

TITLE: BRAIN –MACHINE INTERFACE

DESCRIPTION OF THE TECHNOLOGY

This technological capacity consists of the development of non-invasive brain-machine interfaces for the rehabilitation and assistance of people with motor limitations, as well as the development of non-invasive neurostimulation techniques for the rehabilitation of people with motor limitations and for cognitive improvement.

This capacity has been developed as a result of the activity of the Brain-Machine Interface Systems Lab Research Group (<http://bmi.edu.umh.es/>) composed by researchers from the Department of Systems Engineering and Automation.

MARKET APPLICATION SECTORS

The services that can be provided from this group to apply this technological capacity are of a multisectorial nature. It is possible to carry out technological transfer to different productive sectors: public and private health in its rehabilitation area, companies that develop technical assistance aids for people with motor limitations, and public and private clinical centers for cognitive improvement treatments.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The main advantage of the use of brain-machine interfaces is that they allow people with motor limitations to communicate with their environment without the need of using their muscles. In addition, both these interfaces and neurostimulation techniques have great potential as a tool for the rehabilitation of people with motor limitations. In addition, neurostimulation techniques could be of great application to achieve improvements at cognitive level.

CURRENT STATE OF DEVELOPMENT

Currently, the group has the following developments:

- .- brain-machine interface based on EEG signals for Internet browsing.
- .- brain-machine interfaces based on EEG signals to control external robots.
- .- brain-machine interface based on EEG signals that allows controlling a robotic exoskeleton of the upper limb, so it can be used in rehabilitation therapies.
- brain-machine interface based on EEG signals that allows controlling a robotic exoskeleton of the lower limb, so it can be used both in rehabilitation therapies and for the assistance of mobility.
- .- Neurostimulation procedure focused on the motor area.
- .- Neurostimulation procedure with potential for cognitive improvement.

COLABORATION SOUGHT

We look for companies or public entities interested in testing the interfaces developed by the group or that require the creation of a specific interface for a specific case. Therefore, services can be provided to all those companies and entities that require this technology.

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RELATED IMAGES



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