As we have progressed through the semester and continued to work on our project, STARFare is looking to take flight. Our project, STARFare, is an attempt to create a voice-based interface which can be used by crew members aboard space-faring vessels which aims to replace the current mode of physical interaction currently required by modern day space flight command decks. While coming up with the ideas for a potential project, we both realized we had a shared interest in Star Trek, which provided much of the inspiration for our voice command interface based off of the show’s computer. We also had previously worked on a voice-controlled navigation interface in a previous project which helped us to gain even more insight into how we wanted to do this project.

While STARFare has roots in a previous project of ours, NavAssist, we decided to implement some features which we hoped would lead to an easier to understand operational structure for the user. While STARFare and NavAssist shared the same core principles of using voice commands to control systems for navigation, with STARFare the implications of the system working correctly were much more serious as it is taking command of a space-ships flight and communication systems, rather than just functioning as a simple navigation and mapping device like NavAssist did. Due to the increased need for accuracy and the additional operational demand of controlling a multitude of systems aboard a space craft, we realized that the need for accurate voice-interpretation and an increased level of user trust in that accuracy was needed in order to create a successful interface.

As previously stated, much of our design inspiration came from the computer interfaces seen in the show Star Trek, leading us to consult visual images from the show, as well as the surprisingly large amount of detailed technical diagrams of technology from the show. We also interviewed several people about their experiences with existing voice interfaces in order to identify what existing problems there were, as well as features that users enjoyed. From our study of the technology from Star Trek, we decided on ensuring that the interface had an accompanying screen that displays information back to the user, as well as relaying messages to the user through speakers both in the interface, as well as throughout the ship. This was done to try to increase trust in the user by making sure that information is presented to them in a multitude of ways.

From our initial interviews, we identified the major needs of the user when it comes to a voice interface that they need to be able to grow trust that the system is accurate, as current widespread voice interfaces have historically been quite inaccurate, leading to a low amount of trust in voice-based interfaces by consumers. In order to try to instill trust, we decided to make the interface speak out every command it is doing to ensure that the user knows exactly which commands are being executed. Trust in the interface was by far the most important thing for us to address and much of our design decisions are built of fostering trust in the user of the interface. We tried to accomplish this through easy to comprehend visual displays on the device, a built-in system of audio confirmation with commands, as well as a status indicator light to provide the user with a way to quickly visually check for any items which need to be attended to. Trust in the system makes or breaks it, and we tried to design it in a way which makes it.

For this round of interviews, we focused on usability testing to identify any areas that may need improvement. We were able to acquire two subjects, who while not directly involved in the field of voice interfaces do have college education and have both used voice interfaces on a regular basis in their normal lives. Preston conducted one of the interviews in his home and Pourna conducted the other interview in her home. Fr both interviews, we followed the script which we had previously written (see appendix) which consisted of an introduction and then having the subjects try to carry out a command that we specified using our prototype with no prior instruction. The commands to execute were putting the ship into red alert, sending a message, and performing an exterior scan. After watching the subjects perform their commands and taking notes, we asked the subject three post testing questions:

1. What, if anything, would we possibly add to our interface in order to provide greater assurance that the interface has executed your command in an accurate manner?
2. Without having prior experience using voice interfaces, do you think this prototype would be something you could easily learn to use?
3. What tasks could you see this voice interface being the most helpful for if you were to use it? What tasks do you think would be the least helpful?

When the subjects finished the testing, the two of us met over zoom to discuss our findings using a think aloud type style and decided on which portions of our data were most important to analyze and integrate into our updated prototypes.