



**Patent: Device for animal experiments in neuroscience research**

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**Description**

This invention refers to a novel multi-screen device for studying self-learning and the capacity for self-regulation of self-learning in mice, and even in humans, by means of classic and operating conditioning.. The device comprises a virtual environment where the subject to be studied is immersed, making it possible to visualise elements in touchscreens, using a software and as a function of mental impulses, in a fast and flexible manner, without requiring mechanical handling.

**Need or problem solved**

- This invention makes it possible to explore the neuropsychological processes in the subject under study through the introduction of objects in touchscreens, as a function of its mental impulses. Thus, animals can, for the first time, interact conceptually with a virtual learning interface.
- Using the device, the presentation of stimuli can be changed in a flexible manner, through the use of software, and experiments can be designed by means of animal interaction with the screens and the virtual environment.
- In addition to exploring the behaviour of laboratory animals, this device can be used to explore that of human beings, by changing the scale, in an immersive environment of virtual reality. Thus, perception studies, therapies and ludic applications of virtual games can be performed.

**Innovative issues/Competitive advantages**

- The device makes it possible to carry out more complex experiments than those performed with the already known and used devices. Besides, these experiments can be set up in a fast and flexible manner.
- The presentation of the stimuli or the setting up of new experiments can be made in much faster mode and with more economic means. Furthermore, the presentation of fingerprint interfaces and audiovisual data is performed without any mechanical handling.
- Because of the celerity and the flexibility with which experiments that were formerly hard to build up can be set up with this device, analyses can be made of new neuroscientific fields, such as metacognition in animal learning.
- The touchscreens can be used along with cameras. Thus, experiments can be recorded from diverse perspectives without using devices other than those belonging to the experimental environment.
- The behaviour of animals can be analysed without producing any stress in the subject under study.
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**Types of interested companies**

- Both the device and the software can be of interest for entities devoted to behavioral, neuropsychological and neurophysiological research.
- The computer industry
- Entities dealing with brain-machine communication studies