Hand Gestures As Inputs For Communication

Audience and Scope

The purpose of this project is to provide the user with a basic understanding of how hand gesture functions for communication. The application will focus on the following features: sign language training for the hearing-impaired(first person perspective), sign language translation for communicating with other people(detection and translation mode), replacing keyboard typing by fingers tapping with one hand on the joints of the other hand.

The intended user for this application is the hearing-impaired and other people with the demand of inputting words with AR/VR headset. The sign language for the deaf is not comprehensively adapted, and in many cases, people other than specifically trained can hardly understand it. With the precise hand tracking algorithm built in Fingo, the communication problem can be solved. Also, putting on the headset will inevitably draw public's attention, and using finger to type is a unique solution to reduce the pressure.

How hand gestures work for communication

-Sign language training

To train the user with demands of learning sign language, the lessons in the format with animation or video will be built up ahead. The user can follow the gesture pattern animated to learn the meaning vividly. Once the system detect the right gesture corresponding to meaning, the user can keep to learn the next gesture.

-Sign language translation

Common people never learnt the professional sign language can hardly communicate with the hearing impaired people. To solve the problem, the user can put on the wearable devices with the application built in, with the

video see-through AR displaying methods, the hand gestures can be tracked and the meaning of the gesture can be translated simultaneously.

-New words inputting system with finger tapping
VR/AR wearable devices can be regarded as the future computing platform, and there is one disadvantage for putting on the headset, that is in public, it draws so much attention. Technologies like speech recognition and synthesis have been well developed, yet it puts even more pressure on using the kits in public. Comparatively, the way of using finger tapping to input words is more subtle and user-friendly. On potential method is that by detecting the skeleton of one hand, the keys can be put on the joints, and the other hand, which is free, can type the words.

Conclusion

-Advantages

- Compared to learning the sign language with book, the vision based training lessons are more interesting and straightforward.
- Integrated translation function can help people better understand each other.
- Finger tapping to replace the traditional keyboard inputs can be a potential solution.

-Improvements to make

- The third features require more experimenting data with Fingo to improve.