**REAL TIME COMMUNICATION SYSTEM POWERED BY AI FOR SPECIALLY ABLED**

**INTRODUCTION**

Communication should be universal without any barriers or limitations. Communications between deaf-mute and a normal person has always been a challenging task. It is very difficult for mute people to convey their message to normal people. Since normal people are not trained on hand sign language. In emergency times conveying their message is very difficult. This system establishes a method for providing equality, turning the disabilities of the hearing or speech impaired individuals to abilities, creating a base where both disabled and the able can communicate without any barrier. Our objective is to blend deaf and dumb within society and make them able to interact efficiently. Our idea is to create sign assistance, like many applications which is using voice assistance such as Siri on iOS and Cortana on windows. There is need to develop a system that will create an interactive platform where the sign language can be translated to voice output and writing, and voice and writing input can also be converted to sign language.

**GOALS:**

Artificial intelligence directly impacts disabled people’s lives in three ways-

* enabling communication
* enhancing accessibility
* providing the advantage to live independently

**TECHNOLOGY FOR DISABLED COMMUNICATION:**

Technology has helped people a lot and resulted in much advancement in the world. Now people can talk with others far away using a phone, read hundreds of books in one kindle, find the directions to their destination on online maps and so much more. Since technology is a tool for helping people, it stands to reason that disabled people are not neglected and technology also helps them in leading a better life.

‌ •A sophisticated device called Orcam My Eye 2 is capable of reading books, recognizing faces, and even recognising the value of money and some other common items. This advanced device uses technologies such as AI, OCR (optical character recognition), and machine learning.

•‌Extended Reality (XR) is an emerging umbrella term for all immersive technologies like augmented reality (AR), Virtual Reality (VR), and mixed reality (MR).

•‌By availing of XR, people with motion disabilities can carry out assignments and work tasks remotely.

•‌Educational Testing Service (ETS) used technologies from Amazon to replace some human recorded audio with synthesized speech for some supplemental test content.

‌ •ETS improved the user experience for students with disabilities by reducing the turnaround time for producing alternate format materials and providing a more natural and clear text-to-speech voice for these students.

**10 Tech Devices that help People with Disabilities**

### 1. Liftware 6. Ava

### 2. Dot 7. Voiceitt

### 3. Finger Reader 8. Be My Eyes

### 4. Sesame Phone 9. AXS Map

### 5. Uni 10. Assist-Mi

**For blind or visually impaired people:**

* VoiceOver: a screen reader directly integrated on iPhones. Although its main use is to enunciate any email or textual message, VoiceOver also uses AI to describe apps icons, the battery level and even in part images.
* TalkBack: the equal of VoiceOver for Android smartphones. It enables users to fully use their smartphones.
* Cortana: a virtual assistant created by Microsoft and implemented on Windows. It helps blind or visually impaired users to navigate on their computer using simply their voice. In a sense, it’s similar to Siri.
* Google Assistant: an app activated by voice control. Users can easily set up an alarm or manage their schedule, the same way as Siri.

**For deaf or hard of hearing people:**

* Ava: an instant transcription app that uses AI to instantly transcribe the conversation of a group of people. Its algorithm adds punctuation, the name of the person who is talking and the necessary vocabulary from the user’s dictionary. An easy way for people with a hearing impairment to be included and to follow a conversation with several people without lip-reading.
* RogerVoice: a French instant transcription app for group conversations available in 90 languages. It works the same way as Ava.

**ENHANCING ACCESSIBILITY:**

* A facial recognition with an AI software to replace CAPTCHAs that can be difficult to find for people with a visual impairment,
* A keyboard navigation optimization via the “Tab” button for people with physical disabilities,
* A voice-recognition or a speech-recognition technology like Google’s Project Euphonia for people with speech impairments to use the Internet thanks to sounds and gestures,
* Audio descriptions content for people with a visual impairment,
* Captions and translations of online videos for people with a hearing impairment like Microsoft Translator,
* Readjustments of graphic elements such as fonts, colors and spacing for people with a visual impairment,
* A built-in library of idioms, slang and phrases that are unusually used for people with a mental impairment.

**CONCLUSION:**

# The project aims to develop a system that converts the sign language into a human hearing voice in the desired language to convey a message to normal people, as well as convert speech into understandable sign language for the deaf and dumb and improve their accessibility of communication and make them live independently as normal people.