Project Initialization And Planning Phase

Date	06JULY2024
Team ID	739909
Project Name	Unlocking Silent Signals: Decoding Body Language With Mediapipe
Maximum Marks	3 Marks

Project Proposal (ProposedSolution) report:

We propose a real-time, on-device body tracking pipeline utilizing MediaPipe to predict hand skeletons and whole-body motion. This system leverages explainable, person-independent, and privacy-preserving skeletal representations, focusing on the recognition of motion. The architecture demonstrates real-time inference and high prediction quality, enhancing the applicability of pose estimation systems for body language recognition.

Project Overview	
Objective	Develop a Body Language Decoder to detect and predict facial expressions, hand gestures, and body poses.
Scope	Enhance user experiences across technological domains such as market research, sign language understanding, and Augmented reality.

Problem Statement	
Description	There is a need for scalable, automated detection and Analysis of body language and facial expressions in real- time settings
Impact	Improved data analysis for market research, better user interaction through sign language and hand posture control, and enhanced AR experiences.

Proposed Solution	
Approach	Utilize MediaPipe models for high-fidelity tracking of body pose, hands, and facial landmarks to create a Comprehensive body language decoder.

KeyFeatures	- High-fidelity tracking of 33bodylandmarks using BlazePose. 213 D hand landmarks detection using MediaPipe Hands. 4683D face landmarks estimation in real-time using MediaPipe Face Mesh.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Streamlit
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib
Development Environment	IDE	Jupyter Notebook
Data		
Data	Source, size, format	Kaggle dataset, 614