387 700

Activity type: Other
Administrative contact: Roberto Orselli
Tel.: +39 050 754350
Fax: +39 050 754351
Contact the organisation
EU contribution: EUR 581 019

UNIVERSITA DI PISA
LUNGARNO PACINOTTI 43/44
56126 PISA
Italy
See on map

Activity type: Higher or Secondary Education Establishments

Administrative contact: Danilo De Rossi
Tel.: +390502217053
Fax: +390502217051
Contact the organisation

ROESSINGH RESEARCH AND DEVELOPMENT BV
ROESSINGH'S BLEEKWEG 33
7522 AH ENSCHEDE
Netherlands
EU contribution: EUR 362 669

Activity type: Other

Administrative contact: Jaap Buurke
Tel.: +31534875777
Fax: +31534340849
Contact the organisation

XSENS TECHNOLOGIES B.V.
PANTHEON 6A 8A
7521 PR ENSCHEDE
Netherlands
EU contribution: EUR 273 192

Activity type: Other

Administrative contact: Hendrik Luinge
Tel.: +31889736700
Fax: +31889736701
Contact the organisation

Subjects

Life Sciences

Last updated on 2017-04-21
Retrieved on 2019-06-13

Permalink: https://cordis.europa.eu/project/rcn/100699_en.html
© European Union, 2019