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| **Name of the Project**  **Two Way Communication Systems Using Speech and Sign Language** | **Two Way Communication System Using Speech and Sign Language** |
| **Objective/Vision** | Sign language is the primary language of the people who are deaf or hard of hearing and also used by them who can hear but cannot physically speak. Sign language is not universal. Every country has its own native sign language. Each sign language has its own rule of grammar, word orders and pronunciation. The problem arises when deaf and dumb people try to communicate using this language with the people who are unaware of this language grammar. So it becomes necessary to develop an automatic and interactive interpreter to understand them.  The proposed system is designed for the detecting ASL from the recorded speech and vice versa. The half part of the system is designed for detecting ASL from the user speech. So, firstly the recorded speech is processed and detects the text of the speech and display. And then detected text is converting into ASL. The another half party of the system is designed to visually recognize all static gestures of American Sign Language (ASL) with bare hand. Different users have different hand shapes and skin colours, making it more difficult for the system to recognize a gesture. The system combines five feature extraction algorithms for user independent and robust hand gesture recognition. The whole system works in four steps for gesture recognition such as image acquisition, pre-processing, feature extraction and feature recognition. Image frames taken by video camera interfaced with the computer are tested by our trained CNN. The CNN is trained with sample images of our database and it recognizes ASL alphabets and numbers with accuracy in real time environment |
| **Architecture** | |