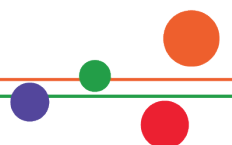# AnimApp

a mobile application for pilot studying QoL

ANIMA hybrid workshop: New Approaches to Mitigate Aviation Noise Impact

22 June, 09:00 - 15:30, Vienna International Airport

June 22 2021

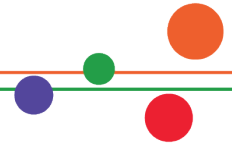**Ferenc Márki**   Budapest University of Technology and Economics (BME)

Hungary

Contact: **marki@hit.bme.hu**

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Aviation Noise Impact Management
through Novel Approaches

AnimApp

- ANIMA EU funded project
  - aim: improving quality of life of people living in airport regions
  - one of the goals: to better understand annoyance
    → pilot studies
  - one of the pilot studies:

    developing mobile applications ...

    to study the impact of the sound- and landscape on people's perception of the environment and their quality of life around airports

- approach: inspired by soundscape studies: Experience Sampling Method

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Experience sampling method
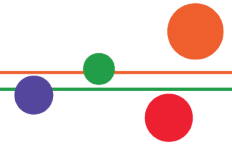
- Retrospective judgements are often difficult to answer and thus uncertain

- Asking for momentary "impressions" is certain

- Asking repeatedly at random times
   = "snapshots" from life, hopefully representative
researchers hope to conclude to longterm opinions…

- Pilot study nature:
  - are people willing to contribute this way?
  - can we get relevant data?

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Benefits of mobile phones

- Most people own already a smartphone

- Smartphones can
  - take photos
  - record sounds
  - determine its location
  - send / receive data
  - (can interact with its user)

- Hiring participants less costly

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App design considerations

✓ Platform selection: market share Android / iPhone

✓ Attractivity / user experience !
(Note: unpaid participants)

✓ Simplicity *vs.* exact instructions

✓ Follow strictly test procedure *vs.*
allow "less-accurate" usage

✓ Multi-lingual

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Good to know before developing

➤ Notifications
- must always come, even after app kill
- how to repeat / dismiss if no reaction in time

➤ Inter-app issues:
app interruption by a phone call, a notification, user exit, etc.

➤ Apple: strict rules for app distribution otherwise rejected

➤ Android: huge diversity of devices and op. sys. versions

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App development phases

1. Elaboration of **Specifications** for the App

2. App **Development**

3. **Testing** of the pre-release version by a few (10-15) persons for
   - app-errors,
   - UI improvement possibilities,
   - **methodological issues**.

4. **Update** of the **Specifications** for the App
   (based on the feedback of test participants)

Pre-release version

5. App **Development**

6. **Testing** of the release version by a few persons for app-errors

7. **Distributing** the App for the ANIMA study.

Release version

22.06.2021   Horizon 2020

Study elements
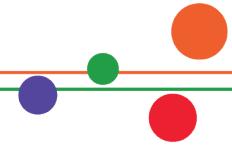
| INTRO	MOMENTARY ASSESSMENTS	END-OF-WEEK QUESTIONNAIRE	FINAL QUEST.
started by the user	initiated by local notifications, to respond by the user		
at first start	- **weekdays**: each hour once: 7-23 - **weekend days**: each 2nd hour: 10-22 - @ random times around full hours	- **for weekdays**: @ 19:00 on each Friday - **for weekend days**: after last weekend assessment	on next day @ 19:00 after completion of all assessments

Introduction

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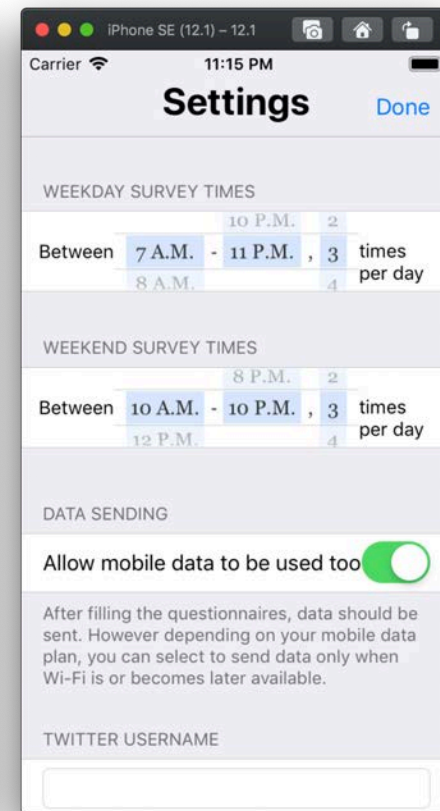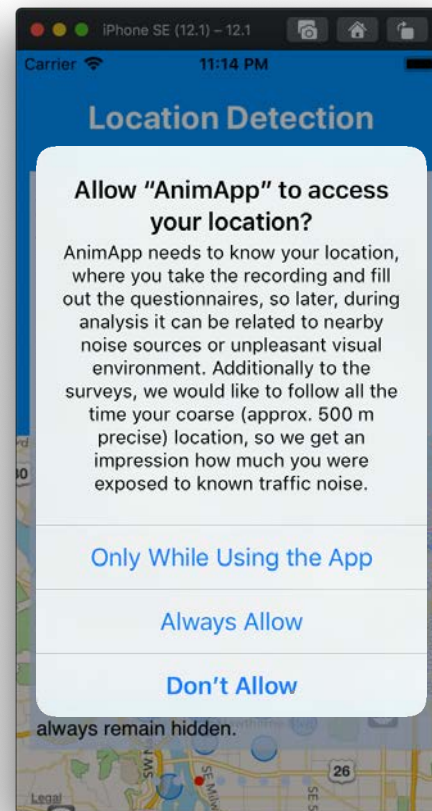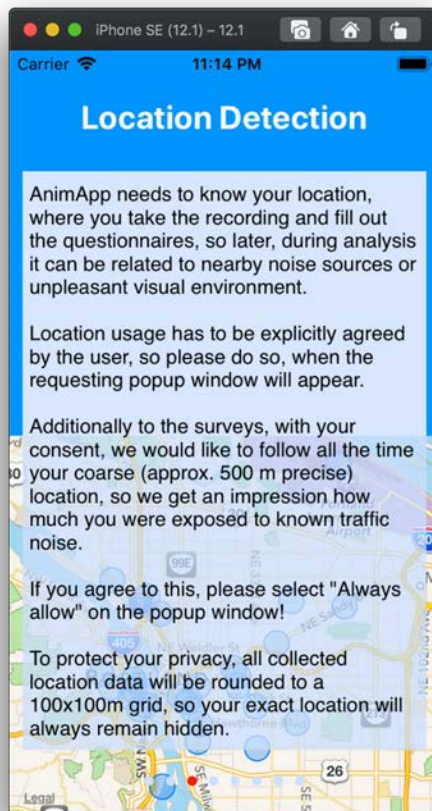
Momentary Assessments
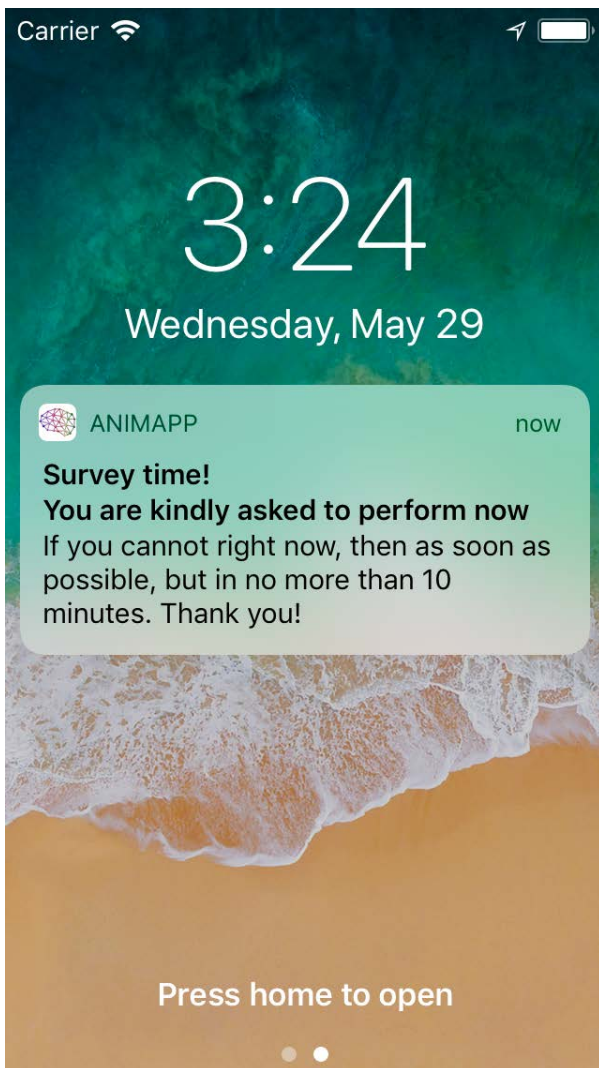
Record sound for 1 minute
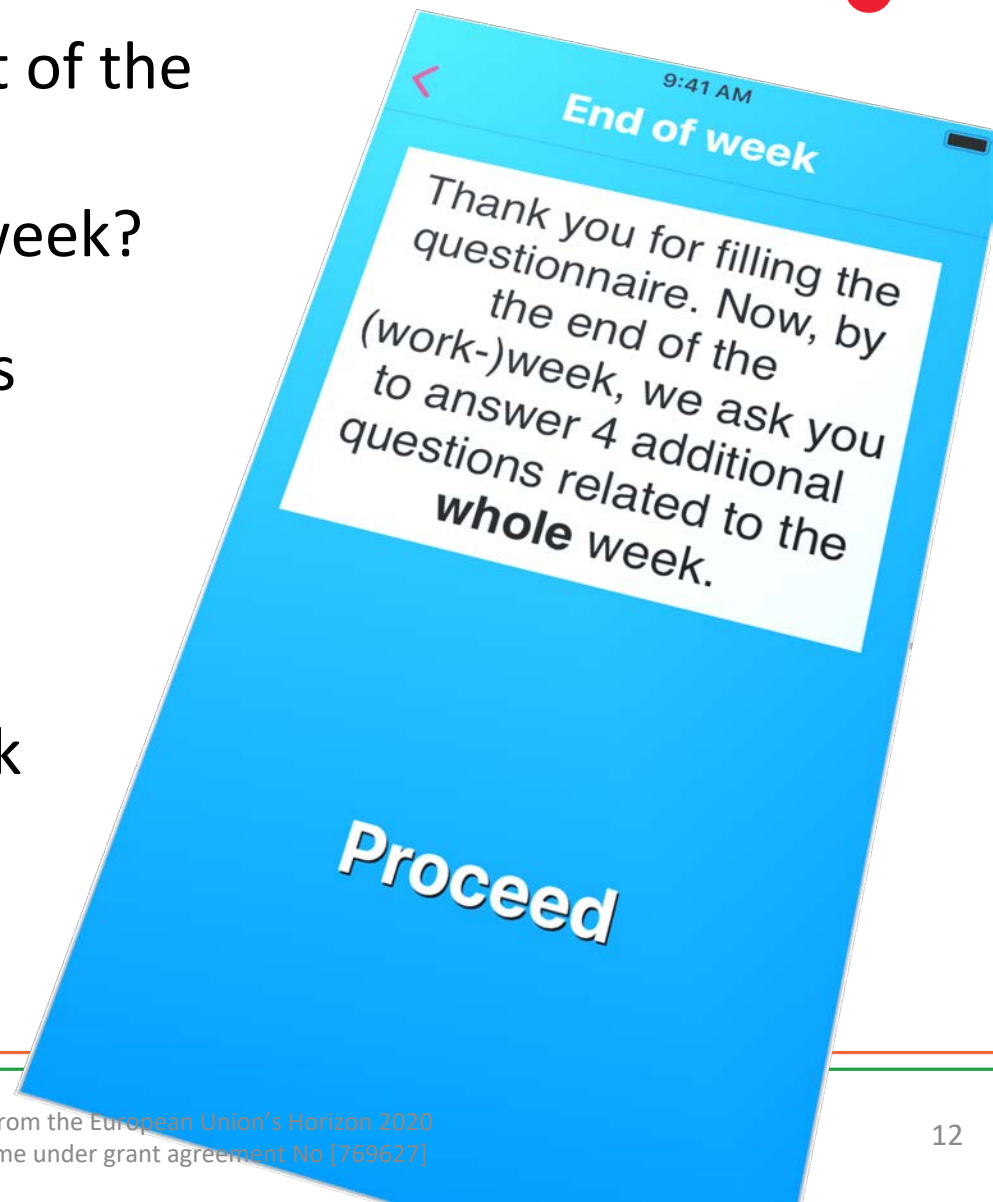
FILL QUESTIONNAIRE

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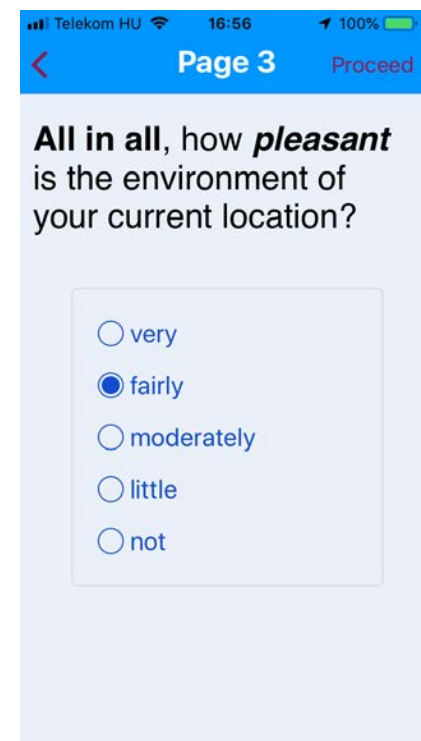
Momentary assessment's questionnaire

- Where are you: home/not at home – indoors / outdoors
- What have you just done?

- How pleasant, how familiar is the **environment**?

- How pleasant, how animated/lively is the **visual environment** ?
- Most prominent sight elements

- How pleasant, how eventful is the **sound environment** ?
- Predominant sound sources? …, **aircraft**, …

- Mood

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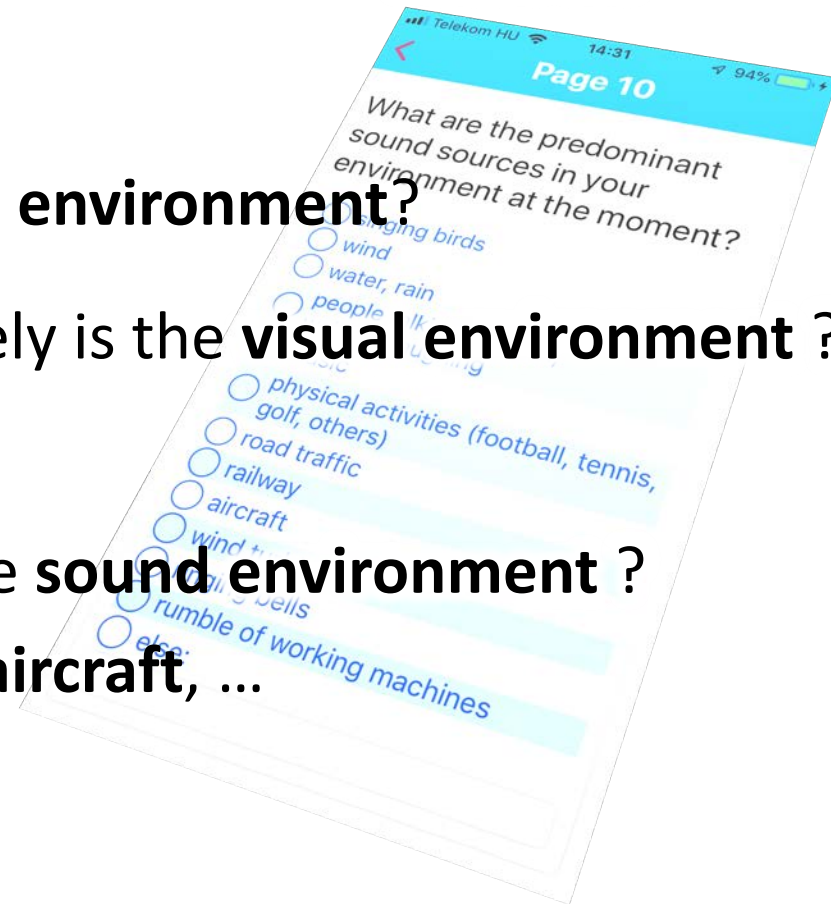
End-of-week(end) Questionnaire

- Overall, what was the impact of the **SOUND ENVIRONMENT** on your wellbeing over the week?

- Over the last week, what was the impact of the **LANDSCAPE** on your wellbeing?

- To what extend was the week **representative** for your life?

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MŰEGYETEM 1782

Final Questionnaire

❑ Noise sensitivity

❑ **PWI (Personal Wellbeing Index):**
How satisfied are you with:

[Standard of Living],
[Personal Health],
[Achieving in Life],
[Personal Safety],
[Personal Relationships],
[Community-Connectedness],
[Future Security]

❑ **WHO-5 questions:**
Over the past weeks: I have felt

[cheerful and in good spirits],
[calm and relaxed],
[active and vigorous],
[woke up feeling fresh and rested],
[... my daily life has been filled
with things that interest me]

❑ Gender / Age-class

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Privacy

- ✓ user identification necessary but ID can be given by the server – we don't know who is filling the questionnaire

- ✓ sound recording → transformation into 3rd spectra at 1 sec intervals

- ✓ questionnaires: no personal data, just opinions
  final questionnaire: some personal attributes, but we don't know who

- ✓ location detection – user agrees + discretization to 100x100m grid

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Experience

➢ tests are running well !

➢ speed-up + lowering frustration of missed notifications

- more notifications/day
- 20 mins to act to a notification + reminders at each 5 min.
- finish test after 3 weeks, even if hours left

➢ 1 min. sound recording is not a problem

➢ taking photo removed – instead: what they see outside when inside

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Acknowledgements

Thanks to ANIMA project partners

UCP, ZEUS, MMU, NIJZ

contributing to this work!

Thanks to the European Union for the funding of ANIMA

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Thank you for your attention !