

Report For EE327

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1. Abstract

I've taken ee327 in this semester and I've learned a lot in it. And I choose indoor localization as my main project. Actually I took part in some other project too. And I 'll describe them in detail.

2. Indoor localization

what is indoor localization? As we all know, we can get our position using GPS when in outdoor. However, it cannot tell our position when we enter the room. This is because traditional method helps a little in indoor environment. So it has been a very popular research topic. Our lab has started the project with Foxconn last year according to our research.

I took part in three part of the project. The first is to build the ios end system. In the begining, there is no other people, so I almost build the system all by myself. In this semester, I've done the iteration due to the time limitation last semester, including code optimization, change the structure of the project and something else.

Then I've took part in the work of offline localization algorithm. When the phone can not get the RSS, how can we determine the user's position? Finally we choose

the method of partial filter and gradient descend. And it turns out to be very good.

Finally, I've took part in the server part, including testing and maintainence. For example, I've done the pressure test recently to make sure that system will work properly under high concurrency.

2. Bluetooth cochlea

The motivation of develop Bluetooth cochlea is to cure deaf people that the cochlea is broken. The cochlea is the auditory portion of the inner ear. It is a spiral-shaped cavity in the bony labyrinth, in humans making 2.5 turns around its axis, the modiolus.[1] A core component of the cochlea is the Organ of Corti, the sensory organ of hearing, which is distributed along the partition separating fluid chambers in the coiled tapered tube of the cochlea.

I took part in the work of ios version of the system. Actually, due to the lack of people, I finish the system all by myself. And the biggest challenge is to translate the headers and libraries from android version to ios version. It took me several days and night to finish this part.

3. iBlink

iBlink is kind of like google glass. It is used to cure people with facioplegia. And I mainly took part in the work of development of algorithm in the beginning. And we choose ML as our core algorithm. Then I took charge of the training of the

whole system to make it more robust.

Recently, I have took part in the Internet of Things competition hold by ACM China with iBlink and won a first medal. I think it's kind of little achievement in this semester.

4.Conclusion

It's really exciting to choose this class this semester. And I've learned a lot in our group, especially the experience of research. And thanks to my teachers, they helped me a lot in the whole progress. Also thanks to TA and my classmates, without your help I cannot achieve those things.