

Interactions UTC

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UTC graduate declared laureate by 'Usine Nouvelle' for his DecoControl Alu®

So, how do you place/insert a tactile switch on a brushed steel or wooden dashboard? The automobile equipment manufacturer now knows how to do this, thanks to work done by a former UTC student. The concept goes by the name DecoControl Alu® and was singled out by the French technical review 'Usine Nouvelle', awarding its designer Omar Ben Abdelazis the 2015 Design trophy.

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Omar Ben Abdelaziz, a UTC graduate, in December 2015 received the “DesignTrophy” at the *Engineers for Tomorrow* event organized and sponsored by the review *‘Usine Nouvelle’*. The award is for a new tactile switch design that will operate on any surface, including aluminium.

As an Innovation Project leader at Faurecia, the automobile equipment manufacturer, the laureate is a specialist in man-machine relations in the Faurecia Interior Design division. This technology goes by the name of *DecoControl Alu* which was selected for then Design Trophy 2015, inasmuch as the Jury recognized the extra degree of freedom offered in the choice of materials and in the design itself.

The technology relies on a piezo-electric effect where the slight deformation of the switch produces an electric current, with a return that takes the form of a vibration that the user’s finger can sense.

High class interiors

This innovative design follows suit to research carried out by Faurecia on “decors” with tactile functions. *“Using piezo-electric*

sensors allows you to position the switch on all sorts of surface and materials”, details Omar Ben Abdelaziz who heads this project. There are other advantages to the device: retro-lighting, the haptic reaction when the switch is activated and the ‘slim’ depth, less than 1 cm compare with 2 to 3 cm for classic tactile switches. For the company Faurecia Systèmes d’Intérieur, the world leader for vehicle interior equipment, they can now offer a high class technology that usefully completes its range of parts designed to improve the comfort and convivial atmosphere inside our cars.

Lighter equipment

Another target in terms of innovation is the search by automobile manufacturers to make and integrate lighter parts. *“Today vehicle designers are highly sensitive to seeking and finding minimum weight for their parts, for the purpose of lowering energy consumption”,* details Nicolas Dauchez, Head of the UTC-AVI industrial acoustics and vibrations course and research.

Reduced thickness for steel plates (including slimmer tactile switches) are in line with this research, as well as the development of new materials at Faurecia. For example, they have developed a material called ‘NAFILean’, composed of jute fibres and synthetic resins that allow for an up to 20% gain in overall weight. 100% natural materials are currently being explored as substitutes for plastics.

Faurecia continues to orient its corporate policy to attain better energy savings, reduced reliance on hydrocarbon sources, so as to be ready to adapt to the growing demand trends for visual and connected equipment...

“We now have additional screens that blend in well with the interior design constraints, such as having on board wireless charging systems for mobile phones, or variable ambiance for the driver ..” states Omar Ben Abdelaziz, to show how fast the sector is evolving today and the increasing fraction of man-machine interfaces ... his personal specialist domain.