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Electronic solar compass for high precision orientation on any planet

A compact fully automatic electronic solar compass has been developed at the ENEA Frascati laboratories. The compass is inspired to "camera obscura" sundials like those inside churches. Sun ephemerides are calculated using an approximate but effective analytical solution of Kepler's equations where the Earth (or other planets) orbit main parameters are introduced. The instrument is light, cheap and it reaches an accuracy of 1 arcminute. Some examples of application of the device as well as the possibility to use it on Mars will be presented.

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