

## 2.3 Online Interview Outline

### Research Focus

This is the second phase of the **Interactions of assistive robots in smart home environments** project. The goal of this study is to collect common natural language utterances and slots that users would use to command assistive robots in smart home environments.

### Tools and Resources

- Online conference meeting setup (Microsoft Teams, BlueJeans, etc.)
- Compensation distributions

### Participant Recruitment

- Aim to recruit 15-20 participants
- Each participant will be compensated with a \$10 Amazon Gift Card

### *Inclusion Criteria*

- Mix of men and women
- Spread of ages 18–85
- Interested but not well informed about robotic assistance
- Have some knowledge of smart home devices

### *Exclusion Criteria*

- Anyone who is currently in an EU country or in China during the progress of this study are excluded

### Activity Outline

The format of the study will be one-on-one online moderated interviews conducted through Microsoft Teams. Each interview will last 30 minutes in total. One research team member will present to moderate the session. Each session will be video recorded.

There are 4 scenarios for each interview activity.

For each scenario, participants will be prompt to talk about how they would command robots to complete certain tasks.

Tasks will be shown to participants on a slide dock through screenshare from the research moderator.

## **Robot Background**

You are given a robot assistant to help you with daily household tasks. The robot has arms, hands, legs, microphone and camera. It can hear, see, help you carry items, walk up and down stairs, and be connected to smart home devices such as the smart speaker, door sensor or security camera. You can give the robot verbal commands to do tasks. The robot could only hear commands but wouldn't respond back verbally, so it couldn't talk.

The robot can be controlled through direct verbal commands, apps, smart speakers, or any other smart devices.

## **Scenario 1: sleep and wake up**

Let them describe where in the house, their house layout etc. To think about how it could affect responses

### Check temperatures

It's sleeping time at night. You are in bed and ready for a nice sleep. However, you feel it's a little too hot and you're wondering what the temperature is now in the room. (You have smart thermostats in all rooms and the robot is connected to the thermostat's system).

- How would you request the robot to help you get this information?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?
  - When the robot is next to you
  - When the robot is in another room

### Turn off lights

*For the next one:*

You've adjusted the temperature to a comfortable one, and you are ready to sleep now. You want to make sure no light is on when you are sleeping.

- How would you request the robot to help you?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

### Bring drink

It's morning now. You feel a little dry in your mouth and would like something to drink.

- How would you request the robot to help you?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

### Check weather

You are ready to get dressed and go out. You look outside the window, and it seems a little cloudy. You are not sure if it will be chilly or hot today.

- How would you ask the robot to help you get this information?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

### Failure expectation

You told the robot to bring you a cup of milk. But there's no milk in the fridge so the robot gets back to you with nothing in hand.

*For this one, you don't need to tell me how you would request the robot to finish the task. Tell me*

- What would you like the robot to do when it couldn't complete the task? + why
- How would you like the robot to give your feedback

## **Scenario 2: dinner**

*Here's the 2<sup>nd</sup> scenario.*

### Ask recipes

You are hosting a dinner party for five people at home. You have two vegetarians and one with gluten intolerance and you are not sure what you could cook for them.

- How would you request the robot to help you?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

### Wipe table

There are a lot of chores that need to be done before dinner. While you are cooking, you noticed that the table is a little messy.

- How would you request the robot to help you?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

#### Check food delivery – priority

The robot is wiping the table now. You get a notification that your food delivery is here. You have your hands full, and the robot is still working on cleaning the table.

- How would command the robot to do two tasks in one sentence?
- Why do you prioritize this way?
- How would you prefer to give commands to the robot? + Why?

#### Check guest needs – frequency

Your guests are here, and the dinner starts. You want to make sure no one has empty glasses during the dinner.

- How would you request the robot to help you?
- (If not mention frequency) How often would you like the robot to check the glasses? Please state the request verbally as you will say to the robot.
- How would you prefer to give commands to the robot? + Why?

### **Scenario 3: prioritize**

#### Wipe water

The water leak detector alerts a water leak in the kitchen. You have your hands full with the laundry, but you are worried the water will leak everywhere and ruin the floor. You want the robot to see where the water is and make sure the water isn't everywhere on the floor.

- How would you request the robot to help you?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

#### Close the door

You get a phone notification saying the front door isn't closed properly while you are in the bedroom.

- How would you request the robot to help you?

- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

#### Bring the phone

You want to call your friend and see what they are doing recently but forget where you put your phone.

- How would you request the robot to help you?
- What is another way you would command the robot for this task if it couldn't understand you the first time?
- How would you prefer to give commands to the robot? + Why?

#### Prioritize everything

You have the robot to help you with some household work today for one hour before it needs to get recharged.

There are 3 tasks you would like to have the robot to help with, how would command the robot to do all tasks in one sentence?? + Why did you decide to rank the tasks in this way?

- Front door open
- Get phone to chat with friend
- Receive a water leak alert

### **Scenario 4: delivery – frequency**

#### Within one day

You are out on a trip this week, and you have a package scheduled to be delivered to your door today anytime between 2-6pm. You don't know the exact time for the package to arrive, but you would like to have the robot bring the package in when it is outside your door.

- How would you request the robot to help you?
- (If not mention frequency) How often would you like the robot to check the package?  
Please state the request verbally as you will say to the robot.
- How would you prefer to give commands to the robot? + Why?

#### Multiple days

You are out on a trip this week, and you have a package scheduled to be delivered to your door today anytime between Tuesday and Friday from 9am to 8pm. You don't know the exact time for the package to arrive, but you would like to have the robot bring the package in when it is outside your door.

- How would you request the robot to help you?
- (If not mention frequency) How often would you like the robot to check the package?  
Please state the request verbally as you will say to the robot.
- How would you prefer to give commands to the robot? + Why?