**PRILIMINARY REPORT (SEMINAR / PROJECT / DISSERTATION)**

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**Machine Learning Model to detect characters from American Sign Language.Description of Work**

Sign language is a language through which communication is possible without the means of acoustic sounds. Instead, sign language relies on sign patterns, i.e., body language, orientation and movements of the arm to facilitate understanding between people. There are perhaps around two hundred sign languages in use around the world today. It has been estimated that there are between 0.9 and 14 million hearing impaired in India and perhaps "one of every five people who are deaf in the world, lives in India", making it the country with the largest number of Deaf, and thus also the largest number of sign language users.

But on contrary, there has always been a communication barrier between deaf and mute people and the speaking community, as apart from the deaf and mute, only few people know sign language. Many times, a human translator is employed for the translation. But every time a translator may not be available and even available.

Also, this factor limits the interaction between the deaf and mute community and the rest of society. Our project, “To design a Machine Learning Model to detect characters from Sign Language” aims to eliminate this barrier. The task is accomplished using Image processing in OpenCV and Machine learning. Machine-learning and Image processing are very powerful tools often used for image classification and recognition. Image Processing deals with the image, its properties, and the operations performed on it for getting some information from the images. Machine learning is the study of algorithms and statistical data used to perform tasks using various data patterns and inferences. In this project, the collection of the images of the sign language are to be done using a camera. The images are then processed and the features are extracted using image processing. These images are them compared from the available datasets and by implementing deep learning, the signs are interpreted. The data is displayed on a display that helps the person in front of a deaf/mute person understand the sign language.

Thus, we have developed a simple and lightweight deep learning algorithm which can detect static American sign-language gestures.

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