

## LIGHTROW: OPTICAL MOUSE WITH GESTURE COMMAND ENTRY

### Description:

Interaction with a graphical user interface (on a laptop, on a smartphone, or on any other computer system) requires the use of a pointing device, which allows moving a cursor on the screen and interacting with its contents using keystrokes, pressures or gestures. However, none of the pointing devices used today provide a perfect solution to this need: • Mice, optical or laser, are the most widely used and inexpensive, and probably the most practical, but their continued use tends to cause musculoskeletal injuries to the wrists and shoulders from repetitive activities, such as carpal tunnel syndrome. • Touchpads are ergonomically more innocuous, can be integrated into the device, and allow commands to be given to the system using gestures, but they require the use of a considerable surface (especially in netbooks and ultraportables), they require the use of bare fingers, and they present problems if the skin is dirty or very oily. • Touch screens are intuitive and allow the use of gestures, but they lack precision, make the system more expensive and increase consumption. • Body gesture signaling devices (such as the Kinect) are easy to use, but require image processing and therefore use expensive hardware and require restrictive conditions of use. Using the same optical sensor technology that is used today for mice, the invention protected by this patent provides a pointing device that combines the best features of mice and touchpads, offering fast and accurate cursor navigation along with an input interface. gesture command, powerful, intuitive and comfortable to use, and highly flexible and programmable.

### Keywords:

[Sensors](#), [Software](#), [Hardware](#), [Optical Mouse](#), [Computing](#)

### Sectors:

[ICT](#)

### Areas:

[Hardware / Devices / Components](#), [Software / Procedures](#)



### Advantages:

Among the advantages of the present invention are: • Its handling is simple and intuitive, and the gesture interface is fully programmable. • It uses standard optical sensor technology for mice, so its production costs are very low. • It has a minimal impact, in CPU and memory consumption, in the computer system in which it is used. • Its physical footprint (area and volume required for its implementation) is very small, which makes it suitable for integration into desktop or mobile computing devices. • It can also be used, connected by USB, as an external device that can be placed at any height, posture and orientation with respect to the user, thus allowing them to find the location in which the use of the device is most comfortable and relaxed, and eliminate ergonomic problems. • It can be used with bare or covered fingers, with an object held by the hand, or with any extremity of the body, which makes it suitable for use even by people with severe disabilities.

### Uses and Applications:

Pointing and user interaction system for: • Desktop and laptop computers. • Tablets and e-book readers. • Special purpose computers whose users need to have their hands covered by gloves. • Computers adapted for use by disabled people, especially with amputated hands or arms.

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