



<b>Title:</b>	<b>ARTE - Analisi EEG del trattamento robotico (EEG analysis of roboti treatment)</b>
<b>Duration:</b>	<b>24 months + 6 months extention</b>
<b>Start date:</b>	<b>February, 2nd 2017</b>
<b>Closure date:</b>	<b>July, 30th 2019</b>
<b>Admissible costs:</b>	<b>447.250,00€</b>
<b>Co-founder:</b>	<b>Smart Fashion and Design – POR-FESR 2014-2020 Asse 1 - Azione I.1.b.1.2</b>
<b>Partner:</b>	<b>ab medica S.p.a. EMAC S.r.l. Politecnico di Milano - DEIB</b>



### Project description:

The project aims to implement an innovative system for neuro-rehabilitation of the elderly subject affected by neurodegenerative pathologies or by subjects victim of cerebral stroke with consequent motor and/or cognitive disability.

The system is composed by the integration of devices for the rehabilitation, evaluation and patients monitoring having the characteristic of being usable and easily wearable by the patient. Special attention was made to the system's ability to stimulate the patient's motivation and degree of involvement in carrying out the planned exercises, to measure progress and the results obtained by using innovative algorithms capable of monitoring patient involvement by analysing EEG signals during the rehabilitation session.

The added value of the system is to provide rehabilitation centres with an intelligent decision support tool that is able to adapt to the specific needs of the patient.

The system consists of a modular technological platform schematically composed of the following parts:

- "Patient Management" software (personal data, anamnesis, patient's psychophysical conditions, patient's characteristic EEG band, biomedical parameters ...) with the possibility of having memorized the Activity Planning;
- Advanced Robotic Device for assisted rehabilitation of the upper limb;
- Wireless EEG helmet for the acquisition and transmission of electroencephalographic signals;
- Measurement of vital parameters: temperature and heart rate;
- Algorithm for the calculation of the "Engagement".



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