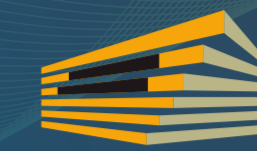# OT-13

Method for the detection of neurodegenerative pathologies and mental illnesses from facial images

TYPE OF RESULT

- New technology
- New product
- New service
- New knowledge or skill

COMMERCIAL MATURITY LEVEL

- Conceptual idea
- Proof of concept (design)
- Validated in a controlled environment
- **Validated in a real environment**
- Successfully implanted

PROTECTION LEVEL

- Non- applicable
- Patent
- Software
- Know - how
- Utility model

Description of the solution. Problem solved

Studying the human face can provide valuable information about the mental health of an individual. The appearance of the face changes according to mental disorders affecting the individuals during their lifetime.

The present solution is a method that helps diagnosing neurodegenerative illnesses such as Alzheimer, Parkinson, Asperger syndrome, autism, etc., by quantifying the emotional load (emotion loss), that is one of the first symptoms of development of these diseases.

It is a software that analyses the lips movement from facial images that are obtained by recording a dialogue with the individual to be assessed. This method is not intended to determine the type of emotion, but to determine its level, since its aim is to quantify the loss of emotion.

It is a monomodal system that works autonomously and that can be used complementary with other existing systems based on voice analysis, electroencephalograms or body measures in order to provide more richness to multimodal studies for early diagnosis of neurodegenerative diseases.

Fields of commercial application

- **R+D sector:** technological centres specialised in neurodegenerative diseases.
- **Health sector:** health and socio-health centres.
- **Technology sector:** medical instrument manufacturers.
- **Pharmaceutical sector:** pharmaceutical laboratories.
- **Marketing sector:** Product acceptance and research centres.

Market opportunity

- Using this solution combined with existing ones would help to develop new models for preventing mental and neurodegenerative diseases.

- Health services (public and private) may apply this system for improving early detection services for the aforementioned type of diseases, and it would be not necessary for patients to go to the doctor. Also, it could be used for monitoring progress of these pathologies remotely.

- Pharmaceutical companies may use this software for monitoring the effectiveness of treatment and medicines administered to patients, regarding to the delay in the evolution of pathologies.

- Medical equipment manufacturers may add this software in those solutions they sell.

- It also may be of interest for those marketing companies that study product acceptance by the degree of emotion produced in a user.

Competitive advantage

This solution provides the following advantages compared to other monitoring and parametrization methods currently used:

- This is an easy-to-use software for patients: they only need to record themselves reading a text aloud.

- This is a very low-cost solution since it only requires a web cam and a mini pc where the software can be implemented.

- This solution can be applied remotely and, thus, patient can record from any place.

- Finally, it is a non-invasive solution for the patient.

Resources needed to be implemented

This system is ready for being implemented commercially.

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