

AI TOOL FOR INDIAN SIGN LANGUAGE (ISL)GENERATOR FROM AUDIO-VISUAL CONTENT IN ENGLISH TO ISL CONTENT AND VICE-VERSA

A PROJECT REPORT

Submitted by,

Ms. KAMINI PRAJAPATHI S	– 20211CAI0148
Ms. TEJASWINI K A	– 20211CAI0145
Ms. MEKALA SAI LAKSHMI	– 20211CAI0165

Under the guidance of,

Dr. AKSHATHA Y

Assistant Professor - Selection Grade

in partial fulfilment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

**COMPUTER SCIENCE AND ENGINEERING
(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)**

At



PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

PRESIDENCY UNIVERSITY

PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project report “AI tool for Indian Sign language (ISL) generator from audio-visual content in English to ISL content and vice-versa” being submitted by “KAMINI PRAJAPATHI S, MEKALA SAI LAKSHMI, TEJASWINI K A” bearing roll numbers “20211CAI0148, 20211CAI0165, 20211CAI0145” in partial fulfilment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a Bonafide work carried out under my supervision.


Dr. AKSHATHA Y

Assistant Professor – Selection Grade
PSCS/PSIS
Presidency University


Dr. ZAFAR ALI KHAN

HoD-CAI & ISR
PSCS/PSIS
Presidency University


Dr. MYDHILI NAIR

Associate Dean
PSCS
Presidency University


Dr. SAMEERUDDIN KHAN

Pro-Vice Chancellor - Engineering
Dean –PSCS / PSIS
Presidency University

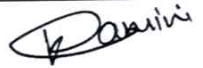

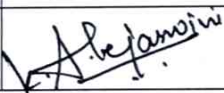
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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **“AI tool for Indian Sign language (ISL) generator from audio-visual content in English to ISL content and vice-versa”** in partial fulfilment for the award of Degree of **Bachelor of Technology in Computer Science and Engineering**, is a record of our own investigations carried under the guidance of **Dr.Akshatha Y, Assistant Professor, School of Computer Science Engineering & Information Science, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

NAMES	ROLL NO	SIGNATURES
Ms. KAMINI PRAJAPATHI S	20211CAI0148	
Ms. MEKALA SAI LAKSHMI	20211CAI0165	
Ms. TEJASWINI K A	20211CAI0145	

ABSTRACT

Communication barriers between the deaf community and non-sign language users often limit accessibility in education, employment, and daily interactions. Indian Sign Language (ISL) serves as an essential means of communication for people with hearing impairments. However, the widespread lack of awareness about it among the general populace poses notable challenges. This research proposes an AI-powered system capable of translating spoken and written English into ISL and vice versa, facilitating seamless communication. By utilizing advanced technologies such as Natural Language Processing (NLP), computer vision, and deep learning, the system processes speech and text input to generate accurate ISL gestures through animations or GIFs. The system addresses challenges such as gesture variability, regional differences, and real-time processing through machine learning techniques that enhance recognition accuracy. The implementation of this AI-based translation tool aims to promote inclusivity, enabling the deaf community to engage more effectively in various sectors such as education, workplaces, and public services. This research enhances accessibility, allowing individuals with hearing impairments to communicate effortlessly and participate equally in all aspects of society.

ACKNOWLEDGEMENT

First of all, we indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

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Kamini Prajapathi S
Tejaswini K A
Mekala Sai Lakshmi