		Project title: Development of sensor-based Citizens' Observatory Community for improving quality of life in cities
		Acronym: **CITI-SENSE** Grant Agreement No: **308524**
		EU FP7- ENV-2012 Collaborative project

Deliverable D3.4

Evaluation of the performance of the user cases: Public Places
Annex

Work Package 3

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Dissemination level:	PU (Public)

ANNEX I: QUESTIONNAIRE ABOUT EXPECTATIONS USED IN THE INITIAL MEETINGS

QUESTIONNAIRE FOR THE INITIAL MEETINGS (TRAINING, PRESENTATION OF THE PROJECT TO THE VOLUNTEERS)

Name:
Surname:
Age:
Entity (if applies):

1. Describe the project objective

This question aims to get a feedback about how we did the presentations/explanations of the project. We wanted to know what idea they got about the project.

2. What motivates you to participate?

We wanted to know the motivations of each one at the beginning of the experience, if there are personal motivations, social or community based motivations…

3. What could be the benefit of this project for you or for other people?

It was important to know about their initial expectations regarding the utility of the project. This question is related to the previous one but we expect to get more detailed information about how they expect to use the results of this project.

ANNEX II: GENERAL QUESTIONNAIRE

CITI-SENSE is funded through the Seventh Framework Programme of the European Union for the Support of Research, Technological Development and Demonstration by the grant agreement 308524. You can find additional information about it in www.citi-sense.eu.

The pilot study of CITI-SENSE Vitoria-Gasteiz project is coordinated by TECNALIA and Iritziak Batuz as project partners and responsible development. The study was conducted in the city of Vitoria-Gasteiz thanks to the cooperation of the City council. However, we must clarify that it is not a project leaded by the city council but a research project.

The purpose of the pilot study is to demonstrate the possibility of new ways for citizens to participate in the management and design of public spaces outdoors.

THANK YOU FOR YOUR COLLABORATION.

Your name:
Date:
Age:
Gender: Female❑ Male❑
Place of residence:

Occupation
❑ Student
❑ Retired
❑ Employee
❑ Self-employee
❑ Unemployed
❑ Other

Education
❑ Basic
❑ Professional training
❑ University
❑ Other

1. **From your point of view, which of the following items determine the comfort of urban spaces?**

	nothing	something	moderately	pretty	completely
Sounds (sound quality)	1	2	3	4	5
Weather / temperature conditions (wind, cold, heat, humidity)	1	2	3	4	5
Air quality	1	2	3	4	5

2. **And to what extent influence FOR YOU these items when using urban public space?**

	nothing	something	moderately	pretty	completely
Sounds (sound quality)	1	2	3	4	5
Weather / temperature conditions	1	2	3	4	5
Air quality	1	2	3	4	5

3. **What other environmental aspects of your town are you interested in?**
   _____

4. **Are you interested on receiving updates on environmental quality in your city?**
   a) Yes
   b) No [go to question 6]

5. **In case of having chosen the option "Yes" in the previous question, what environmental issues would you like to receive information on?**

   ☐ The outdoor air quality
   ☐ The air quality in schools
   ☐ Air quality in other enclosed spaces. Please specify:

   _____
   ☐ Sound quality
   ☐ Thermal comfort
   ☐ Lighting quality
   ☐ Scents
   ☐ Cityscape
   ☐ Other items Please specify: _____

6. **From your point of view what is the best way to share this information with the CITIZENS?**

   ☐ Mobile application
   ☐ Web
   ☐ Radio
   ☐ Information panels on the street
   ☐ Newspaper
   ☐ Television
   ☐ Paper (brochures ...)
   ☐ Other.
   Please indicate which: _____

7. **How much do you agree with this assertion?**
"Environmental quality in urban areas is an issue directly related to the quality of life."

nothing	something	moderately	pretty	completely
1	2	3	4	5

8. **Environmental quality in urban areas is an issue directly related to the quality of life, health, etc. but often the CITIZENS do not show a special interest in these issues. How can we motivate them on such issues?**

_____
_____
_____
_____

9. **Finally, how useful do you consider the citizen´s participation, with regard to the following items?**

	nothing	something	moderately	pretty	completely
Obtaining information (data) physical environment	1	2	3	4	5
Overall rating of urban areas (e.g., in terms of pleasantness)	1	2	3	4	5
Assessments of the environmental quality of different environmental aspects	1	2	3	4	5

10. **And what could be the best way for this citizen´s participation, from your point of view?**

□ Through classroom participation spaces offered by the City Council.
□ Through brief questionnaires in a mobile app
□ Through social networks
□ Through web forums.
□ Other forms;
Please indicate which one: _____

THANK YOU FOR YOUR COLLABORATION

ANNEX III: PRODUCT DESCRIPTIONS

i. *Procedure for doing the observations*

The observation procedure used can drastically influence the results obtained, so a protocol was established to define how participants should make their acoustic observations of the urban places. It details the tasks they must carry out during the observation. The timing of each task is estimated and it is considered that the entire observation should take about 20 minutes, with noise level data being measured for at least 15 of those minutes.

Figure 18- The CITI SENSE kit for the observations

Each person participating in the data collection received the following equipment:
- A smartphone, with the application, loaded in and ready to be used and an external microphone placed at the top including a wind screen.
- Portable equipment to assess thermal conditions is used (Kestrel).
-

First of all, the participant was asked to spend 5 minutes observing the place, which means they experienced the space, since we expected them to make a conscious observation and assessment.
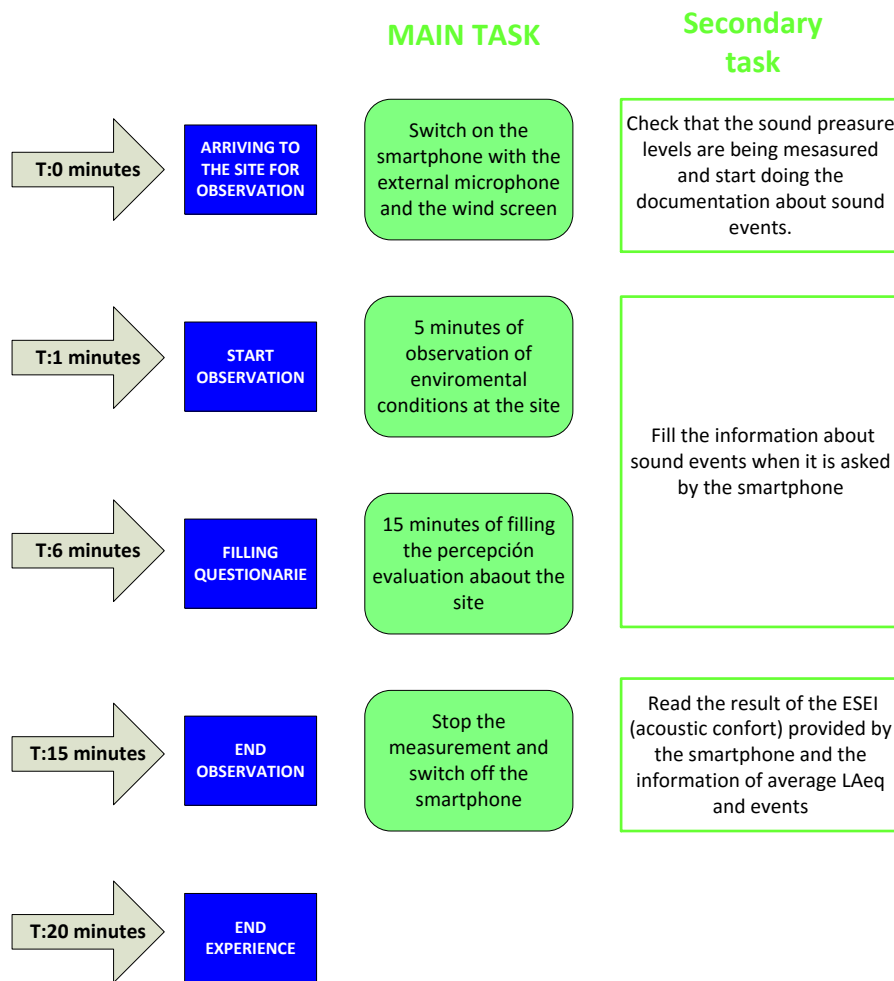
MAIN TASK   **Secondary task**

		MAIN TASK	Secondary task
T:0 minutes	ARRIVING TO THE SITE FOR OBSERVATION	Switch on the smartphone with the external microphone and the wind screen	Check that the sound preasure levels are being mesasured and start doing the documentation about sound events.
T:1 minutes	START OBSERVATION	5 minutes of observation of enviromental conditions at the site	
T:6 minutes	FILLING QUESTIONARIE	15 minutes of filling the percepción evaluation abaout the site	Fill the information about sound events when it is asked by the smartphone
T:15 minutes	END OBSERVATION	Stop the measurement and switch off the smartphone	Read the result of the ESEI (acoustic confort) provided by the smartphone and the information of average LAeq and events
T:20 minutes	END EXPERIENCE		

Figure 19.- Protocol for making acoustic observations

ii.   Toolkit to observe/measure public places

A **smartphone (Nexus 5)** provides the platform for the SENSE-IT-NOW app. A smartphone was selected as it is currently the most common portable device available to citizens. Android was considered the most open and affordable mobile platform.

a.   SENSE-IT-NOW App

SENSE-IT-NOW is a smartphone application developed for Android devices and provides the following options:
•   carry out online surveys
•   collect user provided information about their personal perceptions of the environmental quality by taking a photo and mark it with "Pleasant" or "Unpleasant"
•   show in real time the measurements from the Kestrel and the CityNoise app.
•   calculate thermal and acoustic comfort.

The **SensorLog** app is used to read the Bluetooth stream from the thermal sensor and to send these data to the **SensApp Android** application that stores the data on the CITI-SENSE platform. Those tools are described in more detail in deliverable D6.4

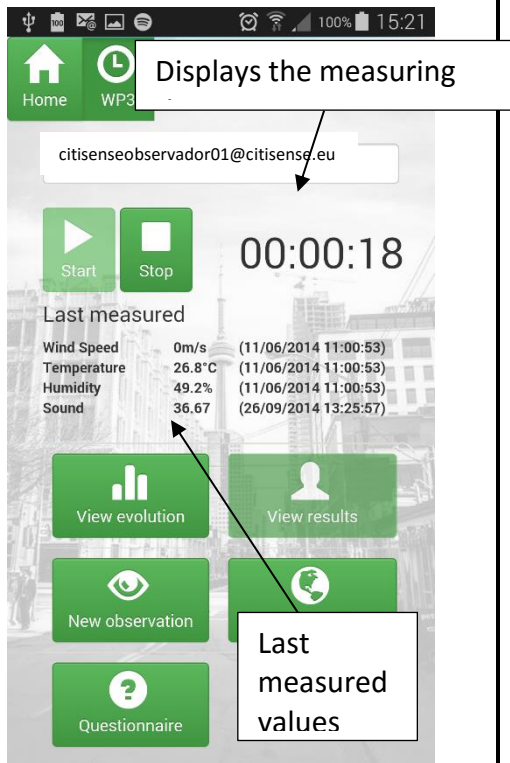1- The main screen of the SENSE-IT-NOW App helps control the measurements and observations:

Displays the measuring

citisenseobservador01@citisense.eu

00:00:18

Last measured

Wind Speed 0m/s (11/06/2014 11:00:53)
Temperature 26.8°C (11/06/2014 11:00:53)
Humidity 49.2% (11/06/2014 11:00:53)
Sound 36.67 (26/09/2014 13:25:57)

Last measured values

Figure 20: SENSE-IT-NOW App

An email address is required, since it is used as a user name to identify the set of data measured and give access to it though the web. This address is created by the project team and is given to participants to protect their privacy.

By pressing the start button the measuring session starts and also the identification of sound events. Before starting the rest of the experience it is suggested to the participant to be 5 minutes observing the surroundings that are going to be evaluated.

2- The evolution of the values of the on-going measurement is shown on the screen
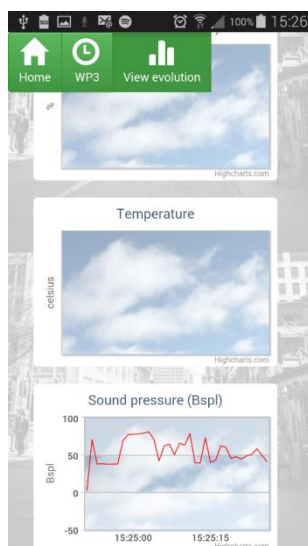

The user is asked to fill out the questionnaire at the smartphone during the observation.
Apart from general aspects of the users (used to analyse the representativeness of the sample of participants), their perception of acoustical, thermal conditions and general items of the places are collected.
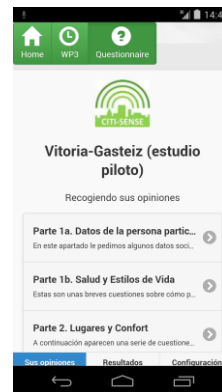
3-A pop-up is displayed on the screen each time a sound event is detected by the App and the user is asked to make a note of it to provide information of his/her perception related to the event (at any moment during the observation).
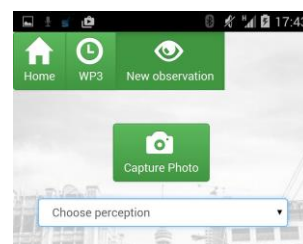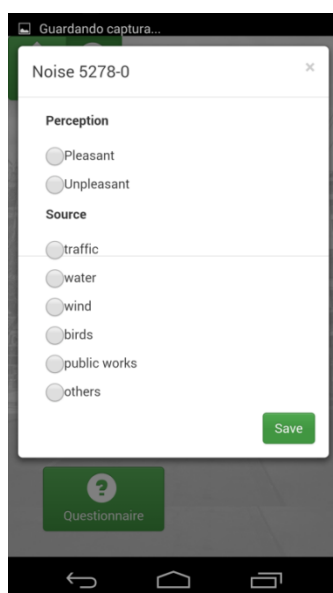
During the measurement the user can upload a photo of elements that are interesting to be highlighted as pleasant or unpleasant.
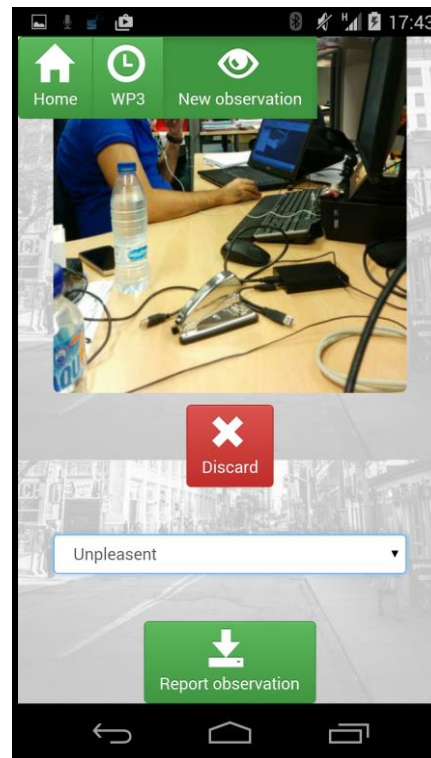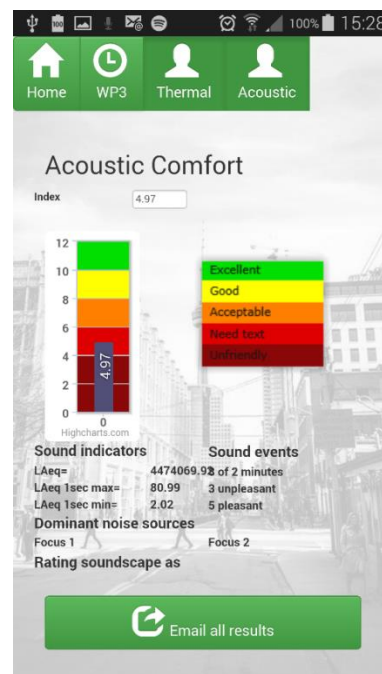
Figure 21: SENSE-IT-NOW App

4 -At the end of the measurement period the values that describe the thermal and acoustic comfort can be seen on the screen. To obtain this information the SENSE-IT-NOW App combines physical results measured by the sensors with results of the citizens' perception (obtained from the questionnaire).

The assessment of the acoustic comfort is presented in terms of values of the ESEI indicator. A scale helps understand the level

of comfortableness of the sound environment that the value represents. Other variables are also displayed, such as the averaged sound pressure level, L_{Aeq}, number of events and dominant sound sources.
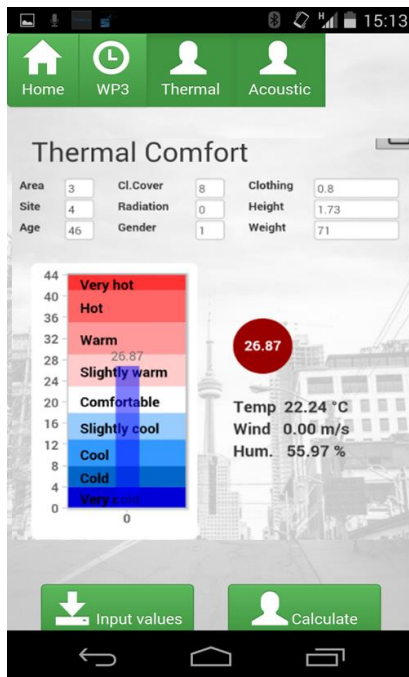
The assessment of the thermal comfort is presented in terms of values of the PET (Physiological Equivalent Temperature) indicator. A scale helps understand the level of thermal comfortableness of the area in the moment of the observation.

Other variables are also displayed, such as temperature, humidity and information about the clothes carried during the observations as that influences the results.

b. *Questionnaires to measure citizens' perception*

The questionnaire comprises two parts:
o General questions to be answered before any observations are made in the urban places proposed. Each participant responds to this section only once; it covers the following items:
   ▪ *Personal factors*: socio-demographic variables, residential factors, their perception of their health and emotions, their life style factors, and psychosocial factors. These variables allow the characteristics of the sample to be described when the results obtained are analysed.
   ▪ *Assessment of four urban places and information on how participants use these spaces (previous experiences):* before making any observations in the urban places proposed, they are asked to report on how they usually use the areas.
o Questions to be answered in situ (actual experiences) in each of the places and at the same time as the objective variables are measured. The questionnaire includes the following elements:
   ▪ *Global experience and perception of the place*: general perception of the place is measured by applying a semantic differential (SD) that contains items such as: pleasant, secure, well-maintenance, natural, tranquil and warm. The

definition of the semantic differential is defined according to general criteria. The participant is also asked what they like most and least about the place (allowing them to link to a photograph of these elements). Finally, there are questions about their global acoustic and thermal comfort at the time of the observation, their emotions, and their perceived level of stress at the beginning and the end of the experience.

- *Sound Environment Perception or Soundscape*: participants are questioned on their perception and evaluation of environmental sounds and the global acoustical atmosphere, as well as their evaluation of the congruence of any sounds in the context of the urban place. The soundscape is evaluated using a semantic differential scale (SD) that contains items such as: pleasant, calm, relaxing, natural, vibrant, informative and clear.
- *Thermal Comfort Perception:* participants are questioned on their perception and evaluation of thermal conditions (temperature, humidity and wind speed) and also about the general comfort about their thermal situation in the area at the moment of observation.

c. Sensor for Thermal Condition

The Kestrel® 4000 Pocket Weather Meter is a commercial sensors unit that delivers precise weather and environmental readings in a portable weather instrument. Kestrel meters have the ability to measure maximum and average wind speed, temperature, relative humidity and barometric pressure.

It is connected to the smartphone with Bluetooth Smart® to read the data stream.
Quality control of Thermal Sensor

Two tests have been carried out to analyse the performance of the Kestrel® 4000 Pocket Weather Meter sensors to be used in the empowerment initiative. The tests were done in comparison with the Weather Transmitter WXT520 of Vaisala and the Testo CT051044XE. The accuracy of these reference devices is: ± 0.3ºC for air temperature, ± 3% for relative humidity and ± 3% for wind speed (CITI-SENSE deliverable D32).

A first analysis has shown that there can be differences in air temperature, relative humidity and wind speed if we consider short time scales (i.e. 1 minute mean data).

- In the case of air temperature this is especially significant if the Kestrel® 4000 Pocket Weather Meter sensor is exposed to direct sun radiation (Table 9).
- In the case of wind speed, the kestrel sensor due to its mechanical components does not allow measurements below 0.4 m/s. Additionally, atmospheric turbulence and sampling frequency can produce deviations in 1 minute mean data (Figure 22). However, mean values over long time periods show high similarity between the Kestrel 4000 and the Vaisala WXT520 (Table 9).
- Initially, relative humidity presents a deviation that can be considered significant. However, this can be calibrated in each Kestrel sensor and thus better results will be provided.
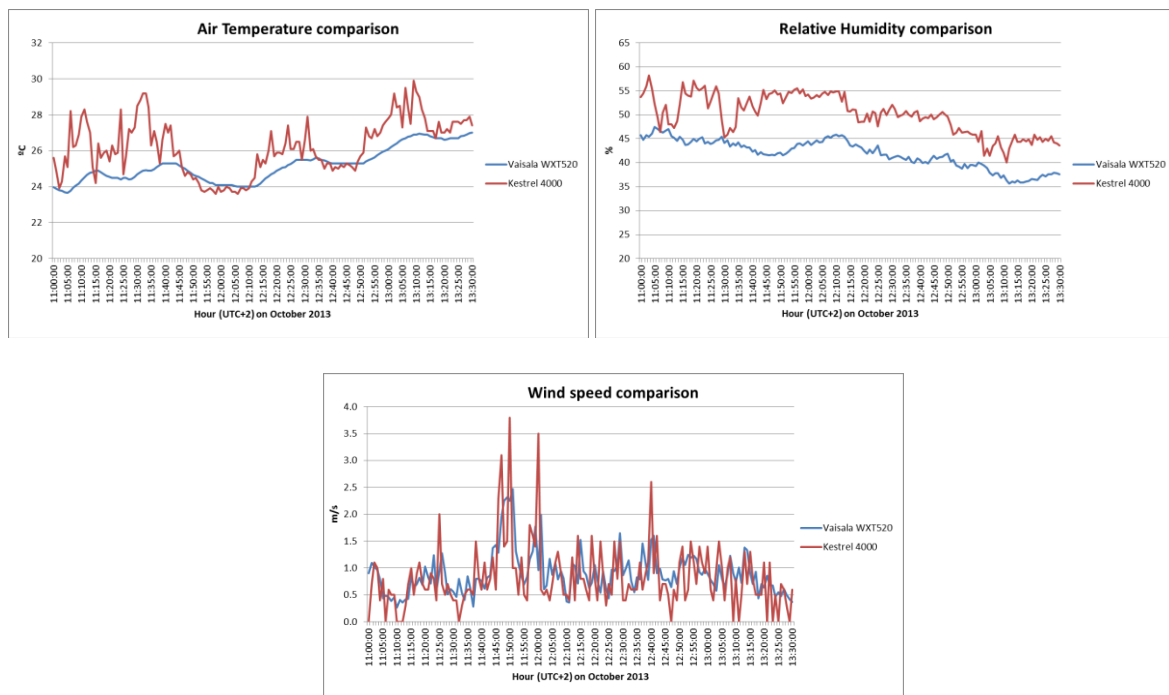
Figure 22. Air temperature, relative humidity and wind speed measurements comparison for Kestrel 4000 and Vaisala WXT520 for 1 minute mean values.

Table 9. Mean difference of air temperature, relative humidity and wind speed measured by Kestrel 4000 with respect to Vaisala WXT520. Calculations are made from 1 minute mean values and differentiate periods of sun/shadow exposure

	Radiation exposure	ΔT	ΔRH	ΔWS
11:00-11:50	Sun	-1.7	8.1	0.0
11:51-12:10	Shadow	0.3	10.3	-0.1
12:11-12:30	Sun	-1.1	7.6	0.0
12:31-12:50	Shadow	-0.1	9.0	-0.1
12:51-13:10	Sun	-1.7	6.1	0.0
13:11-13:30	Shadow	-0.7	7.7	-0.2

Table 9 shows that there are differences in air temperature values when the sensor is exposed to direct sun radiation. This effect has to be minimized by, for example, providing instructions to the users and avoiding direct sun exposure of the Kestrel sensor. As mentioned above, deviations in relative humidity values are quite stable, so each Kestrel sensor can be calibrated to improve their performance.

To analyse further the deviation of air temperature and relative humidity measurements, values measured by the Kestrel sensor were compared with those of a Testo CT051044XE in shadow conditions and averaged over a five minute period. Results are presented in Figure 23. In this situation, results of all the kestrel sensors differ much less from the reference sensor (especially in the case of relative humidity) and thus can provide more accurate information.

Thus, with the instructions to the users to minimize the Kestrel's exposure to sun radiation, in the context of the project, climate variables recorded by the sensor (measurement period is about 15 minutes) can be considered sufficiently accurate and representative for thermal comfort evaluation.
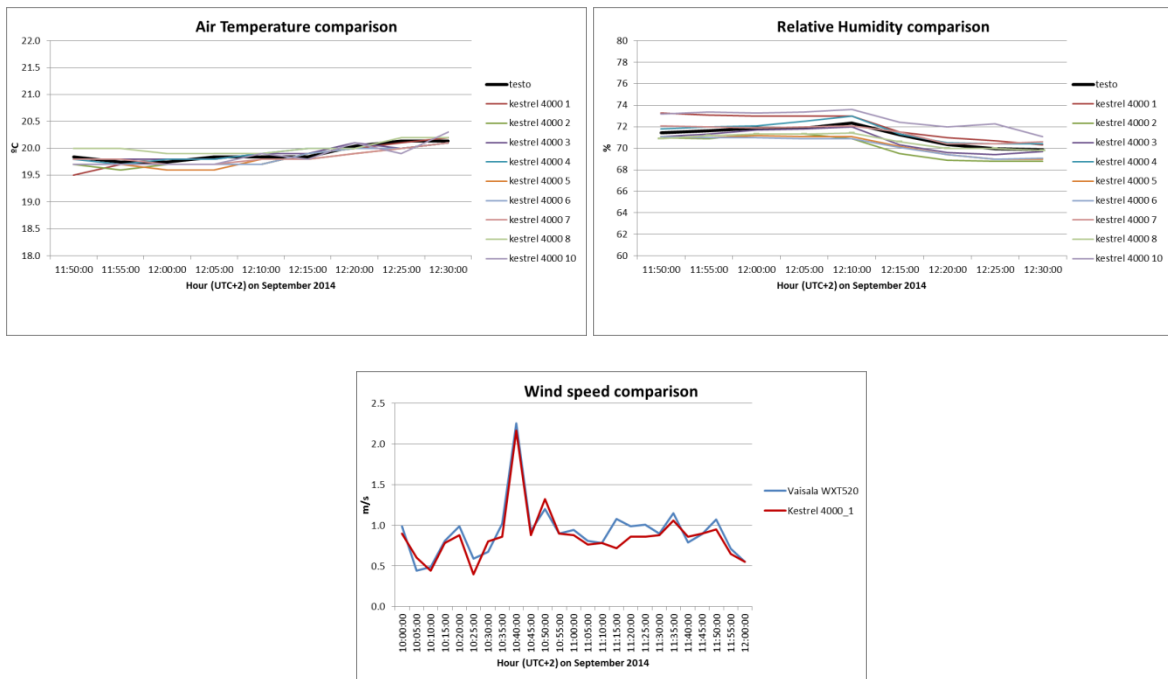
Figure 23. Air temperature and relative humidity measurements comparison of the Kestrel 4000 to be used in the Pilot Implementation and Testo CT051044XE for 5 minute mean values. Wind speed measurements are compared with Vaisala WXT520

d. *Sensor for Acoustic Conditions*

External microphone with a wind screen: during some preliminary tests in environmental conditions it was identified that the smartphone's built-in microphone is highly sensitive to the wind. This fact would affect any measurement made outdoors. Therefore, an external microphone protected by a standard windscreen was added to the measurement chain. This solution also provides greater accuracy for certain sound frequencies than the internal microphone. After analysis, and a search for a low-cost microphone, the Edutige EIM-003 was chosen as part of the acoustic sensor.

CityNoise is a smartphone application developed for android devices to detect noise in the user's surroundings. It runs in the background but provides feedback to the SENSE-IT-NOW application when changes in the soundscape are detected. Based on the user feedback of the source and the perception of the detected sounds and specific questions answered in the SENSE-IT-NOW App, **CityNoise** calculates the ESEI (Environmental Sound Experience Indicator) index that estimates the acoustic comfort perceived.

CityNoise provides these results to the SENSE-IT-NOW app.

Quality control of Acoustic Sensor

As mentioned above, the acoustic sensor selected is the combination of an external microphone (Edutige EIM-003) and the smartphone (Nexus 5). To translate the pressure signal of the microphone to sound levels an App is required and a specific service is developed (acoustics service presented as a product of this empowerment initiative).

In the following graph, results of the measurement developed with the external microphone and the smartphone are presented. A sonometer class 1 and the CITI-SENSE sensor measured white and pink noise emitted by a normalized omnidirectional sound source with three emissions levels: 55, 65 and 75 dBA. The measurements were made in a semi-anechoic chamber to avoid contamination from the reverberant sound field on the results.
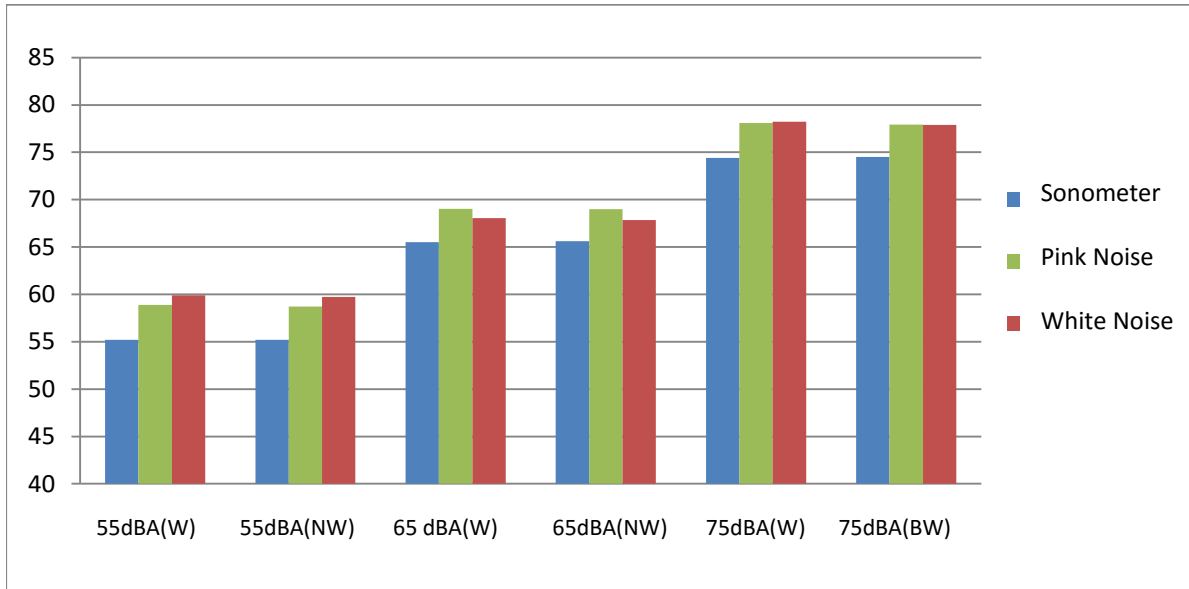

Figure 24. dBA results with wind screen (W) or without it (NW) that show pink and white noise measured by the CityNoise app at the smartphone in comparison with the sonometer.
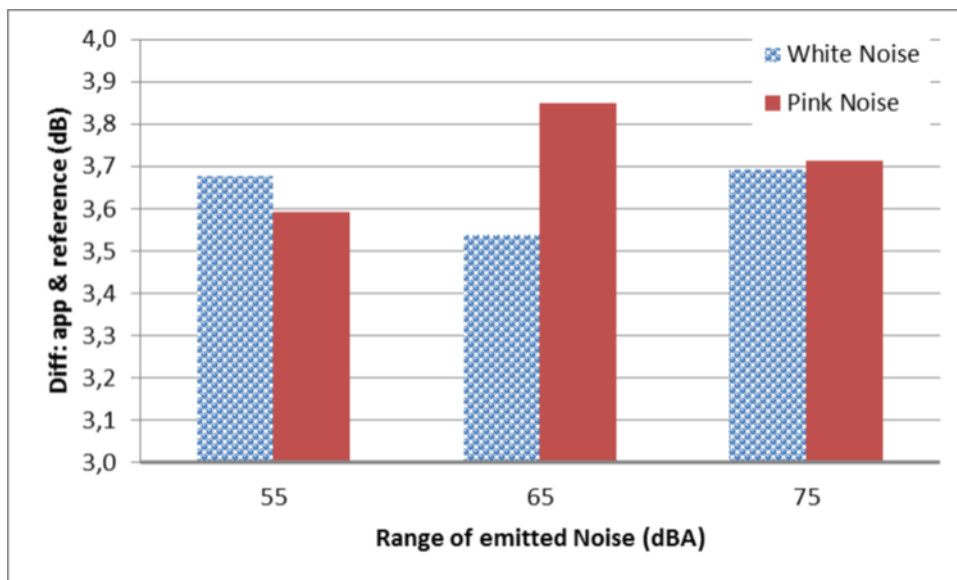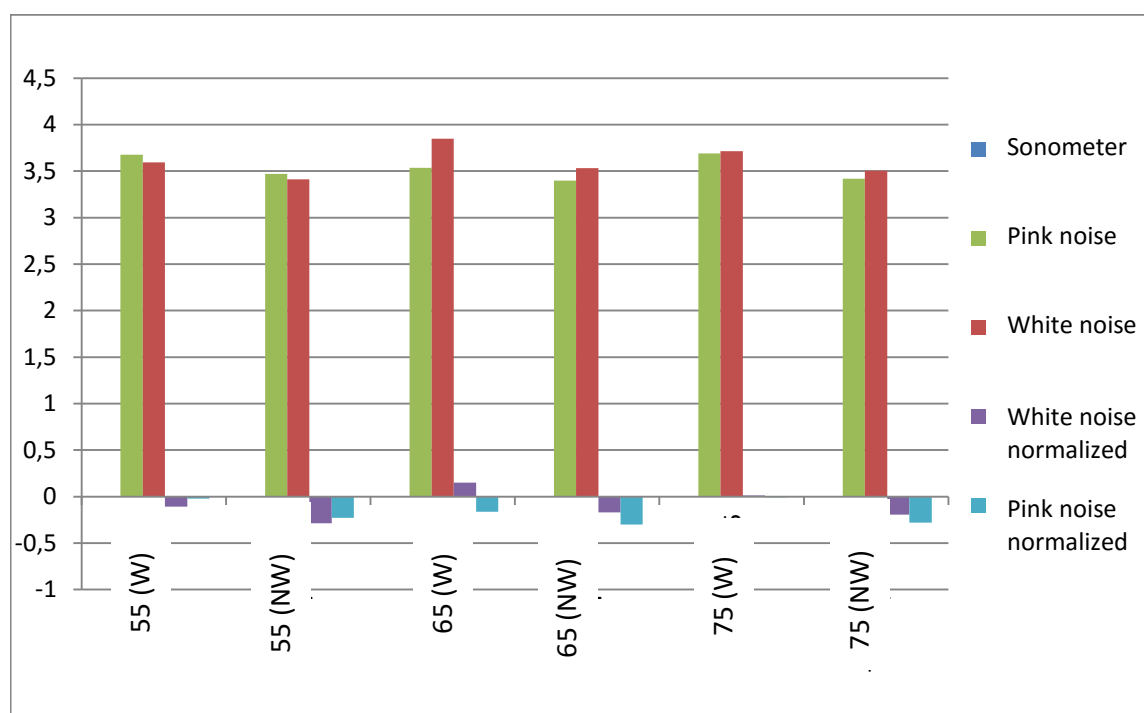

Figure 25 –Difference: CityNoise app at the smartphone & reference device (dB)

Results show a quite stable difference of 3.7 dBA between the sonometer and the CityNoise app at the smartphone with the external microphone. The following graph presents the results after applying this correction of 3.7 dBA.

Figure 26. After applying the 3.7 dBA correction, differences between two measurement devices is less than 0.2dBA. Results with wind screen (W) or without it (NW) are presented.

In the case of acoustic measurements outdoors, the wind speed can influence the results of the measurement in a way that can make them not representative of the acoustic environment.

Wind creates turbulences in the microphone (pressure changes) that can influence the sound levels measured. Here the results of the influence of wind speed on the measured values are presented:

Table 10. Results of the influence of wind speed on the measured values.

	Sonometer with wind screen (dBA)	Smartphone with wind screen (dBA diff)	Smartphone without wind screen (dBA diff)
WS 1,5m/s-2m/s	55	-1,20	6,80
WS 2m/s-2,5m/s	55	0,60	14,20
WS 2,5m/s-3m/s	56	-0,50	17,90
WS 3m/ -4m/s	58	-0,20	18,60
WS 4m/s -5m/s	60	0,12	21,30

As a conclusion, it was decided to put a wind screen to ensure the representativeness of the measured values even at low wind speeds.

iii.   Web Portals to give feedback of Citizens 'Observatory

Citizens that participated in the demonstration exercise could access all the results once the observations had finished. All the results of the observations were uploaded and displayed on the web site of the public spaces empowerment initiative in the CITI-SENSE project: http://citi-sense.tecnalia.com/resultados.jsp. On this webpage, the citizens could see the results of their personal observations and compare them with the average values of all the observations.
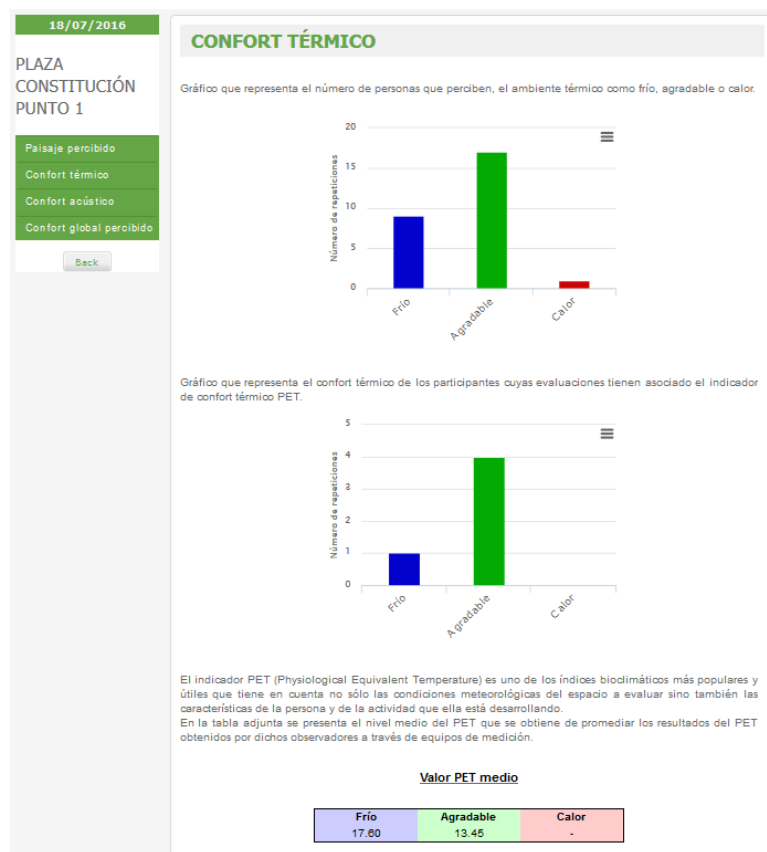
Figure 27: General presentation of the areas and evaluation sites that have results of observations to be consulted

Figure 28: Visualization of the landscape in every area and site. The mean of the observations in the area is shown.

Figure 29: Visualization of Thermal comfort results. It shows the number of users that evaluate the thermal conditions as pleasant or unpleasant (or neutral). The table below shows the mean PET value in each group of evaluations.

Figure 30: Visualization of Acoustic comfort results. It shows the number of users that evaluate the acoustic conditions as pleasant or unpleasant (or neutral). The table below shows the mean ESEI value in each group of evaluations.
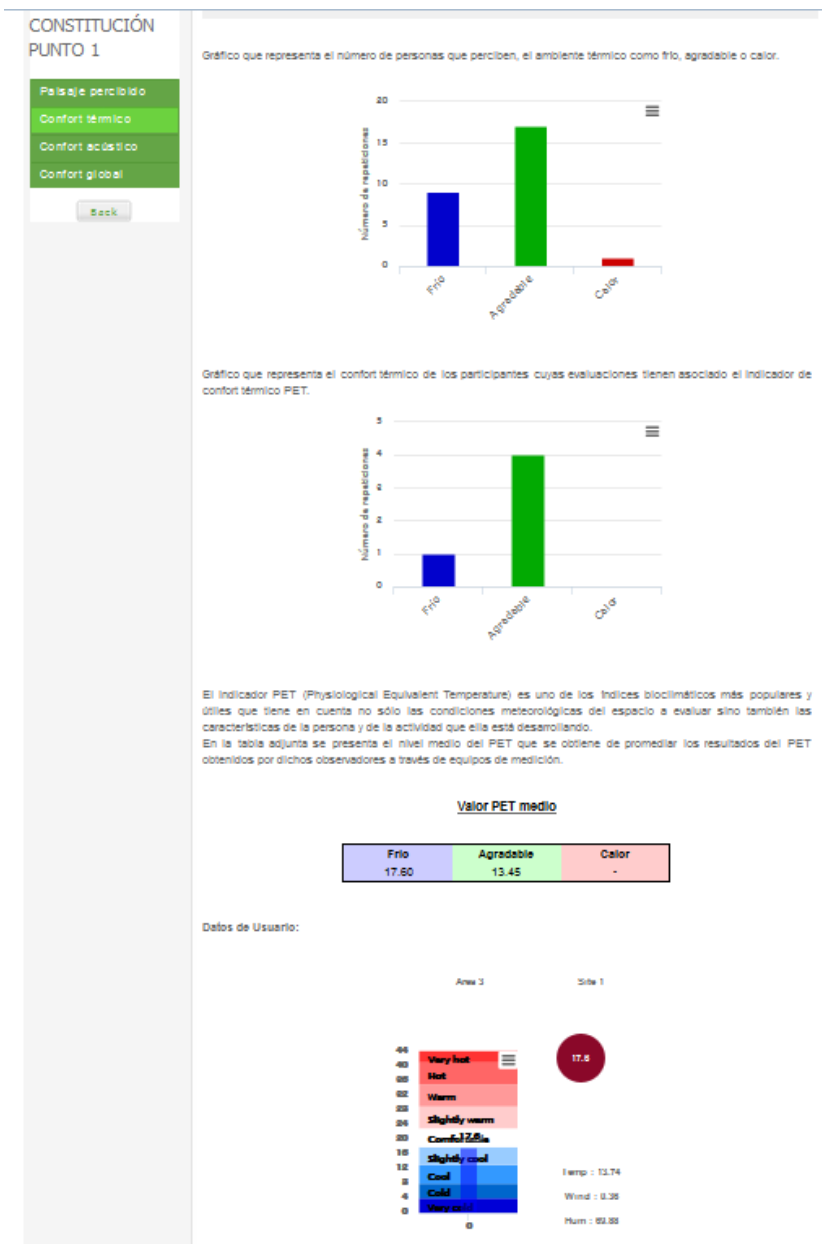

Figure 31: Visualization of the global comfort at the site of observation. The mean of the observations in the area is shown.

Citizen participating on the observation had log-in access. Information shown in this personal area allows the comparison of the results of the individual`s observation with the mean results of observations developed at the same site.

Figure 32: Visualization of individual thermal comfort: Results of the mean of observations and the personal evaluation of the user at every site.

Figure 33: Visualization of individual Acoustic comfort: Results of the mean of observations and the personal evaluation of the user at every site.

Figure 34: Visualization of individual Landscape evaluation: Results of the mean of observations and the personal evaluation of the user at every site.

Figure 35: Visualization of individual Global comfort evaluation: Results of the mean of observations and the personal evaluation of the user at every site.
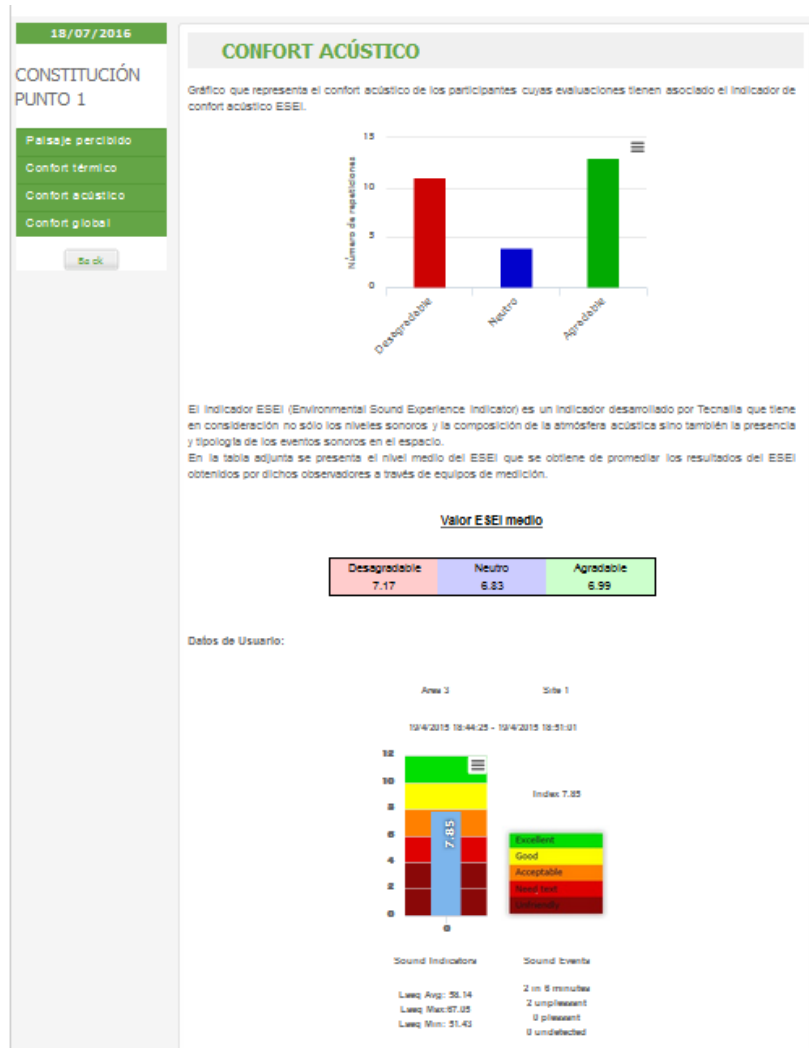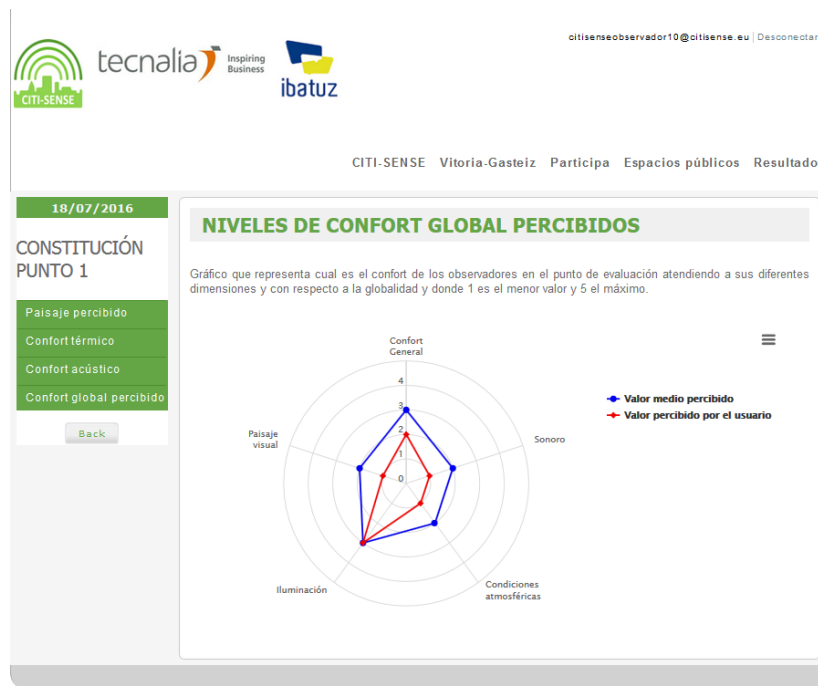
ANNEX IV. FEEDBACK WORKSHOP PLAN

FEEDBACK WORKSHOP PLAN (2H):

1. Welcome and introduction (5 min)

2. Updates about CITI-SENSE project (5 min)

3. Data gathering outcome presentation (20 min)

4. Focus groups: Participants divided in 4 teams (5 min)

   - Constitution Square team (lead by Itziar)
   - Los Herran Street team (lead by Arrate)
   - Olarizu team (lead by Igone)
   - Salinillas team (lead by Antxon)

5. Focus Groups agenda

   - Kestrel kit evaluation (10 min)
   - Results presentation (5 min)
   - Discussion (5 min)
   - Data assessment (8 min)
   - Improvement suggestions for public spaces (12 min)
   - Recommendations and suggestions summing-up (5 min)

6. Brainstorming session (15 min)

7. Workshop evaluation (short survey) (10 min)

8. Closing session (10 min)

D3.4 Evaluation of the performance of the user cases: Part 1 Public Places

ANNEX V: WORKING MATERIAL FOR THE FEEDBACK WORKSHOP

Each participant received a working document. The main goal was to discuss and to give their impressions about the data gathering experience. The following questions (Items) were made to each participant:

1. How do you assess the product (app, sensor and microphone) to make the observations?
    - What´s positive:
    - What´s negative:
2. Los Herrán area:
    - What do you think about the results?
    - Did you expect this?
    - There´s something that have attracted your attention?
    - What has surprised you?
    - What is more surprising, objective or subjective data?
    - What would you do to improve this area?
    - What would you do to enhance the urban comfort? Suggest something constructive: what and how.

3. Constitution Square area
    - What do you think about the results?
    - Did you expect this?
    - There´s something that have attracted your attention?
    - What has surprised you?
    - What is more surprising, objective or subjective data?
    - What would you do to improve this area?
    - What would you do to enhance the urban comfort? Suggest something constructive: what and how.
4. Olarizu area
    - What do you think about the results?
    - Did you expect this?
    - There´s something that have attracted your attention?
    - What has surprised you?

|---|---|---|

- What is more surprising, objective or subjective data?

- What would you do to improve this area?

- What would you do to enhance the urban comfort? Suggest something constructive: what and how.

5. Salinillas area

- What do you think about the results?

- Did you expect this?

- There´s something that have attracted your attention?

- What has surprised you?

- What is more surprising, objective or subjective data?

- What would you do to improve this area?

- What would you do to enhance the urban comfort? Suggest something constructive: what and how.

ANNEX VI: EVALUATION QUESTIONNAIRE

First, the interviewee name and membership (to an association) was requested, and the number of observations made during the data gathering days. Below we present the **evaluation questionnaire structure**:

1. How do you assess CITI-SENSE experience (1 very negative – 5 very positive)

2. What would you do to improve this experience? (open question)

3. What would you do to improve the smartphone app – sensor? (open question)

4. Please indicate to what extent you agree or disagree to the following statement: "Being part of this experience made me to keep an eye on elements that usually are unnoticed". (1 Strongly disagree – 5 strongly agree)

5. Please indicate to what extent you consider that this tool could be useful to improve our city (1 not useful at all – 5 very useful)

    5.1 Why? (Open Question)

6. Please indicate to what extent you consider that this tool could be useful for an empowerment process (1 not useful at all – 5 very useful)

    6.1 Why? (Open Question)

7. How do you assess this workshop? (1 very negative – 5 very positive)

ANNEX VII. IN-DEPTH INTERVIEW GUIDE

The **questionnaire structure** is presented below:

(First part) *Product Evaluation*

---

1. To what extent is this product useful to you? (1 very negative – 10 very positive)

2. What can it not help you to do better? Which are the limits?

3. What could it help you to do better if it is improved/adapted? How should it be improved?

4. Is this product useful for Vitoria-Gasteiz public spaces improvement with regard to environmental quality?

5. This product would be useful for other actors, such us schools, NGOs, industry and commerce…?

6. Which is Vitoria-Gasteiz municipality environmental strategy?

(Second part) **Empowerment initiative evaluation**

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7. Which are the main limitations to carry out an empowerment process?

8. How do you appreciate and assess CITI-SENSE Empowerment Initiative carried out in Vitoria-Gasteiz?

9. This Empowerment Initiative could have any positive benefit in Vitoria-Gasteiz environmental quality?

10. Do you carry out empowerment initiatives?

11. What´s social empowerment for you?

12. Do you engage other actors-agents such us NGO´s, Schools, Scientists during the empowerment initiatives?

13. What about industry and commerce (groups more reluctant with environmental protection)?

14. Have you learnt something about CITI-SENSE project?

15. Are there always conditions when managing environment?

16. Do you go with citizens to the area that is going to be transformed?

17. To what extent is CITI-SENSE experience useful to you?

ANNEX VIII. OTHER STAKEHOLDERS: FEEDBACK QUESTIONNAIRE

My profile:

City / Country:

Environmental Citizens' Observatory for Public Places

FEEDBACK QUESTIONNAIRE

1. When (in which cases) do you think that CITI-SENSE Urban Spaces would help you improving the current municipal decision-making processes on urban spaces?

   Which would be its contribution?

2. Can you identify any space in the city where this approach could be useful?

   Which?

3. What are the main barriers for you to implement this approach in a real situation in the city?

4. Do you identify any other stakeholder in your city who could apply for Environmental Citizens' Observatory for Public Places?

   Who?

5. What are the main barriers for them to implement this approach in a real situation in the city?

6. Can this approach be integrated into existing processes of citizens` empowerment or public participation in the City?

   Comments:

Please rate your degree of agreement with the following statements	
(from 0 to 5; being 5, totally agree, and 0, totally disagree)	
7. Citizen empowerment is necessary for decision-making on public spaces	
8. Environmental comfort is a variable that must be integrated into the design and improvement of urban spaces.	
9. CITI-SENSE proposal allows improving existing municipal decision-making processes on urban spaces.	
10. CITI-SENSE proposal improves current processes of citizen empowerment and public participation at the city.	

ANNEX IX. MATERIALS USED IN THE CO-DESIGN WORKSHOP

Objective of the session:

To co-design the results section of the CITI-SENSE web page in Vitoria-Gasteiz by designing the data visualization tailored to the needs and expectations of volunteers.

Selection of the participants and profiles.

The work session has been developed following a methodology of focus groups and taking into account plurality criteria of so-called discussion groups although in this case the work has been done in a single session.

Focus Group is a qualitative methodology in which opinions and assessments of a group of people (between 6 and 12) around a topic or issue are collected. In its development, the persons who conduct the session have to ask questions to the participants in order to obtain information on the topic and keep the focus (hence its name) in the subject of work.

For selecting participants in the Focus Group we followed the following criteria:

- Geographical plurality within the city
- Provenance; there are people from various civic associations, both environmental, social and neighbourhood character as well as an expert in citizen participation and a professor of environmental science at a college in the city.
- Level of knowledge / training. People with high educational profile (graduates and environmental experts) and people with basic education.
- Age. Age profiles have been mixed: The youngest person is 30 with the oldest 59. All other participants are aged between 30 and 45 years.

DEVELOPMENT OF THE SESSION

- Presentation of the work session and brief explanation of the methodology to be carried out. (5 min)

  The facilitator started the session with a brief explanation of the methodology. Once this was done, he/she asked the attendants if they had doubts or if there was any problem to start the workshop.

- Presentation of information to let participants know its contain, based on a PPT which lasts 10 minutes.

  In this presentation, questions concerning the type of data that were presented, the possibilities of displaying the data, different levels of access to data and possible display screens are discussed. After the presentation no one raised questions.

- Discussion Group. CITI-SENSE team posed questions to the group in order to deepen aspects related to the purpose of the workshop, encouraging the active participation of all those attending and streamlining the debate.

1.   What kind of information we should provide access to the different type of users?

a.   Volunteers that have made observations
b.   General public

Responses gathered:

- *I think it would be interesting to differentiate the information that is offered to people who participated as volunteers and the offered to other citizens. More generic and easy for the general public and more complete and accurate information for the volunteers.*

- *The most important thing is to have a user-friendly access to the information. The information is simple and clear and well structured. For example, the information is well classified by locations and can be easily found.*

- *It would be very helpful for the citizens who have not participated in the EI, to have the information organized by each of the areas. The information found in each area should be organized in landscape, thermal comfort and acoustic comfort sections, where you should include a brief introduction to each of these terms.*

- *I think that is important to mark better the areas, because it was difficult for me to identify one of the areas even knowing the city very well.*

- *For the general public (citizens), I think it would be important to explain why you have chosen these areas and not some others why some other interesting areas are not included and why it is necessary to study a particular point.*

2.   Should we raise some other level of access to the data? (For local authorities, etc.)

- *I think it would be interesting to structure (classify) the data and offer the users access to two different level: one level with more generic and another level with more extensive information explaining also how this kind of experiences can be applied and transferred into their work.*

- *I would include information from other experiences carried out so far so the user could see other cities which are working on these same topics.*

- *The general public user don´t need to access the same information as the volunteer' user who has participated in the EI. Tecnalia must protect the data of persons who have participated in the EI because they are people belonging to civic associations and their answers to the questionnaires should be anonymous and not open to the general public.*

3.   How do we make most easily to understand the information we manage?

a.   Language

b. Format in which it is presented (type of graphics)

- *The issue requires a simple, accessible, understandable language. You need to avoid the technicalities and when they appear, explain what they are.*

- *Very simple visual format, it will be good if we don´t have to find the information in complex ways. Any of us in a few steps on the computer may be able to find information we seek.*

- *Photographs of the areas (rather than maps or plans) to place ourselves.*

- *It seems to me that above all you must have to explain properly what it is worth the results, which means one thing or another, but people are going to see a chart of temperature and will not know what to say, if such is to be done something with that data or not ..*

- *In my view the charts you show are easy to understand and simple. I think that maybe show them big or another colour ...., But well understood.*

4. And then, when we present the information, which information should explain it?

- *Yes, but above all of the concepts used (thermal comfort, acoustic, etc.).*

- *Although we are already familiar with them, it should be good to be reminded. And definitely it is a must to include explanations for the general public who have not participated in the EI. As an example, the term "comfort" is already difficult to understand for many people, and therefore the term "urban comfort" is even more difficult to understand.*

- *Then the "PET", the data is a number, okay add information to the chart, include explanation of what it is, which is 15-20 ... ..*

- *For us (volunteers) is recommended, for the general public is mandatory to include some explanations (not too many to not clutter of information).*

5. What format? (Text, images, others ...)

- *Some text but, preferably, self-explained images.*

- *Not too much text as it will not be read (and will not help). A few paragraphs at most.*

- *If the goal is that people read it, it cannot be a long text because they will not read.*

6. For further explanation of the concepts, conclude images, etc. Should we add some information about what means the data presented? (Information on whether the indexes that provide the results are positive or not, to what extent ...).

- *It would be very interesting to have further explanations that would help to understand the results, which explain the usefulness of fieldwork and our measurements.*

- *Perhaps (and in order to avoid too much information) an indicative example only necessary to understand the results.*

- *You should also explain what will happen in future with the results, that is, we know where this comes from, but we would like to know what will happen from now on? You explained that this is an experimental measurements and the council are not committed with the results. But you should say what reliability has everything to present and especially if there will be more steps or not. Because otherwise the volunteers that have participated in the EI are going to be frustrated after all their dedication.*