

MSS Study Participant Instructions

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1 Introduction

Firstly, thank you for agreeing to be a participant in this study. The goal is to identify which sensors are useful for detecting interesting and relevant events related to energy use and occupancy.

2 Installation

A range of sensors will be installed in your home by one of the researchers. These are:

- ScienceScope grey Arduino boxes, with blue sensors
- ScienceScope cameras for your electricity and gas meters
- Raspberry Pis with breakout boards
- AlertMe energy monitoring sensors

Depending on your home's compatibility, the cameras may not be installed.

2.1 Internet access

As part of the installation, the researcher will need access to your router in order to configure the Raspberry Pi boards. They will also require your WiFi SSID and PSK.

3 Main instructions

Your task is to record key events in your house over a 1 week period, and we will schedule this with you before the week starts. To help you record these events, we will provide you with a networked calendar in which you can enter the events as calendar events. This will allow us to easily collect the data, and allow you to log it with relative ease.

We are aiming to keep the sensors in your home over a period of 4 weeks to test their reliability, therefore if you feel that you can log more events outside the scheduled week, we would be very grateful if you do so.

We realise that you might forget to log important events, so we will populate your calendar with “scripted events” that will act as reminders for you to (a) perform that event (if possible) that day and (b) to log the events if you did perform them. If you did not perform them, just remove them from the calendar.

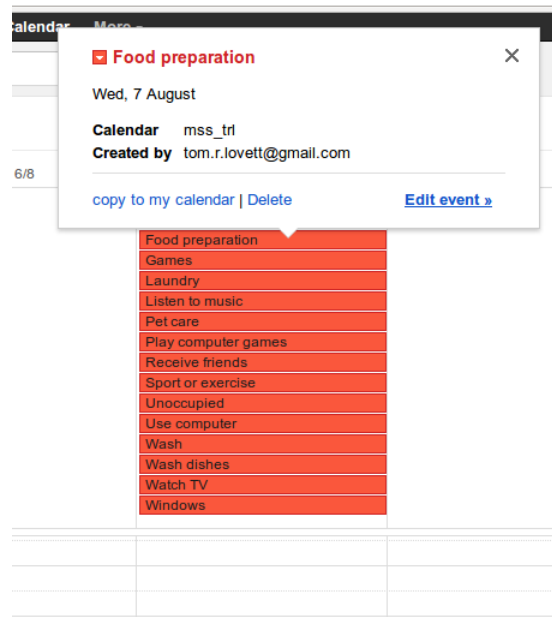


Figure 2: To edit details about the event, click on it and select “Edit event”

- **Games**, e.g. board games
- **Listen to music**, e.g. on the radio/CD/ipod
- **Watch TV**, including DVD and web-streamed content
- **Play computer games**
- **Use computer** other than for games, e.g. work or browsing web
- **Unoccupied**; if you vacate your home for certain periods of time, please record this as it will allow us to fully test our sensors’ performance

3.1.1 Your own events

We have to tried to be as general as possible with above events, but if there are any that you would like to log that you think might be useful, please do so by adding an event in the shared calendar.

3.2 Event annotation

Please try to annotate the calendar events as much detail as possible. In particular:

- **Location**: the room or rooms in which the event took place
- **Description**: any further details on the event, e.g. appliances used

The Google calendar events will allow you to do this, see Figure 4 for an example.

Google Search Calendar

← SAVE Discard changes Delete More Actions

Food preparation

7/8/2013 07:30 to 07:45 7/8/2013 Time zone

All day Repeat...

Event details Find a time

Where

Video call Add video call

Calendar mss_tri

Created by tom.r.lovet@gmail.com

Description

Figure 3: To edit the start and end times, untick the “all day” box and fill in the times accordingly (you can enter times manually as well as using the dropdown, so you are not restricted to half hourly intervals).

3.3 Event duplication

You may of course undertake the same event multiple times per day, in which case just copy the event or create a new one with the same name. Figure 4 also shows how to duplicate an event in Google calendar.

3.4 Can events overlap in time?

Yes, if events overlap, please log this accordingly.

3.5 What precision should I use?

Please try to record events to within 5 minutes of their start and finish times.

3.6 What if I can't perform a scripted event on the specified day?

We realise that it will be unlikely for you to complete all of them. Just delete the ones you don't perform from your calendar.

3.7 Where is my calendar?

In Google Calendar. We will create the calendar and share it with you. Please create a Google account if you do not have one already.

Google Search Calendar

← SAVE Discard changes Delete More Actions

Food preparation

7/8/2013 07:30 to 07:45 7/8/2013 Time zone

All day Repeat...

Event details Find a time

Where Kitchen

Video call Add video call

Calendar mss_tri

Created by tom.r.lovet@gmail.com

Description Used kettle and microwave. Opened window and turned on extractor fan.

Figure 4: To annotate the calendar event, edit it and fill in the location and description fields. Remember to click save! To duplicate the event, select “Duplicate” from the “More Actions” dropdown in the upper right of the figure.

4 Data Protection and Privacy

Data from the sensors will be stored on the university’s database servers.¹ Data from the AlertMe sensors will be stored on their servers according to their terms and conditions, but we will also be copying data from their servers to the university’s.

4.1 What data will be collected?

The following data will be collected:

4.1.1 ScienceScope boxes

- CO₂ levels, in ppm
- Sound levels, in dB
- Light levels, in lux
- Differential pressure, in Pa
- Temperature, in °C
- Motion, from PIR, binary True/False
- Appliance power, in W
- Pressure mat, binary True/False

¹For privacy policies on these servers, please see <http://www.bath.ac.uk/bucs>

- Window/Door open/close, binary True/False
- Relative humidity, in %

4.1.2 ScienceScope cameras

- Electricity use, in kWh
- Gas use, in m³

Note, these data will actually be stored as images and will be transcribed into numeric units after the study.

4.1.3 Raspberry Pi boards

- Light levels, in Ω
- Temperature, in °C
- Humidity, in %
- Motion, from PIR, binary True/False

4.1.4 AlertMe

- Appliance power, in W
- Whole home power, in W
- Temperature, in °C

4.2 Contact Details

Any queries or information, just contact me on trl20@bath.ac.uk.