A. Interview Study

In this interview, we are interested in learning about your attitudes towards purchasing smart devices. You'll be asked some questions about your own preferences, as well as complete a series of tasks. Feel free to ask if you have any questions or want clarification at any point in the interview.

Part 1
In this first section, we'll ask you some questions about your thought process when purchasing a smart device.
Imagine that you are going to the store to purchase a <smart security camera/smart light bulb>. You see an entire row of products and want to choose one. Assume that the prices and functionality for all the products are the same; the only factors that differ are privacy and security related.
1. Privacy and security wise, how would you go about selecting the best product for you? Walk through your decision process.
2. What concerns do you have regarding the privacy and security of smart devices?
3. What barriers are there before you can choose one to purchase? What additional information might you need and what resources would you consult?
4. What's the most time-consuming part of this purchase decision process for you?
5. What privacy and security factors are you most concerned about? What is a setting that a device could have that makes you not want to buy it?
6. What privacy and security factors do you not have an opinion on?
7. Is there anything in particular about SP that you're concerned about? If you have info on SP, what would you look for specifically?

Part 2
We will now present you with a website that sells three <smart security cameras/smart light bulbs>. Each product will be accompanied by a privacy and security label; you can think of them as nutrition labels, but they include privacy and security information about the product instead. These products are not real, and the labels have been created for the purpose of this study.

(Send link to website)

Please share your screen so we can see you navigating the website.

You can click into each of them to view the labels. For each product, there are two labels, and the primary label has a subset of the information on the secondary label. This set of attributes, as well as what goes in primary and what doesn't, was chosen based on what experts felt would be most important.
Considering only your personal privacy and security preferences, explain the process of how you decide which product is the best for you among these three. You may use any of the information presented on the labels. If you don't know what a word means, feel free to ask about that as well.
1. Privacy and security-wise, how do these products compare? Which has better privacy and security?
2. Which device would you purchase? How does it compare to your personal privacy and security preferences?
3. How did you use the labels to make this decision?
4. Regarding the two you did not choose, what are your concerns with these devices? How did you use the label to reach these concerns?
5. What information from the label would you have liked more clarification on? What information did you disregard? Why?
6. Is there any information you would have also liked to know that you didn't see on the label?

Part 3

Now, we will introduce an app that aims to automate some of the purchasing decision process and make it a little easier and personalized for you.

(Send link to IoT Sparrow)

Please share your screen so we can see you navigating the app.

First, we'll give a walkthrough of the app and its features. So, when you first download the app, you're either maybe already at the store, or you download it beforehand. So, we have some customization features.

First, let's go to priority settings. All the attributes you see here are in the secondary label, and the ones that are checked are in the primary label. The app offers an option to view only the priority attributes, maybe the ones that you care about more, or all the attributes, and you can switch between the two. So, you can take a look and check/uncheck some of the attributes, or just keep the defaults.

Next, we have the preferences feature. So, each blue header contains an attribute name, and the ones that are showing up right now are the ones you said were priorities. You can use the toggle to see all of them, and here is where you'll set your preferences for device settings. In each section, there's a row for every setting for that attribute, so there are different types of security attributes: automatic, consent-based, manual, or no updates, and based on what you prefer, you can ask to be warned, or not warned, and what will happen when you're looking at devices later on, if you said you wanted to be warned, that means you're not okay with a device having this setting, and the app gives you a warning if a device has this setting. So, right now when you're setting up the app, you can move some of the switches around to match your preferences, or keep the defaults, right now the defaults have generally been set to only being okay with the strictest setting in each attribute.

Ok, so this is generally what you would do when you first get the app, and then every time you go to the store to buy a new device, you can modify it or keep it already set. So, now, let's go to the scan feature to see the products, so click on that. This would mimic scanning a QR code or barcode on the product box to get some more information about it. This time, you want to purchase a <smart security camera/smart light bulb>.

When you click into a device, you see that it has red and white columns, and this corresponds to the red and white from your preferences, so you can see which settings you want to be warned about and which you don't.

Now, explain the process of how you would decide which one is the best for you. You may use the app in any way you'd like. We encourage you to explore the app's features, and feel free to ask any questions that you have about it.

1. Privacy and security-wise, how do these products compare? Which has better privacy and security?
2. Which device would you purchase? How does it compare to your personal privacy and security preferences?
3. How did you use the app to make this decision?
4. Regarding the two you did not choose, what are your concerns with these devices? How did you use the app to reach these concerns?
5. What information on the app would you have liked more clarification on? What information did you disregard? Why?
6. Is there any information you would have also liked to know that you didn't see on the app?

Follow-up questions
1. What are the pros and cons of having the app vs. the label?
2. What are your overall impressions of the app?
3. Which features were most helpful to you?
4. Did you approach the purchase process differently for the two different types of IoT devices (light bulb and security camera)

<For features that participant used>
1. How did you use this feature?
2. What was the most helpful aspect of this feature in your decision process?
3. On a scale of 1 to 5 with 1 being not straightforward and 5 being very straightforward, how would you rate this page in terms of ease of use?
   a. What improvements could be made to get it to a 5?
4. Which parts of the feature do you believe are currently misplaced, unnecessary, or missing?
5. How does the implementation of this feature compare to what you had envisioned?

<If participant changed their preferences to be more relaxed>
1. Why did you change your preferences? What does it mean if a device has this setting?

<For features that participant didn't use>
1. Why didn't you use this feature?
2. In what case would you use this feature?
3. How might this feature be improved?

Wireframes
Next, we've prepared some wireframes for a potential recommendation feature in the app.

Anytime a user is looking at a particular product, they would be able to select a mode to get some recommendations based on a particular metric.
- Expert mode
- Friend mode
- Similar mode
- Personalized mode

1. What are your initial impressions about this feature?
2. Do you feel that this would be a necessary addition to the app for you? In what case would you use this feature?
3. How might this feature be improved?

Demographic questions
Finally, we have some general questions about your background and some follow-up questions on the app.
1. What age range are you in? (18-29, 30-39, 40-49, etc.)
2. Describe your technical background (e.g., degree, occupation, etc.).
3. What is your experience with using IoT devices?
4. What is your experience with purchasing IoT devices?
5. What is your perception of the privacy and security of IoT devices?
6. How strongly do you consider privacy and security when choosing an IoT device to purchase?
7. How likely are you to use this app when purchasing your next IoT device?
8. How likely are you to recommend this app to a friend who is purchasing an IoT device?