

What is e-Vision?

The subject of the e-Vision research project is the creation of a system for assisting people with reduced vision, which will provide the ability of identification of persons and objects at a semantic level. For its realization, recent significant results in the area of mechanical vision will be used, combined with the wide production and availability of digital data and visual content.

An array of sensors (camera, handset, etc.), integrated into the user's glasses, will be connected to the mechanical vision system that will be run on his mobile phone and will inform him about the objects or people in front of him through acoustic diode. This functionality will be integrated into an interface that will control various parameters and adapt them to the user's preferences, ensuring the system's harmonic coexistence with the other perceptual processes.



eVision

Improving the autonomy of people
with vision impairment through computer vision
and synthesised voice communication

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Project partners:



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The framework

The systems for assisting people with reduced vision have evolved greatly in recent years. However, they are limited almost exclusively to the possibility of identifying and avoiding obstacles and do not focus particularly on semantic entities, namely the separation of the nature of an object (eg table or chair), the status of a person (eg concierge or vendor) or even the identity of a person (eg Anna or Maria).

The result of the absence of such systems is the limitation of the autonomy of people with reduced vision, both in terms of daily needs (such as visiting a supermarket or a public service) and emotional interaction (such as the communication initiative).



Pilot implementations

To evaluate the effectiveness of e-Vision and user experience, three pilot implementations are planned:

- The first will simulate a visit to a supermarket to buy the week's supplies, where e-Vision will allow the user to identify the products on the shelves and collect them without the assistance of an escort.
- The second will simulate the tour inside the City Hall of Thessaloniki, aiming at the interaction of the user with the employees of the Municipality and the settlement of a number of his / her affairs.
- The third one will simulate a walk on the seafront of Thessaloniki, where the user will be able to interact with familiar faces. He will also be able to listen to his environment through specially designed soundscapes, which will be inextricably linked to selected points of interest.

The objectives of e-Vision

The primary objective of e-Vision is to upgrade the quality of life of people with reduced vision by creating an innovative system that will enable people and objects to be identified on a semantic level.

Some of the individual objectives are:

- Understanding the general and special needs of people with reduced vision.
- The exploitation of the mobile phone, an instrument with limited computing and storage resources, for the execution and reproduction of mechanical vision algorithms.
- The manufacture of an advanced form of camera glasses, handset and wireless connection to the mobile phone.
- The smooth, harmonious and efficient use and operation of the system, with a reasonable cost for its acquisition at the same time.

