What we did the past week:

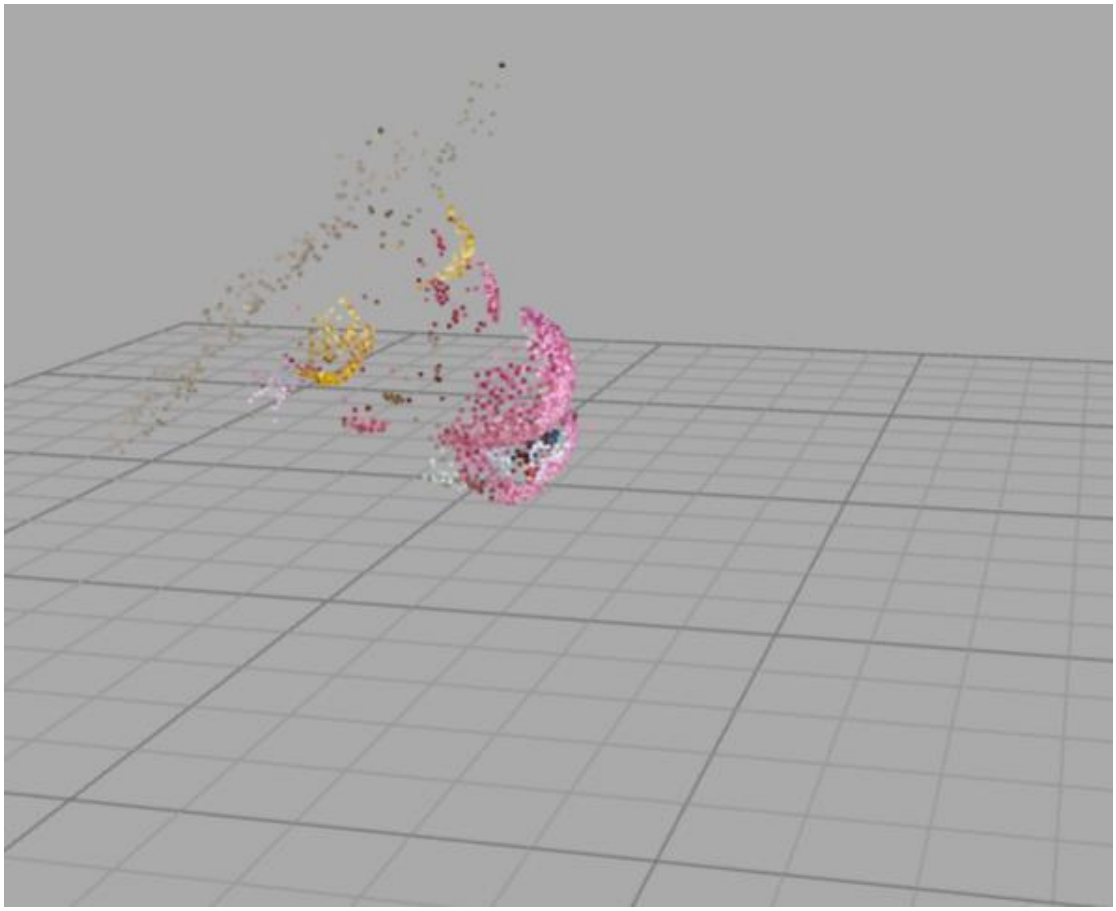
Created a Ubuntu22.04 VM using Virtual Box with shared folders (used for anything that requires Linux).

1) COLMAP:

We download COL-MAP for windows and linux.
For windows the downloading was rather simple (downloading and unzipping binary).
For linux the downloading was a bit more complicated but still, relatively straightforward.
We have created a simple 3d sparse model (sparse means that the model is represented only by dots) of a small toy provided with ~30 images:

Example of 1 image from images folder to create model:

3d sparse model created from toy:



Although the orientation of the model isn't exactly as we wanted (though that can probably be blamed on the orientation of the sample images), the shape of the model itself is very promising!

After that, we have attempted to create a model of a closed room from ~60 pictues. As expected, the attempt failed horribly (could be explained by image quality or low number of images), we've also tried using 200 frames of a video of a room and got similar results.

After those small illustrations, we have created a simple .bat file that helps create the sparse model from the windows command-line.

2) ORB-SLAB: we've started installing ORB-SLAM 3 following "MH Yip"'s tutorial on YouTube and GitHub repo. However, since we're working in Ubuntu 22.04 there were some compatibility problems with the above guides. After further research we found another guide on GitHub yet it too didn't bear any fruit, we've tried using some other guides (and chatgpt) but couldn't successfully download and run ORB-SLAM.

3) Simulator: Since there was a problem with the website, we didn't have much time to experiment with it. We followed the tutorial and after fixing some problems with SSH, we were able to run the install.sh file. However (expectedly), We've

encountered the same problems with ORB-SLAM installation via the guide as the once we've encountered when trying to install alone. The project was built but the final executable couldn't be compiled (even when we tried to manually compile it)

Comments and Conclusions from this week's work: There will be problems with outside api (such as ORB-SLAM). After some research we found out that COL-MAP is fine for learning but wouldn't work for our specific project due to its weak online and TOF processing capabilities. ORB-SLAM too isn't very helpful when it comes to TOF yet it does have support for this option (in the form of distance hints).

plans for this week: Successful download and usage of ORB-SLAM and the simulator. Research SLAM tools dedicated for TOF input. Theoretical work: convert TOF input to RGB (so that even if don't find a dedicated tool for TOF, we'll have a backup plan).

What we need from you: Info about the specific TOF camera the lab has to offer.