PLATFORM FOR EARLY DIAGNOSIS OF STEREOPSIS DISORDERS

DESCRIPTION OF THE TECHNOLOGY

Researchers from FISABIO (Foundation for the Promotion of Health and Biomedical Research in the Valencian Community) and UPV (Universitat Politècnica de València) have developed a new system for the diagnosis of alterations in stereoscopic vision.

Stereopsis is the phenomenon of perceiving an object in relief or in 3D and therefore the volumes and distances at which the objects are found. About 5% of the world's population presents problems in the fusion of images generally derived from amblyopia or strabological pathology. Amblyopia affects 2%-3% of the population, equivalent to 10 million people under the age of 8 worldwide.

The designed platform offers a system to measure the depth perception (in mm) of a patient based on artificial vision techniques, and thus the platform is able to diagnose and monitor patients with vision problems in stereo and stereoscopic acuity not detectable by traditional systems.

It consists of 3D glasses and a monitor (or Augmented Reality glasses), an artificial vision system that works with a series of cameras, and a device to support the patient's chin.

The platform allows accurate diagnoses avoiding the false negatives and false positives of the traditional systems and can be a support to the medical decision when it comes to treatment and follow-up of the patient.

MARKET APPLICATION SECTORS

Companies in the ophthalmology and optometry sector or with virtual reality products applied to health in their product portfolio.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

Better accuracy compared to conventional tests such as Titmus, TNO, Randot Test and Lang Test: it dramatically reduces the number of false positives and negatives diagnosed by these tests. The system allows estimations in depth perception in millimeters with an accuracy lower than 400-800 arc seconds (arcsec).

It avoids the problem of the learning effect of fixed responses and, as it is not based on contours, avoids monocular tracks, making the diagnoses more reliable.

It detects the degree of stereopsis and makes it possible to follow the quantitative evolution throughout the treatment period.

It allows the collection and storage of patient data automatically.

Useful for evaluation in young children as it is an attractive solution adapted to them.

It is an intuitive application and therefore easy to use.

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CURRENT STATE OF DEVELOPMENT

A laboratory scale prototype is available and has been tested with 40 patients obtaining reliable and reproducible results in the measurement of depth perception distance.

INTELLECTUAL PROPERTY RIGHTS

Patent filed at the Spanish Patent and Trademark Office with registration number P201930062 and priority date January 28, 2019.

COLLABORATION SOUGHT

Companies interested in a icense agreement to commercialize the technology or a technical cooperation agreement to continue with the development of the technology.

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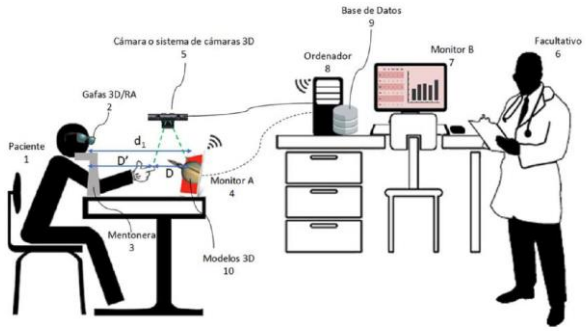



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