IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, April 2025
Impact Factor: 7.67

AnguliLekha: Real-Time ISL Interpreter with and Learning Module

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Abstract: *Barriers in communication between the deaf community and hearing individuals often hinder effective interaction, particularly in educational and learning environments. This paper introduces a real-time Indian Sign Language Recognition (ISLR) system designed to support ISL gesture learning. The system uses a webcam to capture live hand gestures, which are then preprocessed and classified accurately using a Long Short-Term Memory (LSTM) model. It features a structured learning module with progressive levels of alphabets, words, and sentences allowing users to gradually build their ISL proficiency. Evaluated in terms of accuracy, response time, and user satisfaction, the system demonstrates strong potential as an educational tool for promoting Indian Sign Language literacy. This work addresses the limitations of current ISLR systems by offering a robust, user-friendly platform specifically tailored for ISL education*

Keywords: Indian Sign Language (ISL), Sign Language Recognition, LSTM, Real-Time Gesture Recognition, ISL Education, Human-Computer Interaction, Accessibility, Machine Learning, OpenCV

DOI: 10.48175/IJARSCT-25106