The project ‘CityForAll aims at enhancing the sense of safety and self-confidence of presbyacousic persons whose hearing degradation increases with age. For elderly persons, this is impacting on the intelligibility of vocal messages and their perception of the direction of alarm sounds and of their alarming power.

The ‘CityForAll system solutions will be “transparent” and embedded in mass products for the large public at reasonable cost for persons with pseudo-normal and presbyacousic hearing without impacting normal hearing people: concept “For All”.

**Survey on users requirements**

The first stage of ‘CityForAll involved a cohort of 49 users who are “presbyacousic” and normal hearing and older than 50 years:

- In Italy: 2 with hearing aids, 8 with hearing disorders, but without hearing aids, 11 normal disorders and 7 deaf people without hearing aids.
- In France: 12 patients without hearing aids and 9 patients with hearing aids.

To better address the two [‘CityForAll solutions] focusing on 2 situations:

### Mobility in public confined spaces

[‘ICT-loudspeaker] Smart Loudspeakers for better Intelligibility of vocal announcements

Intelligibility decreases for all Presb. at peak hours

Jingles help paying attention to the vocal announcements for all persons.

Feeling of stress and discomfort is more noticeable for Normal hearing persons

Presb. are the most hurt by loud sounds and noise

Presb. with HA are more aware about their problems than without HA

### Mobility in the urban space

[‘ICT-car] System embedded in vehicles for better localization of alarm sounds (e.g. ambulances, police cars) and an appropriate enhancement of car signal alarms (e.g. safety belt warning, lane change warning).

All persons have difficulties to estimate the distance of the coming alarm, with higher frequency for Presb. with HA

Front/back and left/right confusion is a common difficulty for Presb.

For left/right confusion, Presb-HA have more difficulty to localize the alarm

All persons have few difficulties to distinguish the different in-car alarms

Presb. have difficulties to hear in-car alarms or on-board navigator in noisy environment, in particular Presb-with HA

Results’ validation

...based on inLab Ecologically Oriented tests