

Human Computer Interaction - Assignment M1

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Abstract—As a company, Amazon is much more than an online marketplace. The company manufactures and distributes a huge variety of electronic devices, from smart speakers and E-readers to tablets, streaming devices and many many more, that are used in every aspect of daily activities. Each device is registered to an Amazon account and managed from the Amazon interface under “Account & Lists”. As with most technology, users upgrade their hardware by purchasing new products as improvements are released. Old devices are powered off/unplugged and live the rest of their life in the back of a drawer or on a closet shelf never to see the light of day again. Managing these devices is an important task and will be the subject of discussion throughout this M assignment.

1 PROBLEM SPACE

Having smart devices in the home can make most activities easier and more convenient. For example, adding 100 new books on an E-reader doesn’t require one to expand their bookshelf real-estate. Smart speakers can play a person’s favorite songs, detail the commute to work, make phone calls, and schedule appointments without accessing a phone. Streaming devices, like a Fire TV Stick (Fire Stick), turn any television into a smart TV. No longer does the user need to search an endless list of shows in a guide offered by one of the big cable companies. With a Fire Stick, anyone can watch what they want when they want to watch it – all by speaking into the remote.

Managing these devices from a user’s Amazon account as they add new ones or replace old ones is an issue. The problem is, as users purchase improved versions to replace old or outdated versions, there is no easy way to delete devices being replaced. The user has to login to their Amazon account, navigate to the “Content and Devices” interface, and find the device they want to remove. This is a

cumbersome task on both a PC or using the Amazon app. As a result, this causes the list of devices to become long and overwhelming, with undescriptive names for each device. In my case, for just the Fire Sticks I own, I see “Michael’s Fire TV Stick”, “Michael’s 2nd Fire TV Stick”, and “Michael’s 3rd Fire TV Stick” along with “Michael’s Fire TV”, “Michael’s 2nd Fire TV”, through “Michael’s 14th Fire TV”.

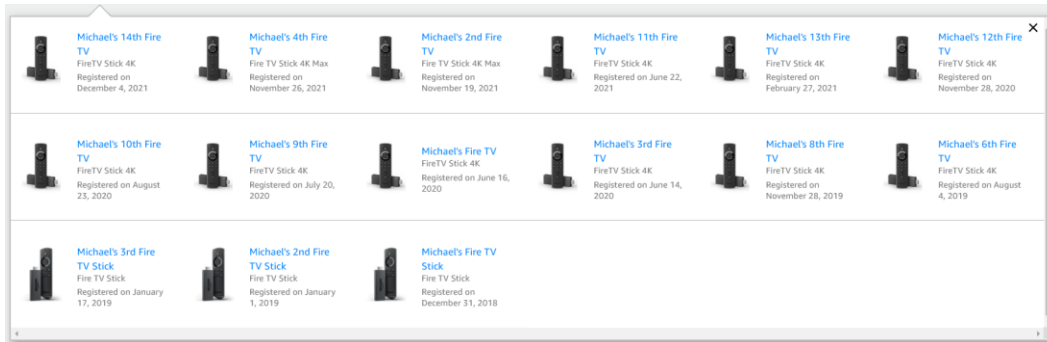


Figure 1—List of Fire TV devices linked to an Amazon user account as viewed from a PC. Source: Author

When clicking on one of the devices to view the device summary, Amazon provides some additional information about the device, however, the actions a user can choose from are not consistent for each device. This can be seen comparing Figure 2 and Figure 3 below. The Fire Stick in Figure 2 lets the user “Edit child device names” and the one in Figure 3 does not.

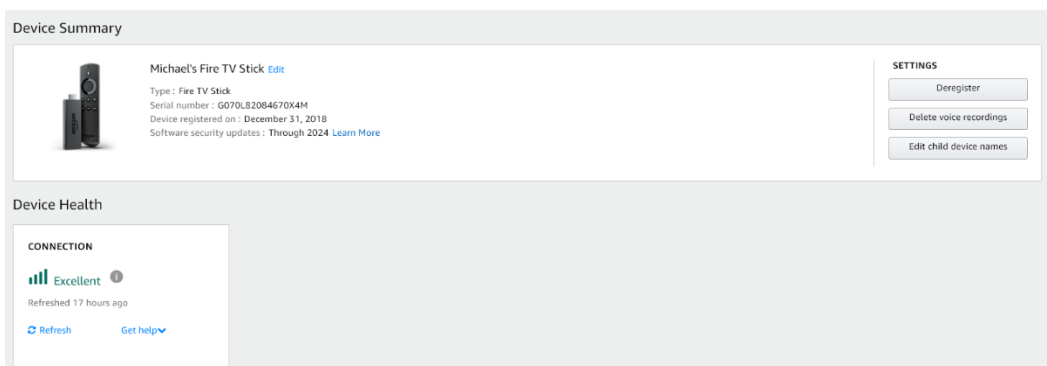


Figure 2—Michael’s Fire TV Stick Device Settings. Source: Author

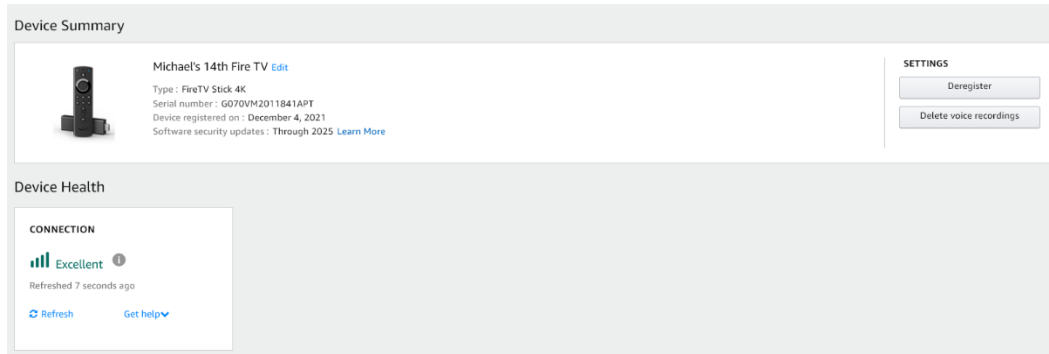


Figure 3 — Michael's 14th Fire TV Device Settings. Source: Author

What exactly a child device is or if I am using one, I don't know. The three figures above make clear that device management from within the Amazon interface is a problem. Moreover, it can be addressed with an interface that better address the needs of the user.

2 USER TYPES

The redesign of Amazons device management interface will be intended for a broad range of users, both new and existing users of Amazon. Considering Amazon is a widely recognizable name, all demographics and expertise levels would be considered applicable for this effort.

2.1 First Time Amazon Device Users

I would categorize these users as those who are using Amazon for the first time as well as those who use other Amazon features, but do not have any electronic products produced by Amazon. Hence, the need to manage Amazon devices does not exist.

2.2 Existing Amazon Device Users

Existing Amazon users are those who own several Amazon specific electronic devices. This would include any Amazon smart speakers, streaming devices, E-readers, etc. All these users will be familiar with the day-to-day use of the device. Furthermore, this type of user would know about device management but not necessarily use it.

3 NEEDFINDING PLAN 1 - SURVEYS

For this first stage of the design lifecycle, my first needfinding exercise will utilize surveys.

3.1 Summary Of Surveys

Using a survey as the first step in this design lifecycle will be the most effective because it will objectively provide a large number of responses very quickly. Using this information, I expect to receive a broad array of data, however, this will be useful to gain perspective around what types of devices households use, how many devices there are, and how many people encountered difficulty while managing their Amazon devices. It should be noted that this survey will target the existing user defined above in 2.2 above.

For the survey itself, I will keep questions general while ensuring that the data I receive connects to the goal - creating a more effective way of managing devices within the Amazon interface. With the understanding that “less is more”, the questions will be presented to gather information regarding how many devices the user owns, what type of device(s) do they use, which do they use most often, and how often they upgrade to a newer version. I would also ask what the user does with the devices that are being replaced. Do these devices get passed onto other users? If so, what does that look like? Lastly, I want to ask some questions to get a general idea of what types of device management the user does now, and how satisfied are they overall with the device management interface.

3.2 Minimizing Biased Data

As with any survey, it is entirely possible to decrease effectiveness by receiving skewed results. Some causes of this could be the result of presenting leading questions in the survey. As an example, asking “why do you like Amazon devices so much?” could and would most likely return bad data. Also, effectiveness would decrease if the questions had positive or negative overtones. This would introduce an observer bias and skew the results. To avoid this, I would make sure the user is not limited in their answers and that they have an opportunity to provide useful feedback. Furthermore, I would test the survey out with my peers to see what works well, and what doesn’t work, before asking for participation in the actual survey. The idea here is to have as much quantitative

data as possible and limit the amount of qualitative data, thus minimizing the amount of data that may be incorrectly interpreted.

3.3 Data Inventory

Relevant to the goal and coming to a conclusion at the end, the data gathered in this needfinding exercise will help answer the following data inventory questions:

- (#1) Who are the users? What are their ages, genders, and levels of expertise?
- (#3) What is the context of the task? What else is competing for users' attention?
- (#4) What are their goals? What are they trying to accomplish?

4 NEEDFINDING PLAN 2: THINK-ALOUD

The second stage of this design lifecycle needfinding will be think-aloud protocols

4.1 Summary of Think-Aloud Protocols

To get a clearer picture of the user experience around Amazon's device management, I will ask participants to walk through an end-to-end process of adding two new devices to an existing Amazon account and then managing the two new devices from Amazon's content and device management interface. I will ask the user to perform the task at their home using their Amazon account. Because I have several Fire Sticks laying around, this is the device I will use. Using their Amazon account in their home, as opposed to mine, will motivate the user to fully complete the task with as much attention to the detail as they would if not participating in this needfinding exercise. After all, if we were to do this in my home with my Amazon account, why be concerned if it is done completely? Also, by completing the task at the user's house, I should be able to gather data that might otherwise be left out or forgotten if asked about their experience a few days/months after performing this task

On the topic of the user, I will qualify participants as those that have more than two TVs in their home and currently use an Amazon Fire Stick. Additionally,

they must have owned at least 5 Amazon devices. The device type is not important. The goal of this needfinding exercise is to gather data around the level of detail the user takes when installing and registering a new device to their account. Do they give it a descriptive name? Do they note the serial number anywhere? If so, where is this information logged? What happens to the device they are replacing? Once logged into Amazon from a PC (I will have my laptop incase its needed), how quickly can the user find the “Content and Devices” interface. Once there, how many of the devices have been given a descriptive name? If none, does the interface look more like the one I shared in Figure 1?

4.2 Minimizing Biased Data

Minimizing biased data for this exercise will result from the attention to detail of the task I ask the user to take, the instruction I give the user, and the number of participants in the exercise. Instructions like “start with this, next do this, and finish by doing this” will help reduce confirmation bias where I see only what I want to see as it relates to my goal. Also, by getting more than a couple participants, I can empirically test my beliefs. Lastly, not informing the user of my goal will reduce any observer bias or social desirability bias that could skew my data. I will simply ask them to complete a task without any knowledge of my goal. This separates the experiment from my motives and again lessens the impact of people’s general disposition to be nice and have a desire to help.

4.3 Data Inventory

Relevant to the goal and coming to a conclusion at the end, the data gathered in this needfinding exercise will help answer the following data inventory questions:

- (#3) What is the context of the task? What else is competing for users' attention?
- (#4) What are their goals? What are they trying to accomplish?
- (#5) What do they need? What are the physical objects? What information do they need? What collaborators do they need?
- (#6) What are their tasks? What are they doing physically, cognitively, socially?
- (#7) What are the subtasks? How do they accomplish those subtasks?

5 NEEDFINDING PLAN 3: EXISTING UI EVALUTAION

The final stage of this design lifecycle needfinding with be evaluating existing user interfaces.

5.1 Summary of Existing UI Evaluation

For this needfinding exercise, I will ask user to evaluate existing UIs. Users will be asked to assess Googles device management interface via the Google Home app for Windows. This is Googles main application with which a user can add, remove, and manage Googles flagship devices. Being that Google is another popular producer of electronic devices, all of which need to be managed from somewhere, the Google device management UI will provide a valid comparison to the effort one needs to manage. I will note the ease with which the user can add a device, and subsequently manage that device from the Windows PC interface. This will include how easy it is for the user to navigate to the device management UI, the number of clicks it takes to get there, and the amount of time it takes for the user to complete the task of managing a device. I expect this exercise to help me understand why and how one interface performs better than the other.

5.2 Minimizing Biased Data

Similar to the needfinding during the think-alound, it will be vital to minimize any confirmation bias that may occur. The theory that preconceived notions lead to “we see what we want to see” will be mitigated by testing my beliefs empirically, and by involving more than a few individuals in this needfinding process. Also, I will avoid any social desirability bias by keeping my motives to myself. I want to gather qualitative data here, so I will not tell the user my reason behind measuring clicks or timing certain tasks. Moreover, I will keep my observations naturalistic by letting the user make errors if that is the path they are going down.

5.3 Data Inventory

Relevant to the goal and coming to a conclusion at the end, the data gathered in this needfinding exercise will help answer the following data inventory questions:

- (#4) What are their goals? What are they trying to accomplish?
- (#5) What do they need? What are the physical objects? What information do they need? What collaborators do they need?
- (#6) What are their tasks? What are they doing physically, cognitively, socially?
- (#7) What are the subtasks? How do they accomplish those subtasks?