After checking in with our TA, he suggested we talk to Professor Lusher since the radar does not seem to have the capabilities we thought.

**Original Proposal:**

* Use the radar at a distance of ~10-15 feet to control the computer mouse

***Misconception***

* We were under the impression that the radar provided would be able to have high resolution to distinguish between objects. The radar only has 2 receivers and 2 transmitters which means that objects are not represented by a large amount of points.

**Now:**

* Building upon a previous TI ‘Gesture Recognition’ Bin file. **Only works at 0.3-0.5 meters**.
  + The Gesture Recognition model TI has is incredibly low resolution. Gestures that are further than a few inches from the radar are not captured.
  + We are unsure that changing the parameters of the CHIRP signal will allow for a resolution high enough to have gesture recognition at long distances.
* We now propose the idea of decreasing the scope of the project for a shorter functional range of the virtual mouse system.
  + The shorter distance will decrease the usefulness of the mouse, and thus the applications on our scope are no longer viable.

**Sponsor’s Instructions:**

* Pull UART data from port using ‘Gesture ML’ bin file, get into a readable format, begin training
* Add/remove gestures, pointer capability

Howdy Nick,

Towards the end of last week we had checked in with our TA and notified them about the direction of the project. Originally, we had proposed being able to use the radar to control the computer mouse at a distance of around 10-15ft, and included applications that involved using the radar at this distance. After demonstrating the ‘Gesture with ML’ program (which operates with the radar about a foot away from the hand), we realized that the change in distance interfered with our original proposal for the project. Our TA requested that we notify Dr. Lusher about this change during our next lecture.

This morning we spoke with Dr. Lusher and caught him up to speed with the above. He mentioned in the past that a group had used three TI radar’s, and that they were able to record a very high-resolution of points (we’re not entirely sure what the project was). After looking at our radar, he believes they were supplied with a higher-quality radar that enabled them to do this. We also discussed the maximum range-resolution being ~4cm, which he agreed wouldn’t be adequate to accurately capture multiple gestures at a ~10-15ft distance. Dr. Lusher asked if there is any way to increase its resolution for a 10-15ft distance (I informed him that while I was experimenting with the radar, I was unable to extract a useful point-cloud plot for my hand on the demo at this distance). If not, then he requested that we verify with you that this radar is not capable of achieving the original scope of the project. If the range is limited he asked us to see if TI, as a company, is okay with the project operating in very short distances. He also briefly questioned the possibility of receiving a ‘better radar’ (one that has a higher range resolution). Lastly, he asked if there was a TIer with a great amount of experience with the IWR6843 that could attend our meeting tomorrow to pick their brain as well.

With all of this being said, we are okay to change the scope of our project to a much closer distance and pull raw data from radar flashed with the ‘Gesture with ML’ bin file to train a model with, as previously discussed. We just want to ensure that when we present to Dr. Lusher on Wednesday, we have answers to all of his questions and that everyone is satisfied with the scope and results. We can discuss most of this during tomorrow's meeting; however, we just wanted to get these points across beforehand.

Thanks,

Greyson