



## MicroLab ExAO : a computer based educational laboratory



### Background

The MicroLab ExAO is a portable system that can be adapted to all teaching laboratories aiming at theoretical knowledge through physical experiments. Indeed, computer-assisted experimentation (ExAO) makes learning more interactive by transforming the process of acquiring data from scientific laboratories (mathematics, physical, chemical, etc.). MicroLab ExAO developed by Professor Pierre Nonnon, member of the Faculty of Education at the University of Montreal, provides a complete lightweight and mobile laboratory system adapted to the student's need regardless the level of education. MicroLab ExAO brings many benefits to both the student and the teacher. By promising faster field experiences, more playful learning and greater autonomy, MicroLab EXaO is helping the revolution of science education.

### Technology

The technology developed by the team of Professor Nonnon enables to obtain the graphical representations of a physical phenomenon in real time. This unique, powerful and versatile technology is composed of a microcontroller connected to several interchangeable sensors, a software operable under Windows and a didactic part whose aim is to guide the student's reasoning. This unique system allows the student to become familiar with physical and chemical phenomena by assembling his own set-up. In addition to its ease of use and moderate cost, this technology added value lies mainly in the autonomy left to the student: the teacher only has a background role as the learning process goes without supervision. This robust system has been tried and tested for 30 years and is currently used in several countries.

### Application

This system is aimed at primary, secondary as well as collegial (both technical and general) and university students. MicroLab ExAO is also within reach of the general public because the kits are adapted to various scientific fields (mathematics, biology, etc.). This laboratory of the Future thus presents experiments in laboratory in a playful way while apprehending the basis of the scientific reasoning.

### Competitive Advantages

- Pre-commercialization system (TRL 8-10)
- Versatile technology for all-level students
- Great autonomy granted to the student
- Low-cost manufacturing

### Next Steps

This technology is available for licensing. We are looking for a partner willing to distribute this large scale didactic system.

### Contact

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