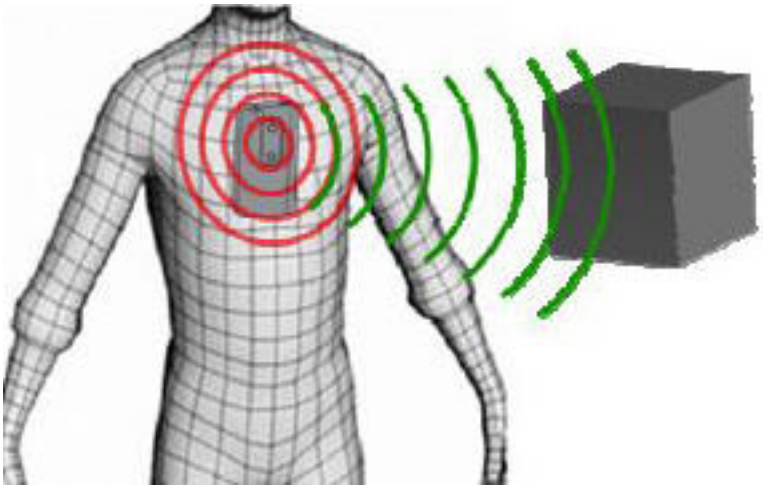
Mobile Guide for the Blind

Asociación RUVID



A research group at the University of Alicante has developed an application for smart phones designed for the blind to overcome aerial obstacles such as branches or awnings, which cannot be done with guide dogs or walking sticks. This software has been awarded a prize by the Vodafone Foundation.

The application, which emerged from the project Detección de Obstáculos Aéreos -DOA (Aerial Obstacle Detection), has been developed by the University of Alicante’s Research Group "Mobile Vision Research Lab", directed by Miguel Ángel Lozano Ortega, Juan Manuel Sáez Martínez and Francisco Escolano Ruiz. The firm Neosistec has also participated in its development.

The system uses a stereo camera some mobile devices to detect the proximity of obstacles in the way of the user. It has a friendly interface, which can be noticed by vibration or sound of upcoming obstacle. The notice becomes more frequent as it approaches the obstacle. The software is integrated into a smart phone, which is comfortable and unobtrusive to the user. This technology has been protected by a patent.

This application is comfortable and unobtrusive to the user and easy to use. It is used as a complement -not substitute- for walking sticks or guide dogs, but solving their main limitations: the inability to detect aerial obstacles since dogs cannot be trained to be aware of the difference in height between themselves and the human being they are guiding.

The invention is able to warn of obstacles by acoustic signals (through the phone speaker, not through headphones) or vibrations, making the system even more discreet, since only the user perceives the information and does not deprive him or her of hearing, the blind’s primary sense.

Among the devices eligible to be used, we find the so called "3D phones", equipped

with dual front camera, and any mobile phone with a single camera that incorporates a system to obtain two environmental observations separately. The application also leverages data from some common sensors in them, such as a magnetometer and a accelerometer.

The creators of this system point out that this technology is extremely innovative in the world of mobile phones, since they not were able to take real measures on the environment so far, while this application extracts around 30,000 measurements per frame, at a rate of 9 frames per second.

This technology has been awarded a prize by the Vodafone Foundation in the seventh edition of its innovative awards, in the category Mobile for Good Apps.

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