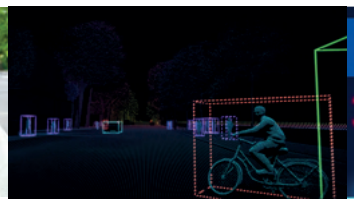
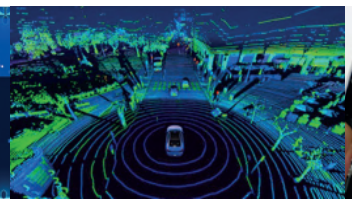
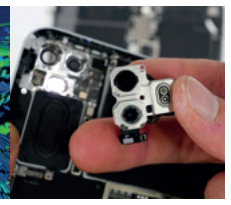
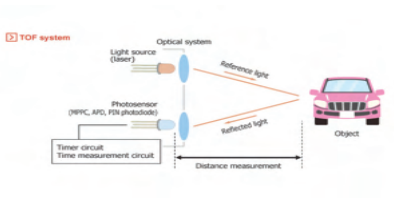
POLIARTE design
ACCADEMIA DI BELLE ARTI
ANCONA 1972

EDIS





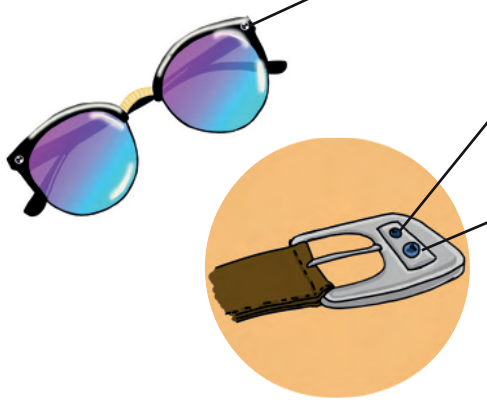








Every year the percentage of people with vision problems, whether due to old age or a factorgenetic, increase and a definitive solution has not yet been found to support the needs of people withthese features. I designed EDIS to allow visually impaired or blind people to be independent when leaving the house. And that's why I wanted to combine LIDAR technology with clothing. LIDAR (Light Detection and Ranging) is a remote sensing technique that allows you to determine the distance of an object or surface using a laser pulse and calculating the time elapsed between the emission of the pulse and the reception of the backscattered signal. By applying this principle on a three-dimensional level, a 'cloud' of points representing distance can be obtainedof objects from the LiDAR sensor. The image represented by the point cloud can then be digitally processed to identify fixed or moving objects, or more simply to faithfully reconstruct the surfaces of the environment surrounding. This technology can be very small, and thanks to this I was able to insert it inside a belt and sunglasses. The heart of the technology is located in the belt, and connects by bluetooth to the earphones that the user will wear. The same procedure is done by the glasses. That is, when a person wears the belt and at the same time the glasses use LIDAR technology to scan the surrounding environment and calculate distances from the overall dimensions, consequently each device (therefore glasses and belt) send signals based on frequencies several that reach the user's ear and will warn him about the type of obstacle and at what distance it is. Both devicesare equipped with USB charging. Using both devices, the angle of the field of view is 180°. This because the belt being placed at the height of the pelvis will calculate the obstacles in front of it following the movement of the pelvis. While the glasses that are placed on the face, will calculate every obstacle in the direction we look. Each EDIS device it is adjustable using the buttons positioned on the temples of the glasses, so as to adjust the volume and turn on / off comfortably.

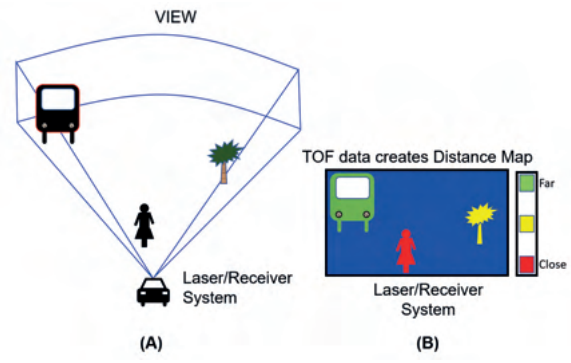
As the picture shows the glasses connect via Bluethooth to coffie, so you can transmit signals directly to the ear.

Device LIDAR



camera LIDAR

Receiver



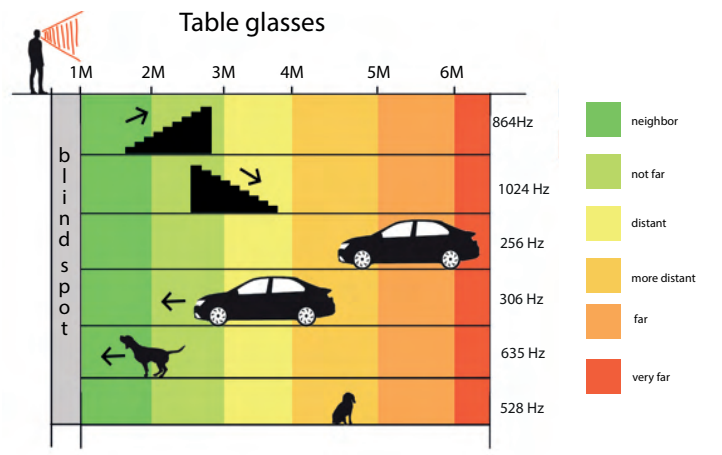
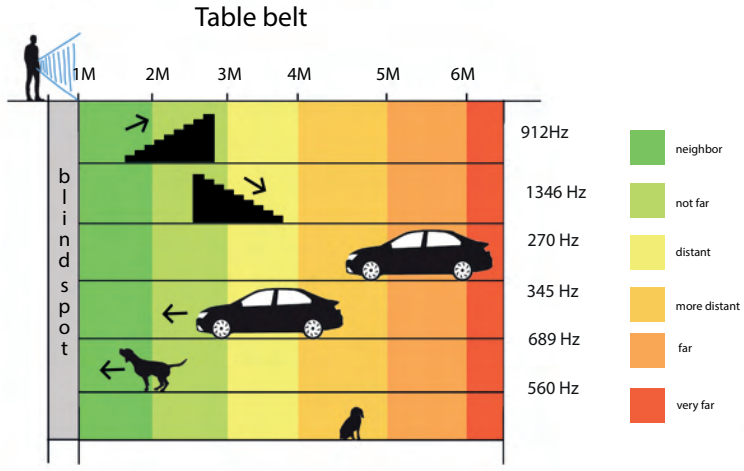
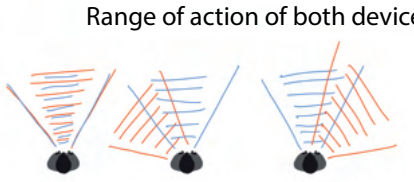


Table belt



Range of action of both devices



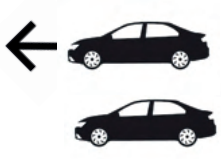
Belt action range

Range of action glasses

We can see that near the tables there are various frequencies, each of them corresponds to one certain size of some objects. Beyond that I also define whether an object is in motion or it is stationary, and again the sound of the frequencies changes, if it is a small moving object or a large object. The table shows various frequencies, each of them corresponds to a object of a certain size, and whether it is moving or stationary. Depending on distance in which the sound emitted will have a more or less fast repetition, like the sensor of the car for parking. Another very useful factor for the user is that if the object or obstacle is on one side only, only the earpiece on that side will sound. For example, if we have only one obstacle on the right,the right earphone will ring, while the left earphone will not. The volume will be adjustable, by buttons on the earphones. In addition, it can enter standby mode with one of the buttons, so as to avoid that the device picks up and sends signals continuously.

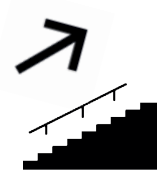
Moving dog (small moving obstacle)

Stationary dog (small stationary obstacle)



Moving car (large moving object)

Machine stopped (large object stopped)



Stairs going up

Staircase going down

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