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May Mice help scientists to develop a Smart Wave Front Sensor?

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Summary

The worldwide used PC Mouse has inside it the technology to become a powerful element in the development of large format Shack-Hartmann wavefront sensors for night and day time use. Indeed, its small smart camera, used to detect differential movements of the device and to drive the PC pointer, may be employed as a basic tile for the building of a sensing cell for the acquisition of the centroid movement of stars or extended objects.
In this work we present preliminary results, from laboratory experiments, that provide a first assessment of the capabilities of a smart wavefront sensor based upon such off-the-shelf and cost-effective technology and a detailed optical layout for the next European Solar Telescope . Furthermore the team has layout a trade-off analysis towards the implementation of a research pool to start the fabrication of experimental devices with a preliminary forecast of costs, efforts and benefits.

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