

Participant Consent Form

Research Project Title: Sound for Energy: Energy-aware sonic carpet prototype

Project responsible: Vincenzo Madaghiele & Sandra Pauletto

Participant:

Date of Participation: 2022 03 04

Email Address of Participant:

Thank you for agreeing to be recorded as part of the above project.

This consent form is necessary to confirm that you fully understand your role in the project and that you agree to the terms and conditions of your participation. Please familiarise yourself with the content of the information sheet prior to signing this form.

By signing this form I agree that:

- I am voluntarily taking part in testing this prototype
- I understand that any audio recordings produced will be used as data in the research project: Sound for Energy: <https://www.soundforenergy.net>
- I understand that ideas generated in this test might be further developed to create sonic interactions that facilitate energy efficient behaviour in the household
- I understand that the purpose of the project is research and education
- I understand that the parts of the audio recording might be used in publications about the project, for example in academic articles or project website
- I understand that data will be anonymised (i.e. your name will not be explicitly connected to your feedback or audio recording)
- I am free to withdraw from the project at any time
- I had an opportunity to ask questions regarding this project p
- I do not expect to get any payment for my contribution

Signed by Participant:

Signed by Vincenzo Madaghiele: **DATE:**

Energy-aware sonic carpet - User Experience and listening test

Project description:

Energy provides heating, lighting and more, but it affects the environment. In Europe, households account for 25% of the energy-related greenhouse gas emissions. Residential energy feedback could contribute to 5%–10% energy consumption reduction. A common way to encourage energy saving behavior is visualizing energy consumption with digital displays called Smart Energy Meters. Our approach is instead based on exploring the use of sound as a means of information about energy. This prototype is an Energy-aware sonic carpet. It provides a sonic feedback on real-time energy consumption and the related CO₂ emissions when stepping on it.

Background information

Age:

Gender:

- ☐ Female
- ☐ Male
- ☐ Non-binary
- ☐ I prefer not to say
- ☐ I prefer to self-describe as:

Music/sound background:

- ☐ None
- ☐ Basic
- ☐ Intermediate
- ☐ Advanced
- ☐ Professional

Basic hearing test

<https://onlinehearingcare.co.uk/screening-test/>

Listening test

Consumption and emissions

Listen to sound examples of maximum and minimum consumption and emissions

Rate the following sound examples

| | | Low | Medium | High |
|-----------|-------------|-----|--------|------|
| Example 1 | Consumption | | | |
| | Emissions | | | |
| Example 2 | Consumption | | | |
| | Emissions | | | |
| Example 3 | Consumption | | | |
| | Emissions | | | |
| Example 4 | Consumption | | | |
| | Emissions | | | |
| Example 5 | Consumption | | | |
| | Emissions | | | |
| Example 6 | Consumption | | | |
| | Emissions | | | |

Rate the sounds you heard:

| | | | | | | | | |
|----------------|--|--|--|--|--|--|--|--------------------|
| Annoying | | | | | | | | Enjoyable |
| Unpleasant | | | | | | | | Pleasant |
| Clear | | | | | | | | Confusing |
| Understandable | | | | | | | | Not understandable |
| Easy to learn | | | | | | | | Difficult to learn |

Any other comments on these sounds:

.....

.....

.....

.....

.....

Energy sources

Listen to sound examples of maximum and minimum percentage of a source, and pitch corresponding to each source.

The pitch related to each source is in this increasing order:

Wind Hydro Nuclear Other Solar Geothermal

Rate the following sound examples and indicate which source you think they corresponds to

| | | Source | Low | Medium | High |
|-----------|-------------|--------|-----|--------|------|
| Example 1 | Consumption | | | | |
| | Emissions | | | | |
| Example 2 | Consumption | | | | |
| | Emissions | | | | |
| Example 3 | Consumption | | | | |
| | Emissions | | | | |
| Example 4 | Consumption | | | | |
| | Emissions | | | | |
| Example 5 | Consumption | | | | |
| | Emissions | | | | |
| Example 6 | Consumption | | | | |
| | Emissions | | | | |

Test with interface

Explore the carpet device in three different configurations and guess the state of the energy data

| | | Low | Medium | High |
|-----------|-------------|-----|--------|------|
| Example 1 | Consumption | | | |
| | Emissions | | | |
| | Wind | | | |
| | Hydro | | | |
| | Nuclear | | | |
| | Other | | | |
| | Solar | | | |
| | Geothermal | | | |

| | | | | |
|------------------|--------------------|--|--|--|
| Example 2 | Consumption | | | |
| | Emissions | | | |
| | Wind | | | |
| | Hydro | | | |
| | Nuclear | | | |
| | Other | | | |
| | Solar | | | |
| | Geothermal | | | |
| Example 3 | Consumption | | | |
| | Emissions | | | |
| | Wind | | | |
| | Hydro | | | |
| | Nuclear | | | |
| | Other | | | |
| | Solar | | | |
| | Geothermal | | | |

User Experience Questionnaire

Open questions

- Can you describe how this experience made you feel?
- What aspect do you like the most and why?
- What aspect do you like the least and why?
- How would you change the aspect that you like the least?
- Are you interested in the information provided by the carpet?
- Can you imagine using an auditory augmented carpet in your home? If yes, what would it look like and what would it sound like?
- Any other comments

Please assess the product now by ticking one circle per line.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | |
|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------|----|
| annoying | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | enjoyable | 1 |
| not understandable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | understandable | 2 |
| creative | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | dull | 3 |
| easy to learn | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | difficult to learn | 4 |
| valuable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | inferior | 5 |
| boring | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | exciting | 6 |
| not interesting | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | interesting | 7 |
| unpredictable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | predictable | 8 |
| fast | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | slow | 9 |
| inventive | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | conventional | 10 |
| obstructive | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | supportive | 11 |
| good | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | bad | 12 |
| complicated | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | easy | 13 |
| unlikable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | pleasing | 14 |
| usual | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | leading edge | 15 |
| unpleasant | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | pleasant | 16 |
| secure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | not secure | 17 |
| motivating | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | demotivating | 18 |
| meets expectations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | does not meet expectations | 19 |
| inefficient | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | efficient | 20 |
| clear | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | confusing | 21 |
| impractical | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | practical | 22 |
| organized | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | cluttered | 23 |
| attractive | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | unattractive | 24 |
| friendly | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | unfriendly | 25 |
| conservative | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | innovative | 26 |