The Design of an Environmental Noise Labeling App for Citizen Participation in Smart Cities

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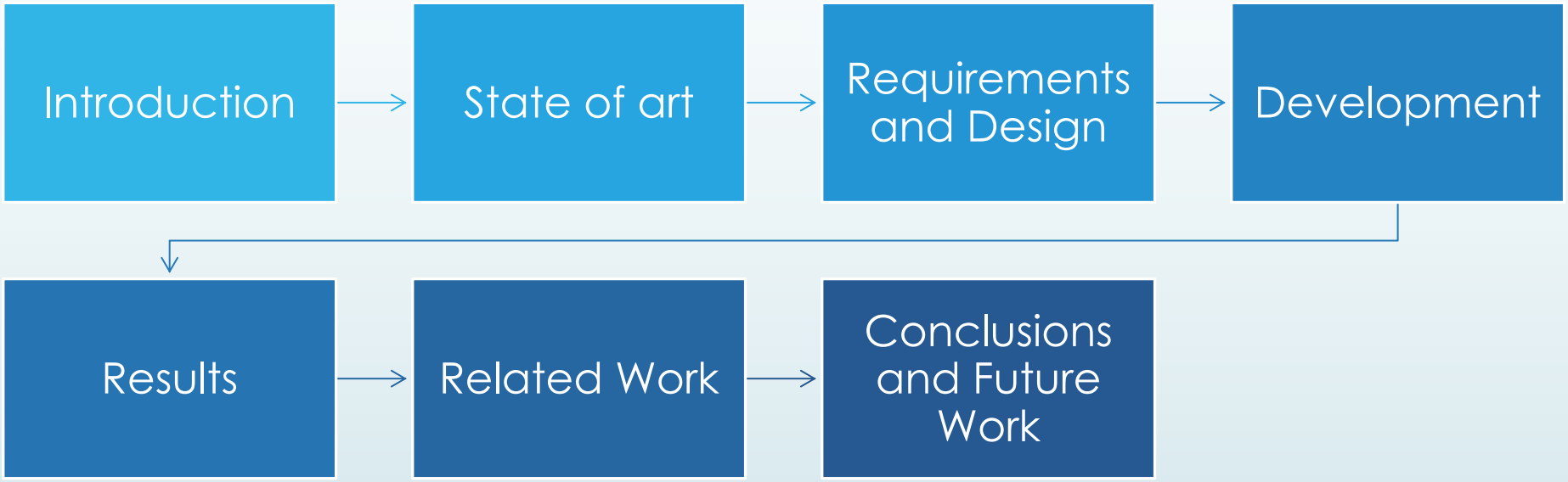
Content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Introduction

- Great variety of sounds recognized and discerned
- Collect, classify and label is a time-consuming task
- Basic training to citizens to enable their participation
- Using gaming and new technologies to make classification and labeling process more enjoyable

State of art

Gamification

- Techniques and game mechanics in a mobile application to engage, motivate and encourage its use
- MDA System
  - Mechanics
  - Dynamics
  - Aesthethics

Citizen Science

- Scientific research carried out thanks to volunteer citizens, who contribute to science with their intellectual efforts, tools and resources

Labeling sounds

- Process that consists of indicating in a recording where a specific sound is located and how it is defined
- e.g. MajorMiner, TagATune, the Listen Game

Related Work

MajorMiner

- Web application for tagging entire audios *offline* "against" a database

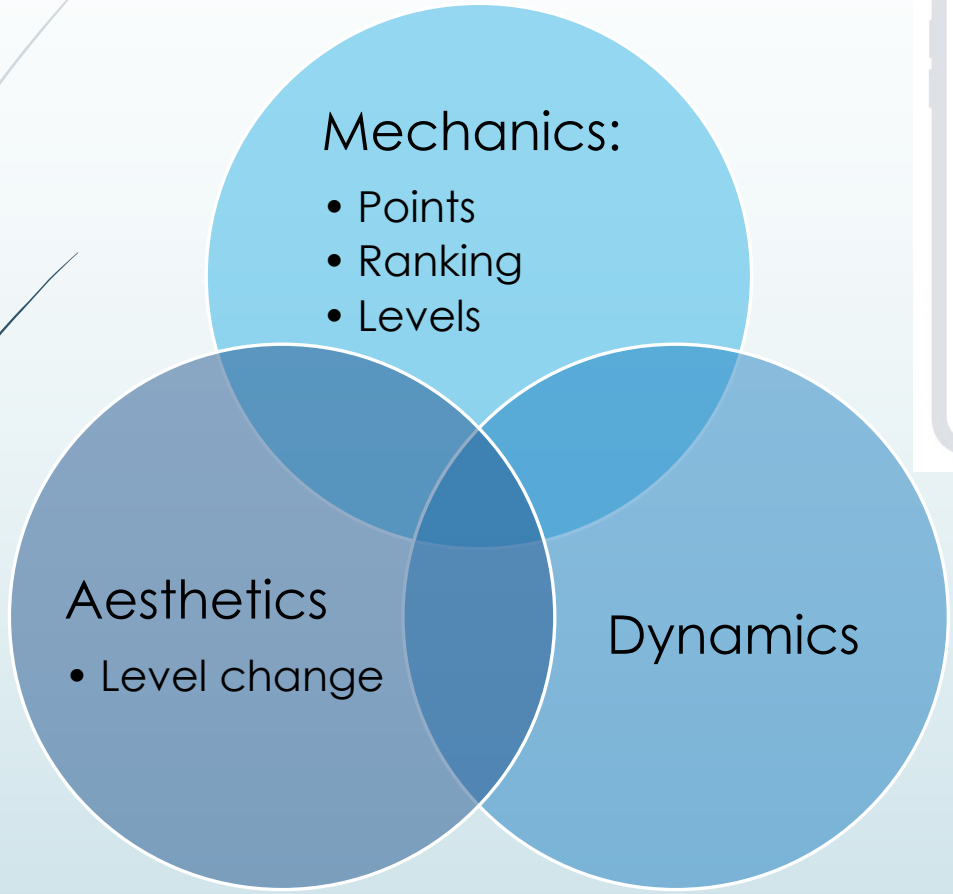
TagATune

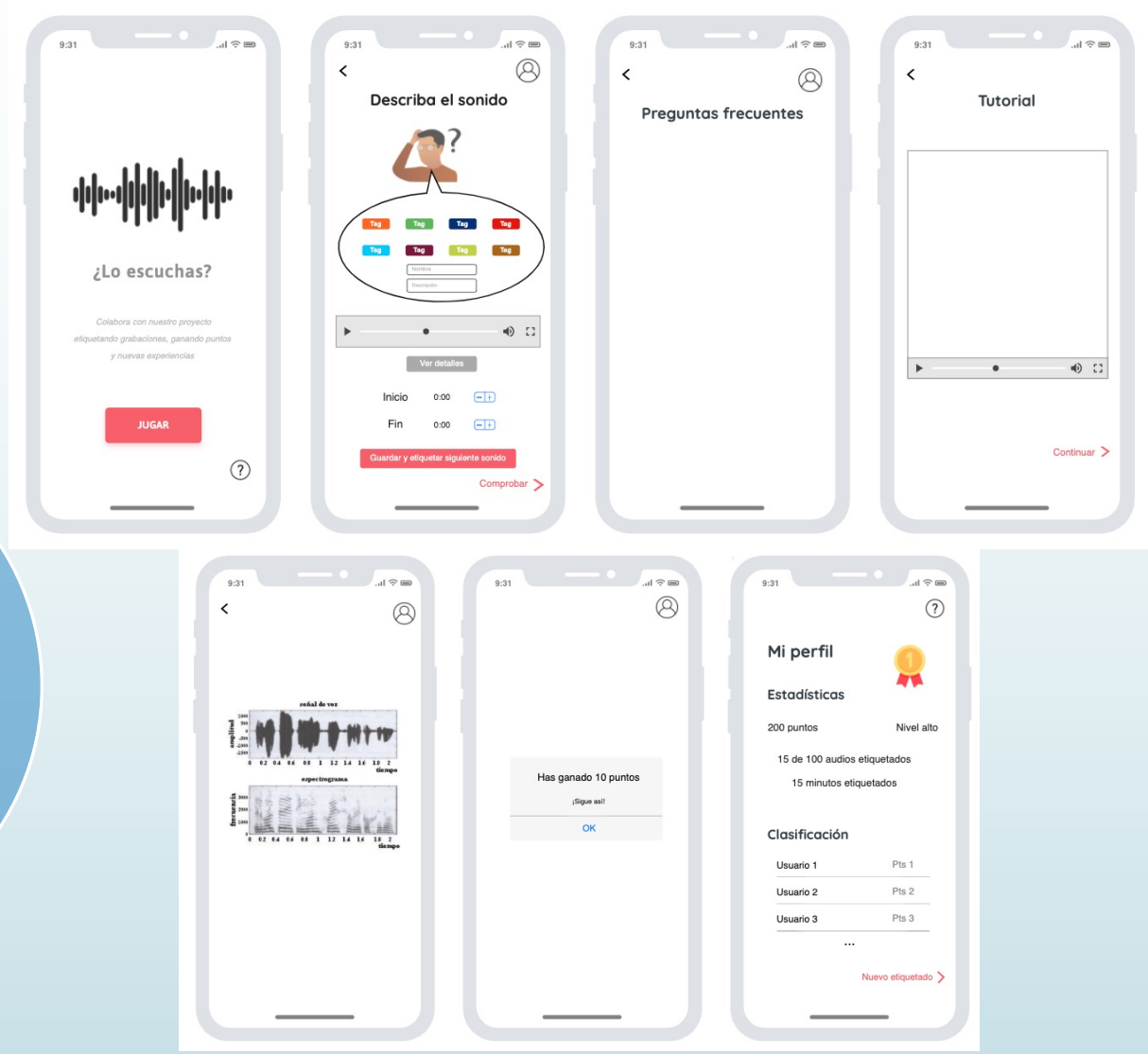
- Application to tag entire audios for a limited time, played in pairs or with a bot

The Listen Game

- Application to tag entire audios playing simultaneously against multiple players

Requirements and Design





Development

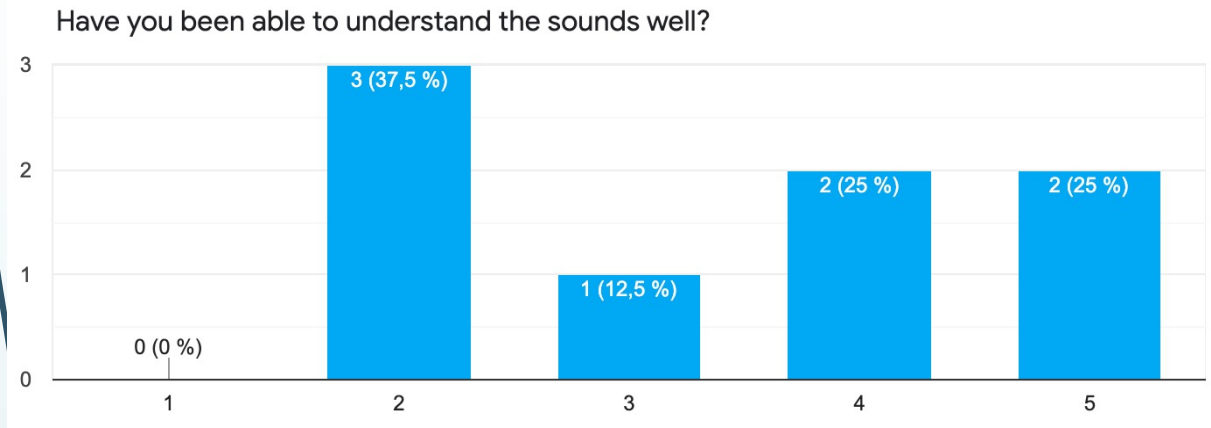
First prototype developed

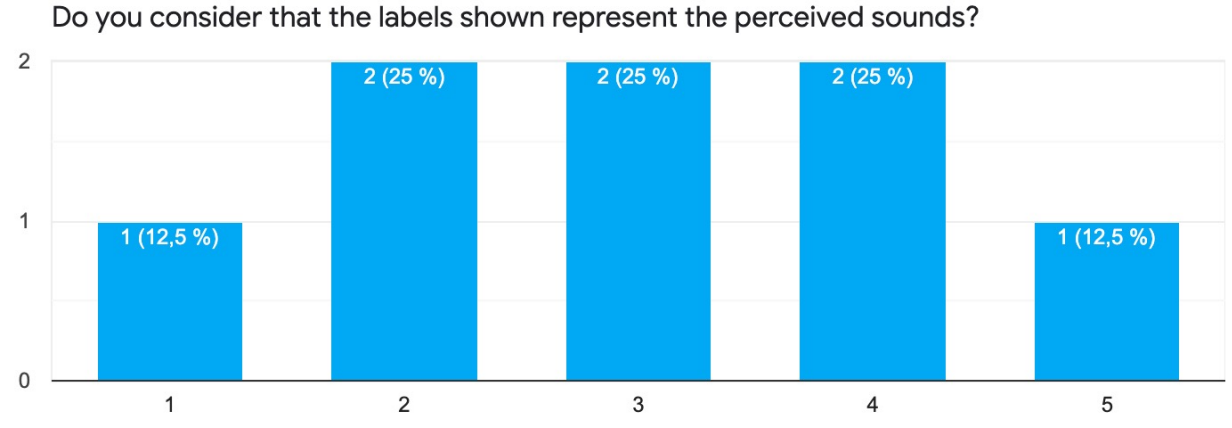
Testing with 10 researchers

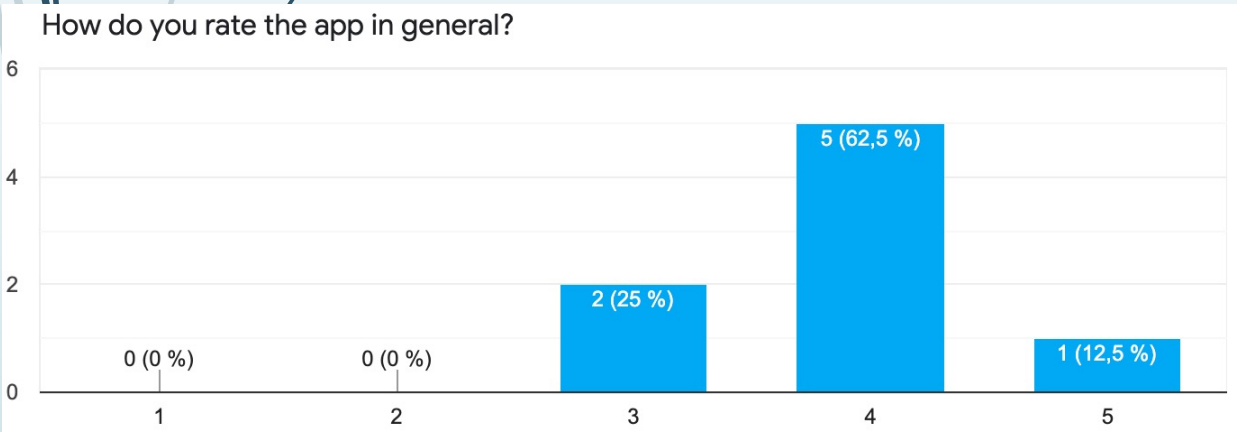
Criteria

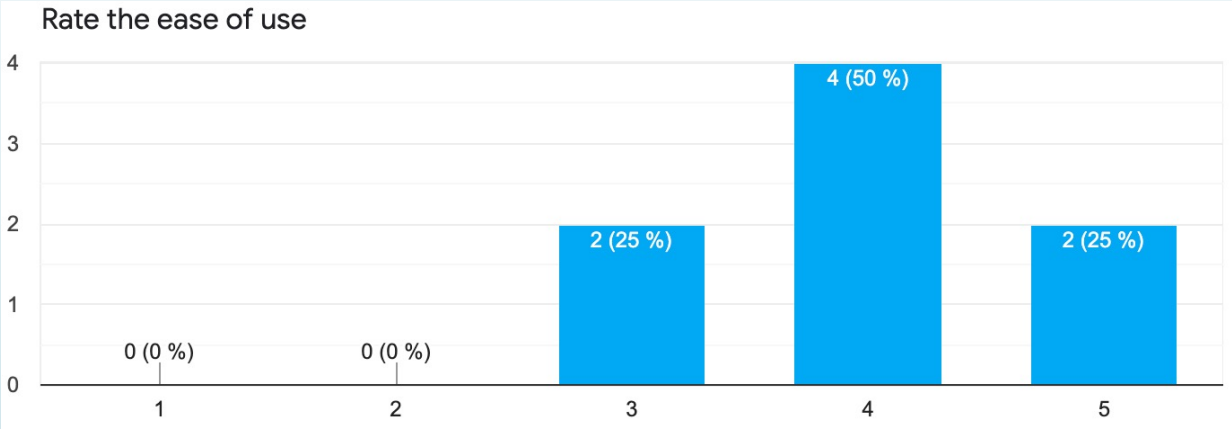
- Installation
- Labels
- Navigation
- Tutorial
- Frequently asked questions
- Operation
- Design
- General aspects

Results


Have you been able to understand the sounds well?
3
2
1
0
0 (0 %)
3 (37,5 %)
1 (12,5 %)
2 (25 %)
2 (25 %)
1
2
3
4
5


Do you consider that the labels shown represent the perceived sounds?
2
1
0
1 (12,5 %)
2 (25 %)
2 (25 %)
2 (25 %)
1 (12,5 %)
1
2
3
4
5

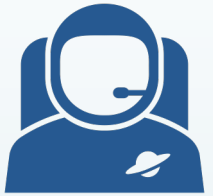

How do you rate the app in general?
6
4
2
0
0 (0 %)
0 (0 %)
2 (25 %)
5 (62,5 %)
1 (12,5 %)
1
2
3
4
5


Rate the ease of use
4
3
2
1
0
0 (0 %)
0 (0 %)
2 (25 %)
4 (50 %)
2 (25 %)
1
2
3
4
5

Conclusions and Future Work

Development of a mobile application

Aspects considered are gamification, citizen science and sound tagging



Improve the application and continue testing

Thank you for your attention