**A Unified Communication System to Bridge the Gap for Inclusive Interaction among Individuals with and without Hearing and Speaking Abilities**

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**Abstract.** To address the communication challenges faced by people with and without hearing abilities who want to communicate with each other. This solution utilizes real-time Computer Vision and Convolutional Neural Networks (CNN) to detect and translate sign languages into regional spoken languages. The system is designed to accurately recognize hand gestures and establish links to speech and broadcast messages, facilitating effective communication between people with and without hearing abilities. This solution caters to two distinct user groups: proactive communicators and those requiring translation assistance. By bridging the gap between speech and sign, this solution meets the communication and translation needs of the user, thereby enabling their active participation in various interactions. The effectiveness of the solution will be evaluated through rigorous testing, focusing on accuracy, real-time performance, and user satisfaction metrics.

**Keywords. Sign Language Recognition, Speech-to-Sign Translation, Sign-to-Speech Translation, Hand Gestures, Computer Vision, Convolutional Neural Networks (CNN).**