**Audio and Elderly Mobility needs in the City:**

Survey on Speech Intelligibility and Sound Alarm Localization

based on in-Lab Ecologically-oriented Protocol

The project I’CityForAll (Age Sensitive ICT Systems for Intelligible City For All) aims at enhancing the sense of safety and self-confidence of presbycusic persons, whose hearing degradation increases with age. Two mobility situations are considered: in public confined spaces and in urban space. For public confined spaces, the ICT solutions consist of smart loudspeakers for better intelligibility of vocal announcements. For urban mobility, I’CityForAll partners will develop a system embedded in vehicles 1/ for better alarming power of safety belt warning, lane change warning… 2/ for better sound alarm localization of ambulances, police cars… since the presbycusis alters perception of distance and direction of moving sound source. These systems will be “transparent” and embedded in mass products for persons with presbycusic hearing without impacting normal hearing people, in the “Design for All” approach.

The first stage of the I'City for All consists of a survey on users requirements in terms of intelligibility, well-being and elderly safety to better address the solution under elaboration. This involves a cohort of “presbycusic” and normal hearing, older than 50 years, in Italy and France. The survey evaluations are carried out in two stages.

The first one enabled us to confirm the suitability level of cohort behavior to the existing literature findings: 1/ users are missing important information diffused in railway stations, causing them a sense of worries and anger. 2/ drivers wearing hearing aids have problems in localizing moving sound alarms. An underlying objective of this first step was to raise awareness level of the cohort users to the issues addressed by the project.

The second objective of the survey is to let users express their needs in more details. For this purpose, an in lab ecologically-oriented protocol was designed for subjective intelligibility and sound alarm localization assessment.

The associated survey is currently under implementation. It is based on the APHAB model focused on railway stations and cars where questions aimed at better steering the project solution under design. The end-users are also undergoing audiometric tests aimed to scientifically assess their hearing capacities.

The results of these two surveys will be presented during the session Mobility of the AAL forum 2013.