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Hand Gesture Recognition System for Deaf and Dumb People

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Abstract: *Deaf and dumb people communicate using language known as Sign language. There are various sign languages but comparing to other sign languages, Indian Sign Language interpretation has got least mindfulness by researchers. Alphabets in English sign language and various phrases can be recognized using the application. It deals with images of bare hands. Hand-Gesture recognition is the ability to recognize hand-gesture. The hand gesture recognition system is solution to this problem which uses the image of hand gesture and recognize the sign present in the image. These features based on gesture analysis of the hand on which image of sign is shown and it extract slant and slope information. System provides an opportunity for deaf and dumb people to communicate with normal people effortlessly. Our research focuses on recognition of English sign language for vast reach of audience. There have been several upgrades in technology and a lot of research has been done to aid the deaf and dumb people. Aiding the cause, Deep learning along with computer vision is being used to make an impact on this cause. It can help the deaf and dumb people in communicating with others as many of us don't know what sign language is. In this sign language recognition project, we create an kotlin application, which detects numbers from 1 to 10 and also the English alphabets. The initial step of this system is to build a database of English Sign Language. Hand gesture detection is the most determining step in each hand gesture recognition system since if we get better segmented output, better recognition rates can be achieved. The proposed system also includes efficient and robust hand segmentation and tracking algorithm to achieve finer recognition rates. Various isolated words from the Standard English sign language have been recognized using a large set of samples. In proposed system, we intend to recognize some very basic elements of sign language and to translate them to text .*

Keywords: Hand-Gesture recognition, Convolutional Neural Network (CNN), Machine Learning, Sign language

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