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# A pedagogical approach for the design and manufacture of a smart chemical sensor.

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## Abstract

Preparing future technicians and engineers for technological innovation is a complex challenge. Indeed, the design and manufacture of intelligent sensors requires the control of an even greater number of fundamental concepts, at the heart and at the crossroads of several disciplines. We present an educational approach where a project group manufactures an autonomous and communicating chemical sensor. In particular, the sensitive layer of the chemical sensor is obtained by the integration on a silicon platform of tungsten oxide nanowires by the technique of dielectrophoresis. It illustrates the new alternative approaches offered by colloidal chemistry in addition to the classical technological tools. Through this training, they are confronted with the transfer of technology between the world of research towards industry, and thus be able to become, as soon as possible, the vectors of innovation in our societies.

**Keywords:** WO<sub>3</sub>, Nanowires, Chemical sensor, smart system.

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