Hello everyone, welcome to the final presentation of Group 38. In this presentation, I gonna(am going to/will) discuss the user study of our Visual-assist Glasses, which will include, for example, the procedure of the user study, evaluation method, and the expected results of eventual product.

So, let’s start now! (slide: goal)

User study is an important and necessary method, to help producers to explore and understand the user’s experience. In our Visual-assist Glasses, there are three goals of user study that gotta(will) be argued: the navigation function, the function of obstacle and traffic detection, and the assisted living (life-assisting) function. Of course, those three functions are also the key functions of the Visual-assist Glasses.

However, before we start the analysis of user study, we should focus on the preparation of user study, the participants and apparatus in advance. (slide: Participants and apparatus)

For participants, we gonna (plan to) choose several personnel to assist in completing the user study. Those personnel include both able-bodied and physically handicapped. The reason is that the users are NOT only blind people, but also may be normal people, such as relatives of blind people, quality inspectors, and curious experiencers.

And we will divide them into different groups to complete different studies. Especially, all these personnel have signed an informed consent form, and have got promised that their privacy will be protected absolutely.

Next, after confirmation of participants, the apparatus is another factor should be considered. (slide: Apparatus)

The first apparatus is Visual-assist Glasses, what consist of components of binocular camera, bone conduction headset, and microphone. Furthermore, the second apparatus is a smartphone, with specific matching app of glasses. (slide: Navigation function)

For the navigation function, which is the core function of our product, we first use usability engineering approaches of qualitative evaluation, let personnel use it in simulated settings, and record observations for analysis. And during this process, we also use the “Think Aloud Method”, it means that asking personnel to speak out their thoughts while completing a task. This method will be pretty helpful, because producers can directly get the usage feedback, regardless of positive thoughts or negative ideas.

Staffs will collect feedbacks of personnel, and then use them to conduct following usability evaluation and heuristic evaluation. Finally, we producers will get a series of data for analysis and improvement, such as the learnability: how easy that personnel to accomplish tasks for the first time?, the errors: how many, how serious, how easy that to recover?, and the problem about design principles: How does the user really feel?

Moreover, we will also compare the behavioral differences between normal people and disabled people, and try to enhance the use experience of people with disabilities, so that they can achieve similar or even the same expression as ordinary people in a simulated environment. (slide: Obstacle and traffic detection)

Next, the user study of the function of obstacle and traffic detection is similar with what has been mentioned above. However, for this function, we need to conduct a more rigorous user study, because this function is related to the life safety of users. Please image that, if the glasses do not detect a red light or a moving vehicle, what will happen? Therefore, we will pay attention to the errors of this function and try our best to reduce it, because errors mean accidents and injuries.

We will first use quantitative evaluation, let personnel walk freely in complex environments under the guidance of glasses, and staffs will record the condition and number of errors. In the process of user study, two staff members will be arranged to continue to follow the personnel, to prevent he or she from harmful situations in the event of an error.

After collecting enough data samples, developers will use the method of usability evaluation and heuristic evaluation to analyze them to find potential security hazards and avoid errors. (slide: Assisted living function)

The assisted living are several assistant functions that will make blind people’s lives more convenient. For example: acquaintance recognition: recognize acquaintances of users, and book-reading function: convert the text in the book to speech to help the blind to read.

These functions need to have a high accuracy rate. Therefore, we will use quantitative evaluation and qualitative evaluation. Let personnel conduct a large number of tests in a real environment and compare the results obtained by the glasses with the correct results to obtain the accuracy rate and other necessary information. (slide: Comprehensive user study)

Many previous user studies were conducted in simulated scenarios, therefore, a comprehensive study in real scenarios is necessary. We will do this user study by qualitative evaluation, quantitative evaluation, and heuristic evaluation. Besides, an interview and questionnaire will be used to collect advises.

Eventually, after those user study, this product will be constantly iterated and upgraded to achieve an ideal result. (slide: expected results)

For navigation function, glasses should plan the best route with shortest time and maximum safety for user, and give guidance timely and correctly. (slide)

For function of obstacle and traffic detection. Most obstacles and traffic conditions such as steps, pits or open sewers in pavement, and traffic light must be detected with rather low error rate. (slide)

For Assisted living function, glasses should finish face recognition and text-speech conversion very repaidly and accurately. (slide)

Thank you for your listening, if you have any questions, please feel free to ask me!