# MAMEM

Multimedia Authoring and Management using your Eyes and Mind

MAMEM's overarching goal is to integrate people with disabilities back into society by endowing them with the critical skill of managing and authoring multimedia content using novel and more natural interface channels. These channels will be controlled by eye-movements and mental commands, significantly increasing the potential for communication and exchange in leisure (e.g. social networks) and non-leisure context (e.g. workplace).

CONCEPT

Facilitate the development of brain-computer interfaces that will lie between the disabled and the conventional interface of a software application dealing with multimedia content. These interfaces will be operated with an eye tracker, an Electroencephalography (EEG) recorder and additional bio-sensors (e.g., heart rate, galvanic skin response).
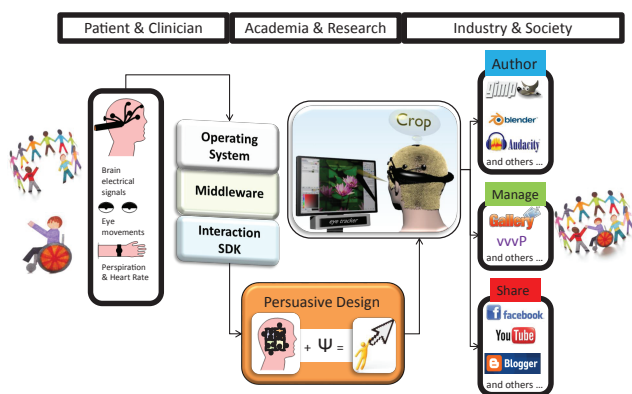
OBJECTIVES

• Capture, record and make available real-time & accurate information about eye-movements, electric brain signals and bio-measurements.

• Develop the necessary algorithms for translating this information into meaningful control that will take the form of semantic widgets.

• Implement a middleware so as to make these widgets available as elementary building blocks for implementing multimedia-related interfaces.

• Model users based on their (dis-)abilities, interaction behaviour, emotions & intentions and follow a set of persuasive design principles to develop interfaces that will effectively stimulate users to use them and encourage their behavioural change.

• Design, implement and evaluate a set of prototype interface applications that rely on MAMEM's middleware to execute the multimedia-related usage scenarios through the user's eyes and mind.

• Enable the use of prototype interface applications in non-controled environments, such as the user's home environment.

• Assess the degree of success in bringing disabled people back to society as a result of their newly acquired ability to manage and author multimedia content.

USE CASES

Parkinson's Disease

Parkinson's disease is the second most common neurodegenerative disorder after Alzheimer's disease and affects approximately seven million people globally and more than one million people in Europe.

Neuromuscular Disease

The neuromuscular disease group, refers to a variety of disorders, e.g. Duchenne's MD (DMD), Becker's MD (BMD), Emery-Dreifuss MD, Limb-Girdle MD, Facioscapulohumeral MD, Steinert disease, Amyotrophic Lateral Sclerosis, etc.

High Tetraplegia

Every year, 1 in 60,000 people are injured in the cervical spinal cord, with most common causes being the traffic accidents, falls and sports. In the UK every year, there are around 1,200 people with spinal cord injury, half of them with tetraplegia.

PARTNERS

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SMI — SensoMotoric Instruments

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