

2015 Ice Bucket Call for Assistive Technology Projects

ECO-ALS - *Augmented Environment for Control in amyotrophic lateral sclerosis patients*

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PROJECT VALUE	192.650 euro
DURATION	24 months
PROJECT OBJECTIVES	<p>The loss of autonomy is one of the key problems of ALS as to force with time the total dependence on caregivers. This may represent an additional source of stress especially in all those situations in which the patients require frequent changes to their posture in order to reduce disturbances due to immobility. At the same time these constant requests can represent for the caregiver a further element that may overload the assistance burden to their loved one.</p> <p>The ECO-ALS project intends to offer to ALS patients with severe deficit of the four limbs movements the possibility to independently manage the posture of the electric wheelchair equipped with Q-Logic control and the articulated bed, thanks to a miniaturized eye-tracker (EyeSpeak), based on Epson Moverio technology of augmented reality glasses. The same tool used for the alternative augmentative communication will be also implemented for environmental control.</p> <p>The project will be divided into two stages:</p> <ul style="list-style-type: none"> - The first will design and develop software and electronics to produce a first prototype; an interactive approach will be then used by which the prototype will be tested thanks to patients collaboration. Their feedback will be needed to implement the technology; - The second stage consists in the clinical validation of the final prototype on 10 patients over a period of three weeks, together with a training phase that will involve both patients and their caregivers. It will be assessed how the glasses allow patients to self-manage the different movements of the aids; It will defied the comfort of the glasses, the reduction of load on the caregiver and the impact on the quality of life. <p>During all the study phases an analysis of patients visual function will be performed in order to report whether and how this will impact on the disease course and how these changes may eventually impact on the aid usability.</p> <p>The project aims to obtain a final product to be presented to patients with ALS and other people with similar disabilities.</p>