INFORMED CONSENT

FOR PARTICIPATION IN THE FIELD STUDY

THE DAILY URBAN EXPERIENCE:

INDIVIDUAL MOBILITY AND EMOTIONS DATA COLLECTION

within the eMOTIONAL Cities project

1. Introduction

You are being invited to participate in a research study conducted by researchers from the Technical University of Denmark (DTU) within the eMOTIONAL Cities project (https://emotionalcities-h2020.eu/), which is funded by the European Union's Horizon 2020 research and innovation program, under Grant Agreement no. 945307.

The purpose of this document is to provide information about the study to you, so you can decide whether to take part in it. If you agree to participate, you will be asked to sign this informed consent document.

In the following sections, we will provide information on why the research is being done and what the study will involve, as well as the risks and benefits of the study, how we will protect your information, and who you should contact if you have questions.

Please read the following information carefully and ask us questions in case there is anything that is unclear or if you need more information before deciding whether to take part in the study.

2. Purpose of the study

As the world is becoming more urbanized, and we see a shrinking of green areas, there is a need for robust evidence-based knowledge of how urban planning influences human emotions and behaviour at an individual level. This project seeks to reveal the complex relationship between environments and emotional states. This knowledge is critical for policy making on urban health.

To help us better understand how we can create urban public spaces that promote health and well-being for all, we hereby invite you to participate in this study. The purpose of the study means that we are interested in the interactions between your personality characteristics, your activity and travel decisions, the emotions you encounter during the day as well as the urban context, you move around in.

3. Study procedures

After an initial screening for eligibility to participate, this study consists of three parts detailed below:

i) Initial meeting

At this meeting, we will explain the project and you will be asked to read this informed consent document and sign it if you agree to participate in the research study. Then, you will be asked to answer questions about your sociodemographic background, health and mental health status, attitudes toward transport modes, and personality. The survey takes around 20 minutes to be completed.

After that, the we will lend you a "Empatica 4 (E4) wristband" (https://www.empatica.com/research/e4/), and explain to you how to wear it and how it works. You will be helped to install the E4 manager application on your personal computer, to allow you to visualize, upload and share your own data with the researchers.

Finally, you will be asked to download and install the free smartphone application "X-ing" (https://www.mobilemarketmonitor.com/), which is an application that measures and monitors daily mobility and activities. We will help you to set up the application and show you how it works.

ii) Data collection through sensors

The data collection through sensors in the wristband lasts for 14 days. You will be asked to wear the E4 wristband during the entire day and bring your smartphone everywhere you go with the X-ing application running in the background.

During each day, you will receive random notifications on your smartphone to answer questions related to your emotions and the activities you are performing at that moment. At the end of each day, you will have to validate or correct the information on activities and travels, recorded by and shown on the X-ing app, as well as answer questions about how you felt during selected activities recorded during the day. Every 3 days at most, the you will have to take the E4 wristband off and connect it to your personal computer (USB cable provided) to upload your data through the E4 manager application and also charge the wristband's battery. This aims to free the wristband memory and transfer the data collected to a secure cloud platform, allowing us to access it. The wristband needs then to be put on again to continue the data collection.

If you have problems collecting the data from wither the X-ing app or the wristband, please contact us, and we will help you.

During the data collection we will check your recordings sent from the X-ing app and the wristband to make sure, it is working correctly. If we encounter problems with the data, we will contact you by e-mail or telephone to help sorting out the problem.

If you stop collecting the data during the 2 weeks, we contact you in order to ask you to terminate the data collection.

iii) Post-data collection meeting

At the end of the 14 days of data collection, you will meet again with one of us and will be asked to answer a post-survey to give your feedback about the experiment. The survey takes around 5 minutes to complete. You will then be asked to return the E4 wristband and can logout or delete the X-ing application.

If you would like to, you will also be invited to participate in a 30 min "Learning task" during the meeting, that aims to assess how you plan, by measuring whether individuals develop a more habitual or goal-directed behavior for choosing images with different associated fictional rewards.

4. Personal data

As part of the experiment, we will collect and process the following personal data:

Name, personal email and/or telephone number, year and month of birth, whether the you have access to smartphone and computer, gender, primary occupation, residential postal code, higher education completed, number of children in the household, household monthly income after taxes (ranges),

personal address, smoking frequency and history, telecommuting frequency (work and/or study), how much you practice sports per week, attitudes towards transport and social media usage.

Additionally, we will collect and process the following personal data that is directly or indirectly considered a special category of personal data:

- GPS locations related to all travels performed and locations visited
- Biometric data: blood volume pulse/heart rate, skin temperature, electrodermal activity, accelerometer (motion)
- Existence of pregnancy (for female participants only)
- Existence of a health condition (cardiovascular illness, severe depression or severe anxiety, alcoholism/drug abuse, schizophrenia, psychosis, bipolar disorder)
- Name of current medication(s) being take, if any
- Perceived sleep quality
- Restless legs episodes (related to sleep quality)
- Percevied well-being (answers to a 6 items question about how participants are feeling during the day)
- Episode of sickness during the experiment
- Perceived stress level
- Personality traits
- Depression, Anxiety and Stress Scale
- P-AD8: A brief screening tool for mild cognitive impairment, assessing memory, orientation, judgment, and function

Personal data is processed according to article 6(1)(e) of the General Data Protection Regulation (GDPR); processing of special categories of personal data is further based on article 9(2)(j) of the GDPR and Section 10 of the Danish Data Protection Act.

Data retention: The data collected, including personal data, will be stored for five years after the last publication. Your personal data will be processed by DTU for as long as it is necessary for the research purpose stated above, following the rules on storage according to responsible research practice. When your personal data is no longer needed for the research purpose, it will be either anonymised, transferred to the National Archives or deleted.

5. Confidentiality

The eMOTIONAL Cities project respects international ethical standards, in particular the latest version of the Helsinki Declaration. The proposed study has been assessed by the Danish Committee System on Health Research Ethics (Journal-nr.: 210793) and will be conducted in compliance with GDPR.

Every effort will be made by us to preserve the confidentiality of your data including the following:

- **Assign a participant ID code for each participant;**
- **Keep any information that can identify the participant whether in an encrypted server or a locked file cabinet in the personal possession of the principal researcher at the Technical University of Denmark**

The mobility app “X-ing” is developed by Mobility Market Monitor and the company also maintains its cloud service used for this experiment. Mobility Market Monitor will only have access to the data the app collects, but to no other information that you provide as part of the research project (survey data,

E4 wristband data). Mobility Market Monitor will treat your data in line with EU's data protection guidelines.

The wristband "Empatica 4" is developed by Empatica Inc. and the company also maintains its cloud service used for this experiment. Empatica Inc. will only have access to the data the wristband collects, but to no other information that you provide as part of the research project (survey data, X-ing application data). Empatica Inc. will treat your data in line with EU's data protection guidelines.

Data collected through the surveys, the E4 wristband, and the X-ing app will be combined at DTU and files will be stored on secure servers, where only researchers directly involved in the project have access.

By their nature, geolocation records make it possible to create profiles of participants (age groups, gender, health status, etc.) based on the analysis of spatial and temporal patterns. Although in the case of this study the power of these predictions is greatly reduced by the time duration of only two weeks, we will take measures to mitigate this risk, such as 1) always respecting the data protection legislation; 2) protecting access to the raw data through an identity and access management system (to which only registered researchers can have access); and 3) if some results are published, they will always be processed to prevent the participants' identification (with aggregation techniques, obfuscation or others).Your data will never be used for automated decision-making, including profiling.

During the project, we will transfer or disclose your personal data to the following recipients:

- **researchers from the Institute of Physiology - Institute of Molecular Medicine Faculty of Medicine of the University of Lisbon,**
- **researchers from the Institute of Geography and Spatial Planning of the University of Lisbon,**
- **researchers from NeuroGEARS Ltd** (E4 wristband data).

A dataset including only information that does not allow for the identification of included individuals may be made available, upon request, for other researchers one year after the end of the project (28/02/2026).

Your data will be additionally shared with the data processors employed (X-ing app provider, E4 provider and SurveyXact) in the study.

6. Your rights as data subject

You have the right, at all times, to request access, rectify, update and delete your personal data, or oppose their processing. You can do it by sending an email with the following content "I would like to [please choose what is relevant for your request: access, rectify, update, delete, oppose the processing of] my personal data collected under the eMOTIONAL Cities field study" to emotionalcities@man.dtu.dk. Please be aware that, subject to certain conditions, it is possible to derogate from fulfilling these rights for the purposes of scientific research if there is a valid basis for such derogation in the GDPR, such as article 17 (right to erasure) or article 21 (right to object) or in the Danish Data Protection Act.

If you have any questions regarding DTU's processing of your personal data, please do not hesitate to contact DTU's data protection officer: dpo@dtu.dk; DTU, Anker Engelunds Vej 101 A, 2800 Kgs. Lyngby, Denmark, att. Data Protection Officer. You can lodge a claim with the Danish Data Protection Authority (Datatilsynet), if you are not satisfied with the way in which DTU processes your personal data. You can find the contact details of Datatilsynet on www.datatilsynet.dk.

7. Compensation

Your participation in this study is voluntary, but in appreciation for your effort, we will give you a gift card of up to 500kr. To be qualified for the total compensation (i.e., 500kr.), you need to answer both surveys and provide full data through the application and E4 wristband for 14 days. In case you provide full data through the application and E4 wristband for at least 7 days and answer both surveys, you will be entitled to a gift card of 200kr.

8. Voluntary participation and withdrawal

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign this consent form. After you sign this consent form, you are still free to withdraw at any time, without giving a reason and without consequences.

You may withdraw your consent at any time by sending an email with the following content “I would like to withdraw from the eMOTIONAL Cities field study” to emotionalcities@man.dtu.dk

9. Potential risks, benefits, and costs

There are no direct benefits or costs for participating in this study, beyond the compensation (benefit) and the time spent (cost). Despite not expecting adverse events (risks) with the methods and data collection procedures planned, a registry will be created for adverse events noticed or reported by the participants in the post-experiment survey.

10. Contact information

PRINCIPAL RESEARCHER
Carlos M. Lima Azevedo, DTU Management, Transport division
+45 45 25 15 45, climaz@dtu.dk

If you have questions at any time about this study, you are welcome to contact the principal researcher whose contact information is provided above.

RESEARCHER

I confirm that I have explained to the person named below, in an appropriate and intelligible manner, the procedures necessary for the act referred to in this document. I have answered all the participant’s questions and have ensured that there has been sufficient time for reflection before the decision was made. I have also ensured that, in the event of refusal, the best possible care will be provided in that context, with respect for the participant’s rights.

Legible Name: _____

Date:

Signature: _____

PARTICIPANT

I declare:

- **to be 18 years of age or older;**
- **to have understood the objectives of what has been proposed to me and explained by the researcher who signed this document;**

- **to have understood that this is not a clinical study and that my biometric data as well as and cognitive and psychological indicators will not be reviewed by a physician or evaluated clinically;**
- **to understand that involvement in this study will be kept confidential within the research team and that no material that could personally identify participants will be used in any reports or publications from this study unless explicit permission is given via written release;**
- **to understand that I must not send data over any unsecured internet connection (i.e., email), but only directly through X-ing or E4 manager;**
- **to agree with the merge of my data collected for this study from different sources (E4 wristband, X-ing application, surveys) as described in this document;**
- **that I am aware that my personal data will be processed as described in this document according to valid and applicable data protection laws;**
- **that I am aware and I consent that my data processed through the X-ing application may be transferred to a third country (e.g., US, Singapore) not enjoying an adequacy decision and therefore not providing the same degree of protection offered by the GDPR. Possible risks arising from the absence of adequate protection in the third country are that I may not be entitled to the same remedies to enforce my rights with respect to my personal information as the remedies I enjoy in the EU. I am informed that DTU has however implemented technical and organizational measures in order to mitigate such risks;**
- **that I can at any time withdraw my consent to the transfer of my personal information to the above countries outside of the EU for the purposes described in this informed consent by contacting the Principal Research (section 10 above);**
- **that I have been assured that no harm will come to me if, despite my careful and proper use of the equipment that will be provided to me, there is any failure of the equipment that requires repair or replacement;**
- **that I have been given the opportunity to ask all questions about the study;**
- **that I have been given sufficient time to consider this proposal;**
- **that I have been assured that no harm will come to me if I refuse this request.**

I hereby freely and voluntarily consent to my participation in the study.

☐ I consent to be contacted in the future to be asked for permission to share and/or process my personal data for a different purpose than stated in this document.

I will receive a signed and dated copy of this informed consent document.

Legible Name: _____

Date: __/__/____

Signature: _____

THE EQUIPMENT:

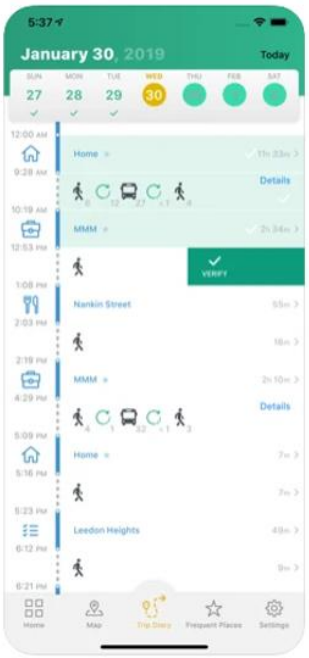
The equipment and mobile application were selected considering the convenience for the user and have already been used in previous experiences with good adhesion of the participants.

Empatica 4 wristband

Data collected through sensors (physiological/biometric data)

- **blood volume pulse/heart rate;**
- **skin temperature;**
- **electrodermal activity;**
- **accelerometer (motion);**
- **time stamps**

X-ing application



Data collected through sensors (mobility and emotions data)

- **GPS coordinates (personal data);**
- **time stamps;**
- **altitudes;**
- **momentary stress levels (personal data);**
- **information about activities and travels (planning, interaction with other people);**
- **infered modes of transportation used during trips**