TRINITY COLLEGE DUBLIN

INFORMATION SHEET FOR PROSPECTIVE PARTICIPANTS

This research is part of my dissertation which is a requirement of the MSc Mobile and Ubiquitous Computing within Trinity College Dublin.
Within this research we try to identify and analyse influences on the learning quality of writing computer software.

Participation:
In order to participate you must be aged 18 or over and legally competent to supply consent.
The provided information about this research and the consent form must have read by you or had read to you.
You must have had the opportunity to ask questions and all your questions must have been answered to your satisfaction. You also understand the description of the research that is been provided to you.
You agree that your data is used for scientific purposes and you have no objection that your data is published in scientific publications in a way that does not reveal your identity.
In the unlikely event that illicit activity is recorded, this will be communicated to appropriate authorities.
Your data is being gathered and securely transmitted to a server of the researchers/research team.
You may stop electronic recordings at any time, and you may at any time, even subsequent to your participation have such recordings destroyed (except in situations such as above).
No recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.
You freely and voluntarily agree to be part of this research study, though without prejudice to your legal and ethical rights.
You may refuse to answer any question and that you may withdraw at any time without penalty.
Your participation fully anonymous and no personal details about you will be published.
The proceeding is at your own risk if you or anyone in my family has a history of epilepsy.

Context of research:
Learning how to program and thinking like a programmer can be a very different process for different people. It seems that some students have more problems and struggles than others. Also more experienced programmers sometimes write better code and sometimes create less quality. This dissertation investigates metrics of environmental influences in the cognitive processes which are responsible for the code quality and performance in the process of software developing. The programming skills are measured by automated code analysis software and then correlated with gathered data during the development process. The built in sensors and of the participants mobile phone such as the location, microphone, accelerometers etc. are being used to gather information about the environment and context. Therefore it is required for the participants to install and start the provided android application on their device.

Benefits for the participants:
The participants will get feedback and information about their individual results and the code quality compared to other participants. They can also request the results of this study and the influencing factors in the quality of the results. This knowledge can help to increase their own code quality and optimise their working environment.

The procedure of this study:
Each participant needs to install the data gathering application on their cellular devices will explicitly asked to allow the application to collect the relevant data. The required permissions as defined by the Android application model are: accessing the location of the user, using the microphone, using the internet connection of the device and to get information about the network state. The granted permissions only effect this specific application. It doesn't influence any other application of the device or the operating system.

Afterwards the information sheet for prospective participants will be displayed within the application. In order to go on, the user need to confirm that he/she understood the information and agrees to the procedure. Starting the gathering process in the app will trigger a periodically collection of data until the user stops the process. Beside the gathering process, no data will be collected.

After working on programming projects, the participants may be asked to answer some additional questions through the application. After completing and submitting the gathered data, the participant can uninstall the application. The deinstallation is managed by the Android operating system and removes the application and all the gathered data from the device as well as all the granted permissions. Once the data has been actively submitted by the user, it will remain on the server even when the app is deinstalled on the mobile device. In order to delete the data on the server, the user must request the deletion via email.

The user is required to upload the programming code on Github and grant access to the working repository in order to do the analysis.

Withdraw from study:

The user can withdraw from the study any time without naming any reasons. In order to delete all the data that have been collected until that point the user needs to delete the Android app on his/her mobile device and inform the researchers via email in order to delete the data from the server.

The expected duration of the participants involvement:

First, the participant needs to download the app and initially enter information about person, university and experience. Before starting the programming task, the student needs to open the application and log the start time. After the submission the app asks the participant additional occasional questions. The estimated time for the initial setup is not more than 5 minutes. Afterwards the data is constantly being gathered during the development process. The submission of the particular datasets after the gathering takes less than a minute.

The gathering process:

The gathering process starts as soon the user actively starts the gathering within the Android application. The data is been gathered until the user hit the stop button. The gathered data will be saved encrypted on the hard disc of the mobile phone during the gathering process. After finishing the gathering, the user needs to explicitly tap on a button to send the data to the server. Without the active sending action user, no data will be transmitted at all.

Data to be gathered:

In order to find correlations between the code quality and environmental influences, we need to gather as many information about the environment as possible. We want to detect the ambient noise by using the microphone of the mobile phone. We will only save the noise value without audio files. None of the cameras will be used for collecting photos or videos, neither will we access any private data from the users mobile device.

We will also collect motion information about the mobile device itself, the data from its light sensor. In order to collect additional information about the environment, we gather the location and current time of the mobile device which we could use to get the local weather information. Some devices have additional sensors for detecting environmental information such as` temperature or humidity that we also might use in this study.

Usage of gathered data:

The data is exclusively used to for this study and will not be provided to anyone else then the research team. The data will be used to create behaviour models and identify interesting patterns.

(e.g. We expect to find correlations between exigent tasks and loud noisy in the working environment).

The collected data during the study will be anonymised and the transmission over the internet will exclusively be in an encrypted form and just used for statistical analysis purpose. The data will also be stored encrypted and a not traceable identifier will be used to keep the data anonymous.

Participants can be assured they will not be mentioned by name or any other unique identifier and their data will be handled with the most possible discretion.
We also guarantee no direct quotations and contextual appropriateness.

Rights of the participant:
Every participant has the right to withdraw and to omit the individual collected data, without penalty.
A requested withdraw would lead to deletion of the entire data of the participant which was collected related to that study.
Participants also have the provision to receive an individual debriefing after participation.
The participant has the right to request a digital copy of the dissertation after its completion.

TRINITY COLLEGE DUBLIN

INFORMED CONSENT FORM

LEAD RESEARCHERS:
Michael Frick, Stephen Barrett

BACKGROUND OF RESEARCH:
We try to identify metrics, how environmental influences can change the progress of improving programming skills of Computer Science students in order to provide feedback to the students. The feedback consists of correlation of environmental indicators with code performance, and anonymised comparative results with with the other participants based on categorised patterns during the experiment.

PROCEDURES OF THIS STUDY:
Each participant needs to install the data gathering application on their cellular devices will explicitly asked to allow the application to collect the relevant data.
Afterwards the information sheet for prospective participants will be displayed within the application. In order to go on, the user need to confirm that he/she understood the information and agrees to the procedure. Starting the gathering process in the app will trigger a periodically collection of data until the user stops the process. Beside the gathering process, no data will be collected.
After working on programming projects, the participants may be asked to answer some additional questions through the application. After completing and submitting the gathered data, the participant can uninstall the application. The deinstallation is managed by the Android operating system and removes the application and all the gathered data from the device as well as all the granted permissions. Once the data has been actively submitted by the user, it will remain on the server even when the app is deinstalled on the mobile device. In order to delete the data on the server, the user must request the deletion via email. The user is required to upload the programming code on Github and grant access to the working repository in order to do the analysis.

PUBLICATION:
This study is part of my Master dissertation and will be published by Trinity College Dublin.

DECLARATION:

- I am 18 years or older and am competent to provide consent.

- I have read, or had read to me, a document providing information about this research and this consent form.

- I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.

- I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.

- I understand that if I make illicit activities known, these will be reported to appropriate authorities.

- I understand that my data is gathered and securely being transmitted transmitted to a server of the researchers/research team.

- I understand that I may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).

- I understand that, subject to the constraints above, no recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.

- I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights.

- I understand that I may refuse to answer any question and that I may withdraw at any time without penalty.

- I understand that my participation is fully anonymous and that no personal details about me will be published.

- I understand that if I or anyone in my family has a history of epilepsy then I am proceeding at my own risk.

I have received a copy of this agreement.

PARTICIPANT'S NAME:

PARTICIPANT'S SIGNATURE: Date:

Statement of investigator's responsibility: I have explained the nature and purpose of this research study, the procedures to be undertaken and any risks that may be involved. I have offered to answer any questions and fully answered such questions. I believe that the participant understands my explanation and has freely given informed consent.

RESEARCHERS CONTACT DETAILS:
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INVESTIGATOR'S SIGNATURE: Date: