**Project Initialization And Planning Phase**

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| 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.

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| **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**

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| **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 | | |