## Appendix (i) Participant Information

**Participant Information**

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| Ethics reference number: **ERGO/**FPSE**/17661** | Version: 1 | Date: 2015-10-06 |
| Study Title: Ultra-low-power exercise monitoring applications for sub-threshold micro-controllers | | |
| Investigators: Emily Sheperd, Mohit Gupta, Toby Finch, Dan Playle, Calin Pasat | | |

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form. Your participation is completely voluntary.

**What is the research about?** This is a student project which aims to develop an algorithm for identifying and monitoring exercises performed by a human wearer, which will run on an ultra-low-power ARM Cortex-M0+ processor. This is a processor with a very low clock speed so a big challenge of the project is to design an algorithm which will be able to execute on it while providing as accurate measurements as possible.

The purpose of this is to investigate the feasibility of using an ultra-low-power device to detect exercises. Such a device may prove useful in situations like long-haul passenger flights where it is important for passengers to remain active.

At the end of the study, you may access the study findings and see how the data collected was used using this URL: <http://emilyshepherd.github.io/gdp-docs/>

**Why have I been chosen?** You have been approached because you are friends with members of this study group.

**What will happen to me if I take part?** You will be required to wear a prototype device on different parts of your body and perform a series of simple exercises. These exercises are designed to combat a condition known as Deep Vein Thrombosis in which blood clots may develop in certain veins in the body, most commonly the legs.

These exercises are performed while sitting down and include:

* Rotating your feet in circles
* Stretching your arms and legs
* Pointing your feet up and down
* Rolling your shoulders

This means the device will be strapped to your feet, ankles, legs and arms one at a time as you perform the corresponding exercises. These exercises involve holding stretch positions for up to 15 seconds and repeating movement in the feet and arms. We will also require you to walk around with the device to gain additional movement data. This will include walking in narrow areas to help simulate the conditions of a plane. In total it should not take more than 30 minutes of your time.

There are two main purposes for performing these activities. Firstly, to gather movement data to allow us to develop the algorithm and secondly, to verify that the algorithm can successfully detect the exercises. These two data gathering sessions will occur at different points in the year. You are free to attend both or only one if you wish.

**Are there any risks involved?** As this study involves wearable technology, there are some potential risks involved.

Firstly, even though the device is very low powered, there is potential of electrical shock from wiring failure in the device or for excessive amounts of heat or even fire from electrical failure. While these are unlikely, we will further minimise these risks by making sure the device is insulated from direct contact with your skin by strapping it over clothing and concealing as much of the electrical wiring as possible.

Secondly, it is possible the strap may constrict blood flow if it is fastened too tightly. While it is important to make sure the device is secure, we will always ask you to make sure you are comfortable with the device before starting the exercises.

Another risk is a tripping or choking hazard from dangling cables. This is because the prototype device may not be self-powered so will require a power cable. These risks are minimised because most of the exercises performed during the study are done sitting down. However, when walking, we will make sure to be holding the power cable alongside you so that you cannot trip over it.

Lastly, you may strain yourself from the actual exercises. To manage this, we will have a first aid kit on hand so that strains may be bandaged if needed.

We will be conducting this study in the psychology building on campus. This building has dedicated first aiders which will be on hand in case their assistance is required. Such first aiders include Hayley Goodes (Room: 44/2029, Ext: 22226) and Nicky Baverstock (Room: 44/2003, Ext: 24588).

A debrief will take place at the end of the study. This will be after the Christmas holidays once all data has been collected and analysed and located in the level 3 Zepler labs. During the debrief, you will be able to see the collected data and how it has helped us develop the algorithm. For details of precisely when this debrief will happen, please check the URL <http://emilyshepherd.github.io/gdp-docs/> closer to the time.

**Will my data be confidential?** The only personal data collected in this study will be your signed consent form. These forms will be kept by Toby Finch who will keep them secure in a folder in a locked building and they will be used only in accordance with the Data Protection Act (1998). They will be destroyed by shredding them once the study finishes. If you would like to access your data after your participation, change it, or withdraw it, please contact the investigator (e-mail [tlf1g12@soton.ac.uk](mailto:tlf1g12@soton.ac.uk)) who will arrange this.

Please note that the movement data collected from your participation is completely anonymous so not linked to you in any way. Therefore, it will not be possible for you to request removal of this data.

**What happens if I change my mind?** You may withdraw at any time and for any reason. You may access, change, or withdraw your personal data at any time and for any reason prior to its destruction.

**What happens if something goes wrong?** Should you have any concern or complaint, contact me if possible ([tlf1g12@soton.ac.uk](mailto:tlf1g12@soton.ac.uk)), otherwise please contact the FPSE Office ([fpse-student@southampton.ac.uk](mailto:fpse-student@southampton.ac.uk)) or any other authoritative body such as Dr Martina Prude, Head of Research Governance (02380 595058, [mad4@soton.ac.uk](mailto:mad4@soton.ac.uk)).