

**Patent: System and procedure for calculating the position of the eyelid with regard to the eyeball**

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### Description

The present invention refers to a **procedure for calculating the position of the eyelid with regard to the eyeball**, comprising the acquisition of, at least, a signal of electric activity from a muscle in the eyelid and the position of the eyelid as a result of the modifications made in such signal.



### Need or problem solved

- It refers to a system for **calculating the position of the eyelid with regard to the eyeball**, including a means for obtaining, at least, one signal of electrical activity from at least one muscle in the eyelid; means for converting the obtained signal to the digital domain; for rectifying the converted signal; means for applying a low-pass filter to the rectified signal; and for calculating the position of the muscle on the basis of the signal to which the filter was applied.
- The electrical activity is obtained by means of surface electromyogram signal acquisition. That is, the patent makes it possible to **obtain the position of the eyelid on the basis of analogue signals recorded in the muscles**.
- This invention is within the framework of **neurophysiology applied to animal individuals, including human beings, and, more precisely, of experiments related to the movements of eyelids and their position with regard to the eyeball**.

### Innovative issues/Competitive advantages

- By performing all the signal calculations and modifications in the digital domain within a single device, the cost of building the system is reduced, it can be integrated into a single device and, thus, the **resulting data on the position of the eyelid can be obtained both easily and rapidly, replacing more complex calculation techniques that are aggressive towards the individual subject to the procedure**.
- Moreover, the obtained signal can be modified in a **faster and more reliable manner**, by converting the signal to the digital domain.
- The electrical activity signal is obtained using **surface EMG signal acquisition method, a barely intrusive technique for the subject**, which is very important considering the sensitive approach required when dealing with the eyelid area.

### Types of interested companies

Units or centres performing research in neurophysiology