

A system to aid blind people in the mobility

A usability test and its results

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and people need to become as independent as possible in their daily life in order to guarantee a fully social mobility means the possibility of freely moving, without the help of any accompanying person, at home, in public buildings, and in open spaces, as the streets of the city. Mobile and wireless technologies, and in particular the use of RFID tags, can be used to realize systems in an intelligent environment. Such systems offer opportunities to improve the speed, easiness, and safety of the mobility of visually impaired persons mobility. Using these technologies together with Text To Speech systems and a mobile phone, the authors developed a cost effective, easy-to-use navigation system: RadioVirgilio/SesamoNet¹. The effectiveness is due to the recovery of RFID identity tags during the navigation: these tags are then borrowed to create a virtual map of the environment. In this paper the results of an usability test of this guide system are presented. A preliminary study involving a small group of experts and a blind person was conducted. In order to evaluate the usability, three cognitive sessions have been done to discuss the system's usability and to highlight the most critical aspects to be

B. Mobility and orientation by blind people

Orientation is the subjective ability to know one's position in a space both in absolute sense and in relative sense; it is the point of departure and the one of arrival; this is achieved through a complex cognitive and perceptive process. The acquisition of the sensory information coming from the environment and the body. A blind person can move in already known places by recognising known points (absolute orientation) or by perceiving unknown objects, like buildings' walls in outdoor situations or the walls of a room in indoor spaces (relative orientation). The first kind of orientation is, for a blind person, the most difficult one due to the complexity of collecting information about the surrounding environment only through tact and hearing. In order to explore unknown places a blind person often needs to be guided by another person or a dog.

In order to move without a guide in an unknown environment a blind person needs to identify some points of reference to guess the optimal movements and the distance to move from one place to another one. A visually impaired person decides her orientation from two types of information:

Blind mobility; Mobile communication and devices;