

Additional information about home and wearable sensors

AgeWell – Health Insights of Ageing Australians

This document provides additional information about the sensors that will be installed in your home, and the Garmin activity tracker (that is worn on your wrist) that will be provided to you if you agree to participate in the AgeWell Project. These sensors will help the researchers understand daily activities and environmental conditions while ensuring your privacy. **No videos, audio, or images are being collected by these sensors.** The Garmin activity tracker will be configured so it does not collect any information about your location.

How many sensors will be installed in my home?

The number of sensor devices installed will depend on how many rooms you have and the size of the rooms in your home. There will be at least one sensor in each room, including the bathroom. More details are given below about the types of sensors that will be used, what they look like and the information they collect.

Who will install the sensors and how will this be arranged?

An authorised member of the CSIRO/UNSW research team will contact you by phone or email to arrange a convenient time for the sensor installation. All personnel will have passed police checks and adhere to strict safety protocols. Once a time is agreed upon, the CSIRO/UNSW team members will visit your home and set up the sensors for you.

What sensors will be installed in my home and what information do they collect?

Three types of home sensors and a hub (that will collect data from the sensors) will be used in this research project. They will be placed in different parts of your house, i.e., at least one sensor in each room, including the bathroom. The three types of sensors and the hub, what they look like, and what information they collect is described below.

Vera Hub

The Vera Hub is a smart home controller that connects and manages wireless smart devices such as the sensors used in this study



- *Where will it be installed?*

The Vera Hub will be placed in a central location within the home (e.g., living room) to maximise wireless coverage and ensure a stable connection with all connected smart devices.

- *How does it connect with sensors and devices?*

The Vera Hub communicates with smart sensors and devices using wireless communication protocols. It acts as a central gateway, allowing devices to send and receive data wirelessly.

- *How does it process and transmit data?*

The Vera Hub collects sensor data (e.g., movement, temperature, power usage) and transmits it to a Vera server where it can be viewed and analysed. It does not store personal data but acts as a relay between the sensors and the user interface (e.g., an app or web dashboard).

- *Will I be identified through the data sent through the Vera Hub installed in my home?*

No, you will not be identified through the data sent from the Vera Hub installed in your home. Data that is collected from the smart home sensors via the Vera Hub will be linked to the research team's Vera account. It does not include any participant's personal information. De-identified data from the smart home sensors will be automatically uploaded to a secure data platform that is operated by Vera using your existing internet connection. The Vera data platform may be located overseas. The research team will then access and store this data on a database on CSIRO's existing computer systems. If you do not have an internet connection/plan or have concerns about its use, our research team can organise a wireless internet connection for the duration of this study.

Aeotec Z-Wave Multisensor ZW100

The Aeotec Z-Wave Multisensor ZW100 is a 6-in-1 sensor that measures movement, light, temperature, humidity, vibration, and UV levels. No videos, audio, or images are collected by this sensor.



- *Where will it be installed?*

This sensor will be placed in the corners of all rooms and on objects like chairs.

- *How does it collect movement information?*

This sensor detects movement within 5 meters of the sensor and records this as a number. This sensor will not monitor where the participants are in the room or what their activities are. It will only know if there is someone moving in the room.

- *How does it collect light information?*

This sensor measures how bright or dark a room is and records these light levels as numbers.

- *How does it record the temperature?*

This sensor collects the temperature in your room in the range of -10°C ~ 50°C and records it as a number, showing how hot or cold it is.

- *How does it collect humidity levels?*

This sensor monitors the amount of moisture in the air (humidity) and records it as a numeric percentage.

- *How does it collect information about vibration?*

The sensor detects when the object it is attached to vibrates, shakes or moves and records these events as numbers.

- *Where does it send the information it collects?*

The sensor sends information wirelessly to the Vera Hub.

Aeotec ZW096

The Aeotec ZW096 is a power sensor that monitors and measures the power usage of connected appliances. No videos, audio, or images are collected by this sensor.



- *Where will it be installed?*

The sensor will be connected to selected wall power outlets in different rooms that are regularly used. The sensor is similar to a double adaptor, and appliances are plugged into it in the same way you would use a double adaptor.

- *How does it measure power usage by appliances?*

This sensor measures how much electricity an appliance is using by connecting into the same outlet and records power consumption as a number. The sensor is not able to turn on or off any appliances.

- *Where does it send the information it collects?*

The sensor sends information wirelessly to the Vera Hub.

Aeotec ZWA012

The Aeotec ZWA012 is a contact sensor that records if a door is open or closed. No videos, audio, or images are collected by this sensor.



- *Where will the sensor be installed?*

The sensor will be installed on the front door of the house.

- *How does it measure the opening or closing of the door?*

The sensor detects whether the door is open or closed and records each change as a number.

- *Where does it send the information it collects?*

The sensor sends information wirelessly to the Vera Hub.

FIBARO motion sensor FGMS001

The FIBARO FGMS001 is a vibration sensor that records if an object or door moves. No videos, audio, or images are collected by this sensor.



- *Where will the sensor be installed?*

The sensor may be installed on the front door, pantry doors, and cupboard doors.

- *How does it measure the opening or closing of the door?*

The sensor detects when the object it is attached to vibrates, shakes or moves, and records these events as numbers. The sensor contains a small light, like that on a TV or computer, that will be on continuously.

- *Where does it send the information it collects?*

The sensor sends information wirelessly to the Vera Hub.

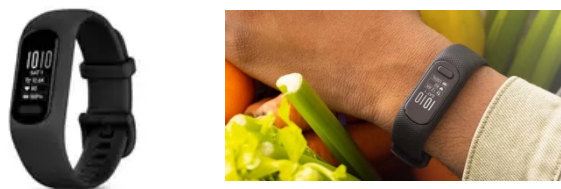
How will the information collected by the sensors installed in my home be accessed?

The de-identified data from the smart home sensors will be accessed via the Vera Hub which will be linked to the research team's Vera account. It does not include any participant's personal information. De-identified data from the smart home sensors will be automatically uploaded to a secure data platform that is operated by Vera, using your existing internet connection. The Vera data platform may be located overseas. The research team will then access and store this data on a database on CSIRO's existing computer systems. If you do not have an internet connection/plan or have concerns about its use, our research team can organise a wireless internet connection for the duration of this study.

What wearable sensors are used in the study and what data do they collect?

Garmin Vivosmart 5

The Garmin Vivosmart 5 is a wearable fitness tracker that monitors heart rate, respiration rate (breaths per minute), and physical activity. No videos, audio, or images are collected by this device. The Garmin will be configured so that it does NOT collect any information about your location.



- *Where on my body do I wear this device?*

You wear the Garmin on your wrist, like a watch

- *What information will be collected by the Garmin for use in this research project?*

The Garmin registers breaths per minute (respiration rate), heart beats per minute (heart rate), steps, and the amount and type of physical activity (e.g., moderate, intense, etc.) of the person wearing the device.

- *How will the information in the Garmin be accessed?*

The data from the Garmin will be sent to an app installed in your smartphone or tablet. It is then uploaded into the Garmin online database from where the CSIRO/UNSW team will download it to a CSIRO computer. The Garmin servers are located both in Australia and overseas. Once downloaded, all data will be removed from the Garmin servers.

- *Do I need my own smartphone or tablet?*

If you wish to use your own smartphone or tablet for this research project, a member of the research team can assist you with installing the app at the same time as they are installing the home sensors. They will also help you set up an anonymous profile for the app. If you do not own a smartphone or tablet, or would prefer not to use your own device, we will provide you with a configured device to use for the duration of the research project.

- *Will I be identified through my wearable data app?*

No, you will not be identified. We will help you create an anonymous profile in the smartphone or tablet app for your wearable device, which will not have your name or personal details.

- *Where can I find more information on how often to charge my device and how to use it?*

The CSIRO/UNSW project team member will provide you with instructions on how to use the device. You can also find more information at this link:

<https://www.manualslib.com/manual/2643925/Garmin-Vivosmart-5.html?page=4#manual>

How often is the data collected?

- **Light, Temperature, and Humidity Sensors:** Data is collected in real-time from the Aeotec Z-Wave Multisensor ZW100
- **Movement and Vibration Sensors:** Each time the sensor identifies movement or vibration from the Aeotec Z-Wave Multisensor ZW100
- **Power Sensors:** Data is collected continuously by the Aeotec ZW096
- **Door Contact Sensors:** Each time the door is opened or closed
- **Wearable Sensors:** Continuous monitoring of all data while using the Garmin Vivosmart wristband.

How is my privacy protected?

We take your privacy seriously. The data collected by these sensors will be de-identified, that is, the information will only have a study ID number. Your name and any other personal information will not be attached to these details. All data are used solely for research purposes to understand general patterns and environmental conditions. No videos, audio, or images are collected.

Will there be sensors installed in my bathroom? If yes, what will they be collecting?

Yes, there will be at least one sensor installed in the bathroom. They will not collect any images, audio, or video. The sensors used will be the [Aeotec Z-Wave Multisensor ZW100](#) described above. This sensor collects movement, light, temperature, humidity and vibration.

Will the sensors damage my walls or other surfaces?

The sensors will be installed using non-damaging adhesive methods (e.g., removable double-sided tapes). However, there might be slight marks or residues left on surfaces. If you have any concerns, please contact us by email AgeWellProject@csiro.au or phone (02) 9372 4282, let us know when we set up the installation appointment, or discuss them with the person installing the devices.

Will the research project use my internet connection?

Yes, the research project will use your internet connection to transmit data collected from the sensors. The data usage will be minimal and should not significantly impact your internet plan. If you do not have an internet connection/plan or have concerns about its use, our research team will be able to organise for a wireless internet connection for the duration of this study.

What should I do if any of my devices don't seem to be working?

If any sensor or wearable device breaks/malfunctions (such as they start to beep or flash), please contact our support team immediately by email AgeWellProject@csiro.au or call (02) 9372 4282. We will provide assistance and, if necessary, replace the faulty unit.

Contact Information

If you have any questions or concerns about the study, please do not hesitate to contact the research team by email AgeWellProject@csiro.au or call (02) 9372 4282.

You can always contact the 45 and Up Study with any questions or issues.

If you are concerned about the way this project is being conducted or you wish to make a complaint to someone independent from the project, please contact the CSIRO Human Research Ethics Committee, email address: chmhrec@csiro.au