

## PARTICIPANT INFORMATION SHEET

### **Project Title: A Survey-Based Study to Develop a Corpus of Natural Language Queries for Smart Building Interaction**

You are being invited to take part in a research project. Before you decide whether or not to take part, it is important for you to understand why the research is being undertaken and what it will involve. Please take time to read the following information carefully and discuss it with others, if you wish.

Thank you for reading this.

#### **What is a Smart Building?**

A smart building is a physical structure equipped with advanced sensors, automated systems, and connected devices that monitor and control the environment, such as lighting, heating, air quality, and security. These technologies work together to improve comfort, efficiency, safety, and sustainability for everyone using the building. Smart buildings are designed to respond to the occupants' needs and provide useful information or services to support a better quality of life within the built environment.

#### **1. What is the purpose of this research project?**

The purpose of this research is to gather natural language questions (English) that building occupants might wish to ask within a smart building environment. By analyzing these questions, we aim to enhance the OntoSage Chatbot system (<https://github.com/suhasdevmane/OntoBot> and <https://ontosage-docs.github.io>) - a platform designed to enable intuitive, conversational interaction between people and buildings. Our goal is to support a broad range of needs, including accessing information, promoting wellbeing, and advancing sustainability for all building users and stakeholders. Ultimately, this research will help develop a chatbot-like interface, allowing users to interact with smart buildings in natural language to obtain relevant information or support tailored to their intentions.

#### **2. Why have I been invited to take part?**

You have been invited because you are a user of Abacws Building OR a member of the Cardiff University community with relevant experience or interest in smart building environments. As an occupant/User of smart buildings such as the Abacws Building (Senghenydd Rd, Cardiff), you may have interacted (Directly/Indirectly) with various smart systems, devices, and building features designed to enhance user experience and environmental sustainability. Your perspective as a user or stakeholder is valuable in helping us understand the types of questions occupants wish to ask smart buildings, which will inform improvements in human-building interaction and support mutual wellbeing and operational benefits. For example, you may have wondered about things like: "Why is this room so cold?", "Which study spaces are free right now?", "How can I reduce energy use in my workspace?", "Can you tell me if there are any anomaly activities today?", or "How is the environmental quality around me?" and so on. We aim to collect a broad range of such questions from smart building users to build a comprehensive question bank that will support our research.

### **3. Do I have to take part?**

No, your participation in this research project is entirely voluntary and it is up to you to decide whether or not to take part. We will take some time to add your answers without consulting me if you choose to participate. If you would rather, I (Primary contact person) can assist you in finishing this survey by having a casual conversation. Please contact me if you need such assistance. If you decide not to take part, you do not have to explain your reasons and it will not affect your legal rights/your medical care/your education/course progression. Any students studying in any course, will have no effect on their education or progression through a degree course.

You are free to withdraw your consent to participate in the research project at any time, without giving a reason. If you choose to withdraw your consent after you have signed the consent form and/or after you have participated, please refer to Section 9 which confirms what will happen to your data. If you want to *withdraw consent* at any time, the data collected from you will be removed and the confirmation will be sent once data linked with you is removed.

### **4. What will taking part involve?**

If you agree to take part, you will complete this task with or without assistance. You will use a desktop device to access the survey system via the link provided. You may explore the examples and anonymously submit any questions you would ask a smart building assistant. You may take part at your own pace and spend as much or as little time as you wish. You can return to the survey as many times as you like, and you will be able to view your previous entries by logging in with the same username. You may also delete any of your submitted responses if you choose to do so.

The survey platform's bot/assistant is designed only to store your responses and will not provide answers. You may switch between tabs and explore the available samples and ideas to help guide your thinking. There are no right or wrong questions, simply think as a user or stakeholder within a smart building and consider the types of questions you might ask the building. No audio or video will be collected.

### **5. Will I be paid for taking part?**

No, you will not be paid for taking part in this project. Your input will directly contribute to groundbreaking research in human-buildings communication. This is a great opportunity to help build a smart-AI bot for helping people in smart built environments. Any data you give will be as a gift and you will not benefit financially now or in the future even if this project leads to the development of a new treatment/method/test/assessment.

### **6. What are the possible benefits of taking part?**

There will be no direct advantages or personal benefits to you for taking part, but your contribution will help us develop a solution that enables natural language interaction with smart buildings. The potential beneficiaries will be various users and personas within smart building environments. Your participation will support ongoing research in smart building technology and contribute to improving user interaction within these spaces. Once the project is completed, it may also support your goals and intentions within the built environment. You may request a summary of the research findings if you wish.

## **7. What are the possible risks of taking part?**

No physical or psychological risks are anticipated. The survey contains no sensitive or controversial topics. We do not believe there are any specific risks associated with your participation in this project, but please contact us if you have any specific concerns.

## **8. Will my taking part in this research project be kept confidential?**

All information collected from you during the research project, i.e. collected Question bank will be kept confidential unless there are legal or exceptional circumstances that may require us to make specific disclosures e.g., in order to protect the safety and wellbeing of yourself or others, or to report a crime. The analysis performed on the questions will be used for research articles and publications. Any personal information you provide (or if found) will be managed in accordance with data protection legislation. All identifiable information will be removed prior to analysis and any publications. Participation is confidential. Please see ‘What will happen to my Personal Data?’ (below) for further information.

## **9. What will happen to my Personal Data?**

By participating in this project, you will be providing us with some Personal Data, including Consent form. If you choose your participant’s name as your original given full name, it would be removed at analysis stage and replaced with a number to keep the confidentiality. No personal data will be actively collected. If you choose to sign in using your real username or email address, this will be anonymized before data analysis. Anonymized data will be retained for at least two years and may be published in academic outputs or retained indefinitely for research purposes. With anonymization and publication, it will not be possible to withdraw data as it will no longer be linked to your identity.

Cardiff University is the Data Controller for this project and is committed to respecting and protecting your Personal Data in accordance with your expectations and Data Protection legislation. Further information about Data Protection, including:

- your rights
- the University’s Data Protection Policy and broad data management principles; and
- how to contact the University’s Data Protection Officer and/or the Information Commissioner’s Office

can be found at <https://www.cardiff.ac.uk/public-information/policies-and-procedures/data-protection>. The University’s overarching Data Protection Notice for research participants is available at <https://www.cardiff.ac.uk/public-information/policies-and-procedures/data-protection/research-participants-data-protection-notice>. If you do not have access to the internet and/or otherwise require this information in another format, please let us know.

In accordance with Data Protection legislation, we are required to inform you of our lawful basis for collecting and processing your Personal Data. The lawful basis we are relying on as part of the research project is article 6(1)(e) of the UK GDPR, namely that the processing of your Personal Data is necessary for the performance of our public task.

After 15 Jan 2026, the research team will de-identify the Personal Data it has collected from, or about, you in connection with this research project, with the exception of your consent form, the collected question bank will be kept for the full retention period by Suhas devmane ([devmanesp1@cardiff.ac.uk](mailto:devmanesp1@cardiff.ac.uk)) and Dr. Charith Perera ([PereraC@cardiff.ac.uk](mailto:PereraC@cardiff.ac.uk)). Your copy of consent form will be retained securely in accordance with the University Records Retention Schedules and may be accessed by members of the research team and, where necessary, by members of the University's governance and audit teams or by regulatory authorities.

As referenced in Section 3 above If you choose to withdraw at any point after signing the consent, all collected responses/questions and consent from signed will be removed by contacting contact details provided. You will be informed once the deletion of your account and related data is completed within 2-3 days.

## **10. What happens to the data and results at the end of the research project?**

All de-identified data and information will be kept for a minimum two years after findings are published. Disposal will be according to GDPR requirements and University Records Retention Schedules. Participants may receive a copy of published findings. Results will be published in academic journals and conferences to support of the PhD research and thesis chapters as it is likely to have continuing value for research purposes in future; any direct quotes will be anonymized.

It is our intention to publish the results of this research project in academic journals to present findings and expected to become available at the end of year 2026. Participants can ask a copy of research articles OR can access by going to the project repository available in GitHub.[See more at <https://ontosage-docs.github.io>] The data and results of this project will be used as part of my write-up and available to specific members of teaching staff within Cardiff University and examiners. Participants will not be identified in any write-up, report, publication or presentation arising from this project. We intent to use verbatim quotes from participants in write-up, report, publication if needed. However, participants will not be identifiable via such quotations.

## **11. What if there is a problem?**

If you have any concerns about how you have been approached or treated during this research or if you otherwise wish to make a complaint, please contact Suhas Devmane ([devmanesp1@cardiff.ac.uk](mailto:devmanesp1@cardiff.ac.uk)) in the first instance. If your concern or complaint is not managed to your satisfaction, please contact Dr. Charith Perera ([PereraC@cardiff.ac.uk](mailto:PereraC@cardiff.ac.uk)).

If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, you may have grounds for legal action, but you may have to pay for it.

## **12. Who is leading and funding this research project?**

The research is being led by Suhas Devmane, School of Computer Science and Informatics, in Cardiff University. This work is supported in part by the EPSRC PETRAS (Grant No. EP/S035362/1), the GCHQ National Resilience Fellowship, and ARCCA at Cardiff University.

Cardiff University is committed to protecting the safety, rights and dignity of research participants and insists that all research conducted by its staff and students is underpinned by the highest ethical standards. Further information about Research Ethics and Research Integrity (good research practice) at Cardiff University can be found at <https://www.cardiff.ac.uk/research/our-research-environment/integrity-and-ethics>.

**13. Who has reviewed this research project?**

This research project has been reviewed by the School of Computer Science and Informatics, Cardiff University ethics committee and has been granted a favourable ethical opinion.

**14. Further information and contact details**

Should you have any questions relating to this research project, you may contact Suhas Devmane during regular working hours.

Name: Suhas Devmane

Phone number: +44 7499968836

Email: [devmanesp1@cardiff.ac.uk](mailto:devmanesp1@cardiff.ac.uk)

**Thank you for considering taking part in this research project. If you decide to participate, you will be given a copy of the Participant Information Sheet [and a signed consent form] to keep for your records.**