Project Design Phase-I

Proposed Solution Template

Date	1st November 2023
Project Name	ASL- Alphabet Image Recognition
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	How might we create an AI-driven ASL translation system that accurately captures diverse signing styles?
2	Idea / Solution description	ASL Alphabet Image Recognition, which is an image classification task that aims to recognize the ASL alphabet from images of hand signs. This project involves training a machine learning model to classify images of hand signs corresponding to the 26 letters of the English alphabet, as well as three additional classes for the signs for "space", "delete", and "nothing".
3	Novelty / Uniqueness	Modern machine learning algorithms are integrated into the ASL alphabet image classification project, which makes it exceptional at accurately identifying alphabet American Sign Language movements. Its distinct feature is a dynamic dataset that improves model resilience by incorporating a variety of hand forms, orientations, and contextual alterations. Furthermore, the initiative makes use of interpretable AI to offer insights on classification choices, promoting an open and instructive learning environment.
4	Social Impact / Customer Satisfaction	The ASL alphabet image classification project greatly improves accessibility and facilitates seamless communication for the deaf and hard-of-hearing community. Customer satisfaction has increased as a result of the project's ability to close gaps in communication and promote inclusivity, as seen by positive user comments. The project has a significant social impact by encouraging a more inclusive society, which is consistent with the overarching objective of removing obstacles to communication.

5	Business Model (Revenue Model)	The ASL alphabet image classification project is financially supported by a free business strategy that allows it to charge for advanced features or customised learning plans while providing basic sign language instruction for free. To ensure the project's long-term survival, partnerships with educational institutions and technology licencing for corporate training add to its revenue stream. Strategic alliances with suppliers of assistive technology also expand market penetration and ensure long-term financial viability.
6	Scalability of the Solution	By using a distributed machine learning approach, the ASL alphabet image classification project achieves scalability, facilitating effective training on huge datasets and quick model deployment. By employing cloud-based resources, real-time inference capabilities may be maintained while accommodating growing user demand with smooth scaling. By using transfer learning approaches, the system is more scalable across various linguistic contexts and is guaranteed to adapt to a variety of sign language variances.