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SYSTEM OF INTELLIGENT PROBES OF MONITORING APPLIED TO OBJECTS OF DAILY USE, FOR THE DETECTION OF NEURODEGENERATIVE DISEASES OR DEVIATIONS IN THE TYPICAL DEVELOPMENT OF A PERSON

Patent
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Code

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Application areas

- Information and Communication Technologies
- Industrial Manufacture, Material and Transport technologies
- Biological Sciences and Health Measurements and standards

Type of Collaboration

- License Agreement
- Commercial Agreement
- Commercial agreement and Technical assistance

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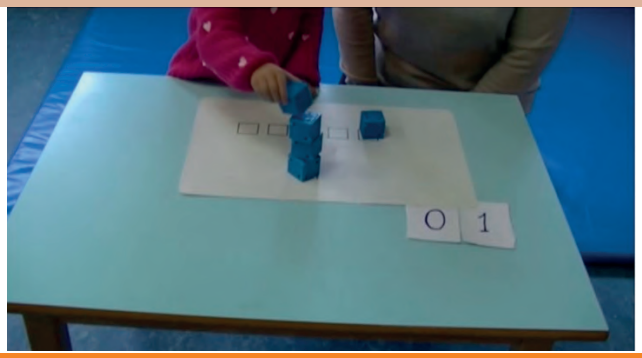

ABSTRACT

The present invention defines a data capture and data analysis system that parameterizes the way of using objects of daily use (cups, spoons or toys) in order to detect possible cognitive or psychomotor difficulties in people, after analyzing the data monitored.

It consists of one or several probes where some sensors and a collector are coupled. The probe consists of a microcontroller, a wireless communication device, a motion sensor and connectors able to integrate sensors (light, force). The collector receives infotmation from the sensors and sends it to a storage system (database), through a network, for later analysis. The analysis system retrieves the information from the storage system to analyze it by applying techniques of data analysis and artificial intelligence, obtaining a diagnosis about the activity of the person analyzed.

Here are some examples of applicability:

- Integration of the probe into a cup to know the movement patterns when using it, with the aim of detecting possible neurodegenerative diseases. For example, to measure the increase of tremors in people with Parkinson's disease or other diseases that have cognitive impairment.
- Integration of the probe inside a ball to analyze the form and intensity that is hit or thrown by a person, through parameters such as maximum acceleration, maximum speed or turns.
- Set of beakers in which a probe is inserted in each one of them that measures the time that a person takes to make a tower of them and the way he/she moves them.

For children under 1-year-old, a probe can be integrated into the rattle to measure movement patterns and the force with which it is gripped.

ADVANTAGES AND INNOVATIONS

- The probe incorporates emitters of light and sound.
- The system can be calibrated so that it can be applied both to the detection of patterns of fine and gross psychomotor movements.
- It performs exact measurements besides the capture of variables of greater use.
- The databases generated by the storage system allow to compare different tests between them and to study the possible changes or evolutions.
- The activities can be managed from a user interface that runs on a smartphone, tablet or computer that communicates wirelessly with the collector.
- The person who manages the activity may add additional information to the interface, such as the identifier of the person performing the activity.
- Information is analyzed using techniques of data analysis and artificial intelligence.