**Findings:**

1. 5 out of 7 people found audio system helpful for cooking, 1 out of 7 found it not helpful
2. 5 out of 7 people found the audio system distracting from cooking
3. 5 out of 7 people were able to notice the temperature change better with the audio system
4. 5 out of 7 people found that it is easier to keep up with cooking while being distracted with tasks with the audio system
5. 7 out of 7 people found that they are unable to distinguish the different sound effects
6. 6 out of 7 people wanted the sound effects to be delivered less frequently
7. 4 out of 7 people commented on the drum being the part that should be improved
8. 3 out of 7 people commented on the temperature change sonification as the most helpful part of the audio system
9. 2 out of 7 people commented on the drum as the most confusing part of the audio system
10. 4 out of 7 people commented on the different types of sounds that represent different burners to be the most confusing part

**Analysis:**

* From findings A and C, we can conclude that the audio system was helpful for cooking in the part where they are able to notice the temperature change of their cooking.
* From findings B, E, and F, we can conclude that the audio system was distracting because there were too many different sounds being played too frequently
* From findings A and D, we can conclude that the part of the audio system where it helps people cook on the stovetop while being distracted is effective
* From findings G and I, drum sound proved to be the most improvement-needed part and even cause confusion
* From finding H, sonification of the temperature change was the most helpful out of other parts
* From finding J, the design of playing of many different sounds continuously at close speed was the top contributor for confusion
* Strengths: the change of temperature sonified by octaves going up was effective
* Weaknesses: understanding and listening constantly to the changing pitch of drum sound was perceived as a distraction and annoyance to most people; the constant loop of alerts playing was perceived too frequent to subjects

**Conclusion:**

The sonification of the temperature change by playing different octaves and repeated sounds to indicate the current temperature was received positively and was perceived as effective, especially when distracted. However, the drum that is supposed to change pitch and play constantly during the whole sonification was perceived with negativity, and was voiced as the part that should be changed if there should be any improvement. Also, the continued playing of sounds coupled with the playing of different types of sounds every 3 seconds was received with negativity and contributed to people’s negativity towards the whole sound system. So in conclusion, the negativity towards the part of continued playing of sounds and the part of different sounds assigned for different burners overrode the effectiveness of the temperature change sonification. Therefore, this is the part that needs most improvement, while the sonification of temperature sound change should be emphasized more compared to the prototype.

**Redesign Process:**

|  |  |
| --- | --- |
| **Negative/Ineffective parts** | **Redesign improvements** |
| Constant playing of alerts is too frequent | Notify the users with different octave only when there is a temperature change. Notify users when any one burner reaches 212F (boiling temperature) and 375F (frying temperature) by a long lasting, sparing alert. Goal is to alert user strongly but sparingly to make the user tend to the cooking. |
| Different type of sounds assigned to each of the 4 stovetops makes it difficult to know which is which | Unify burner alert into one sound(Vibraphone) to get rid of confusion since users can check which burner is boiling or on high heat by going to look at the burner. |
| The meaning of the drum pitch(average temperature) is hard to understand and even seem unnecessary | Remove the Drum sound, and change the pitch of the notification sound when there is temperature change. |
|  |  |
| **Positive/effective parts** | **Redesign improvements** |
| The way the different octave is played going up when the temperature rises | We will focus on having one octave sound change the pitch as the temperature rises and falls. We will notify the user sparingly when the temperature reaches a certain point and make the alert a higher pitch so that the alert is heard with more attention. |

**Final Thoughts:**

The reduction of negativity and the emphasis of positivity should have improved the audio system. Also, we must take into consideration personal preferences of people and accept that we cannot satisfy everyone but must work to satisfy the majority.