

10/10/21

Further testing and coding

Things done:

- Decoding of serial data from the IWR6843
- Tested the performance of IWR6843 in the lab

Current state of project:

- Still cannot get the dnn codes to work on L515
- Cannot get the C++ API of Jetson Nano servomotor to work, hence, changing the PWM control to use python API instead. Ryan is also currently working on the mechanical setup of the sensors and the Jetson Nano.
- Only sensor worked so far is the IWR6843
- I am currently coding the serial parser by hand from scratch using python serial module and from the TLV (tag-length-value) encoding specified in the guide. There is currently no working parser for the specific 3d people counting application of IWR6843. Each application has a different encoding as the specific application such as the identification of human objects is done on a logical process unit on the IWR6843 itself.
- On Wednesday, we got together to debug Meilin's DNN codes of L515 and also Ryan's API for the servomotor, however, they still cannot work.
- On Wednesday, we also tested the performance of IWR6843 in the lab environment. We tested and recorded the maximum range and resolution of the IWR6843. In addition, we tested the accuracy and resolution of the human detection by the IWR6843. We found out that the human detection is through the movement of the object and hence, if the target is not moving, the IWR6843 does not detect the target. In addition, there are wrong convergence of the target where there are times when "ghost" objects are detected and sometimes, the convergence is slow and takes about 3-5 seconds before a bounding box appears around the target.

Problems faced:

- The codes Meilin found on the L515 demo is not working, we have contacted the support and followed the guidance, but it still did not work. We might have to implement other machine learning model.
- Ryan could not get the C++ API for the servomotor to work but he mentioned that the python API should be able to work. Since our project might not require that fast of a performance for the servomotor and due to time constraint, we decided to use C++ for the servomotor control

- I have written the parser script for the IWR6843 in python as it is easier to do it in python. Furthermore, all the demo parser script were written in python. If time allows, I might change the codes to C++.

Work to be done:

- Find a working detection model codes for the L515 and test out the performance of the L515 in the lab.
- Gather more performance data from the IWR6843
- Get the mechanical setup up and running with the servomotor so that we can interface the IWR6843 with the servomotor (this should be the easier interface compared to the interface with L515).