

New guidance system with 3-D sounds for the visually impaired

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The system uses three-dimensional acoustic stimuli to guide the user along unfamiliar routes without the need to carry a mobile and look at it. The way the system works is simple and intuitive: the user can hear a cracking sound through any stereo earphone and identifies where it is coming from. "We use the richness of 3D perception that sound has and we combine it with [satellite navigation](#) technology so that users can orient themselves in a specific direction," explains one of the creators of this innovation, Rafael Olmedo, the head of Geko NAVSAT.

Another one of the proposals offered by these researchers is the use of bone conduction earphones, which allow the user to continue to hear sounds from the surrounding area as well as the cracking sounds. "This is important because [visually impaired people](#) need to continue hearing environmental sounds and these bone conduction earphones allow them to hear a layer of augmented acoustic reality that is superimposed on the environmental sounds," states Rafael Olmedo.

The company has already developed a mobile application (Acoustic Trail) that uses 3D acoustic stimuli to guide people who practice mountain sports, and it is working on a prototype that would be accessible to [visually impaired](#) individuals; they expect it to become available in the coming months. "The UC3M Science Park is helping us to introduce the system to the market," those at the company comment. "Our main challenge is to make it so that the system's GPS guidance is precise to within one meter, so that the user can feel completely

confident that the system is leading them down the right path," adds Olmedo.

This company's goal is to take full advantage of satellite navigation and integrate its potential with other technologies in order to develop innovative products and produce new application. Based on their experience carrying out international and national collaborative R+D projects, Geko NAVSAT is applying advanced satellite navigation technology to develop innovative technological solutions and products in sectors such as aerospace, intelligent transportation, ICT, security, emergencies and the environment.

Provided by Carlos III University of Madrid

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