

Sign language as a useful tool and gesture recognition

[Sociology](#), [Communication](#)



Deafness is one of the disabilities that we wish no one would suffer. It is a real burden for anyone who has this lifetime condition. We can say that this kind of condition may not be life threatening literally but the fact that this disability can change not only the way they speak but may also lead to long term depression. Deafness or mutism is an inability of person to speak, most of the time it is caused by a speech disorder, hearing loss, or surgery. In some social situation, deafness may also be caused by person`s unwillingness to speak. The huge problem brought by this condition is that how can this people communicate with normal people for their daily lives? but that huge problem was vanished onto air when what you call “ Sign language” suddenly came up. Sign language is one of the most popular tool when communicating with words is impossible or forbidden, and when writing same as typing came to be difficult but the possibility of vision exist. In addition, sign language is an natural way to express the ideas and feelings of speaking impaired for as vocal communication is not possible sign language can close the gap between speaking people and mute people. It is a non vocal language used by mute people to communicate to the people around them. It uses manual communication to convey their intended message by gestures and combination of grimaces, shrugs and pointings. To smoothly express their thoughts and ideas, they also uses some facial expression, body movement and variety of hand movements.

Like the spoken language, there are also variety of different sign language present all over the world. The American sign language and British sign language are the two famous sign language as of today. This two major sign languages are mutually different from one another because back then the

American and British mute communities were not in contact with each other, that is why the two languages are developed independently. There are also a lot of different sign languages developed among communities of mute people like Australian sign language, Taiwan sign language, Brazilian Sign Language, Finnish sign language and even our own country Philippines has its own Filipino sign language. Each differs in terms of structural composition based on their country`s spoken language that shows a bit of language in its own right.

We can say sign language is way older than speech because back then during 30th century, normal people were using sign language in their everyday lives without notice of what they are doing. Many Americans thought those were simple gestures to express English words with signs which seems to be a substitute for speech. As it

enters the second half of the 30th century, it surprised everyone because those simple gestures connects the world of mute an speaking people. Even though the sign language is the key for the mute people to communicate to the world, this is only applicable for people who have undergone some language training because sign language is really quite different on how normal people speak.

This sign language is important because it shows a sign respect for the mute community. Even though they cannot speak, sign language is a way to prove that their voice should not be mute everyone deserve to have their voice heard. Deaf and speaking impaired people should not suffer the burden of

being outcast from communicating with the rest of their peers. There is no reason for people who cannot speak to stick within their grounds and not advance along with the world in terms of communication. It is good to see that people tend to realize the importance of sign language in our society as it gains its momentum towards success. No one should be left behind no matter what disabilities they may have. Also it is helpful for every one of us to be more aware and considerate to people around us. Mute community deserve to live to environment that have them feel they are not left behind and voice out their ideas and thought even it its literally impossible.

Here some other importance of Sign Language:

- So that speaking impaired had the chance of being socially included.
- Give the chance to deaf people to go to school be and be educated.
- It somehow enhances the level of their confidence.
- Conflict between people is reduced by effective communication.
- Make life easier for deaf.
- Give chance to deaf people to communicate among themselves

All humans are performing different gestures in their everyday lives. Every deliberate actions, body signals, signs, and by revealing intentions or attitudes made by human are producing gestures. Gestures are body motions that includes physical movement of the hands, fingers, arms, face, body with the intent of expressing or delivering meaningful interaction. It is also considered as technique for the information to be passed elsewhere and afterwards reconstructed by the receiver. Gestures can be categorized as static and dynamic gestures. In static, the user maintain a certain pose or

configuration while on dynamic the user is moving with stroke phases. Some gestures combine both static and dynamic gestures like what people doing when they are performing sign language.

Gestures recognition can be recognized by the following types:

- hand and arm gestures: like recognition of hand sign, in the world of virtual applications, and sign language.
- body gestures: It involves full body movements:
 - track the movement
 - movement analysis like in the games dance revo;
 - analysis in the manner of walking of athletes that are used in the hospitals
- head and face gestures: some examples are:
 - winking,
 - direction of eye gaze;
 - flaring the nostrils; and
 - looks of surprise, happiness, disgust, fear, anger, sadness, contempt
 - raising the eyebrows;
 - opening the mouth to speak;
 - nodding or shaking of head;

Technology are rapidly improving and researcher took a lot of time to come up to what you call gesture recognition which made its debut in entertainment and gaming markets over the past few years. Nowadays, this gesture recognition is making his name in the technology world by allowing machines and humans to connect together in different aspects like in home,

work, and automobiles. Can you imagine how you can control the lights and TV in just a wave of your hand? Unlock your cellphone with just simple gestures? Those are only examples of capabilities of gesture recognition technology who play a major part in our technology by enabling natural interactions with the electronics in our surroundings. From narrow to broad markets, gesture recognition had had past the long been research with 2D vision and now going with the flow together with the 3D sensor technology.

In some books gestures recognition is defined as one of the major topic in computer science and language technology that role is interpreting different human gestures with the use of mathematical algorithms. Gesture recognition can be controlled by simple gestures without physically touching the certain device. This is one way of understanding human body language through the use of computer. The fruits of this multidisciplinary research are truly beneficial to people on nowadays.

Many approaches are out there in the technology world that we can use as a tool for gesture recognition like statistical modeling, image processing, computer vision, pattern recognition and connectionist systems. Many algorithms are inclined on statistical modeling like the kalman filtering, particle filtering, PCA, and condensation algorithms which are now effectively employed in gesture recognition. In terms of computer vision and pattern recognition, there are many different techniques which can be used in gesture recognition systems like object detection, clustering, feature extraction and classification.

Analysing the color, motion, image enhancement, segmentation, optical flow, shape detection and contour modeling have also been effective techniques in image processing areas. Time delay neural network (TDNN), multilayer perceptron (MLP), and radial basis function network (RBFN) are some techniques in connectionist approached that have been utilized in gesture recognition as well.

Gesture Recognition Features:

- It is more accurate
- It produces high stability
- It is time saving

The major application areas of gesture recognition in the current scenario are:

- Transit sector
- To unlock smartphones
- Gaming sector
- Home automation
- Automotive sector
- Consumer electronics sector.

We are all aware of the fact that technology is rapidly improving the way the world operates. But for the deaf community, sign language alone is not enough to close the gap between the normal people and the deaf-mute people. Over the past decade, the researcher community did their much

effort to help the mute community by providing a technology to be used as a medium of communication mute people.

Researcher on different fields in the world spend their time to innovate and improve things which all types of people can benefit. With the use of artificial intelligence, researchers did their very best to develop something that could help mute individuals to communicate and learn. After lot of research and studies had been made to come up to what you call “ Sign Language Recogniton” (SLR). This emerging technology are composed of different manual movement including thousands of signs, each are different from one another by minor changes in motion, hand shape and location. It uses gestures as input to convey their intended meaning. It also uses hand-shapes orientation, facial expression and minimal lip patterns.

This sign language recognition can be divided into four classifications:

- SPSL – Static posture, static hand location.
- DPSL – Dynamic posture, static hand location.
- SPDL – Static posture, dynamic hand location.
- DPDL – Dynamic posture, dynamic hand location.

Sign language recognition also have its three main components: capture, segmentation and categorization.

This new innovation on technology can help the deaf community and reduce the burden they are suffering right now. Sign language recognition is really the key not only for people who cannot speak but it is also applicable for different perspective of our daily lives. This emerging technology can be

milestone in the future to the deaf community to communicate and socialize in way normal people do.