**Mini Project Proposal (BCC-351)**

**Team Id:**

**Team Details:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S No** | **Full Name** | **University Roll No** | **Branch &**  **Section** | **Mob No** |
| 1 | Alabhya Mobar | 2301641550017 | CS IOT 2A | 9532085286 |
| 2 | Arpan Gupta | 2301641550036 | CS IOT 2A | 9555081161 |
| 3 | Eram Fatima | 2301641550058 | CS IOT 2A | 9118000525 |
| 4 | Dhruv Dhupar | 2301641550057 | CS IOT 2A | 7985511575 |
| 5 | Ananya Pandey | 2301641550021 | CS IOT 2A | 9696535982 |

**Project Title:**

Sign Language Recognition

**Domain:**

Machine Learning/ Computer Vision

**Problem Statement:**

Communication between sign language users and non-signers remains a significant challenge, leading to misunderstandings, social exclusion, and limited access to essential services in areas like education, healthcare, and daily interactions. Current solutions, such as human interpreters or written communication, are either costly, unavailable in real-time, or impractical for spontaneous interactions, creating a need for a more effective and accessible method of bridging this communication gap.

**Proposed Solution:**

The proposed solution is a Sign Language Translator that uses artificial intelligence, machine learning, and sensor technology to translate sign language gestures into spoken or written language in real-time. By employing cameras or wearable sensors to capture hand movements and facial expressions, the system will convert these visual cues into accurate text or speech output. This portable and easy-to-use translator will allow seamless communication between sign language users and non-signers in various settings, promoting inclusivity and reducing communication barriers for the deaf and hard-of-hearing community.

**Unique/Distinctive feature of the solution:**

1. Real-time Gesture Recognition: Translates hand movements into text or speech instantly using computer vision and machine learning.

2. Multimodal Input: Captures hand shapes, movements, and facial expressions using video input and sometimes wearable sensors.

3. Bidirectional Translation: Converts sign language into text/speech and vice versa, facilitating two-way communication.

4. Emotion & Facial Expression Detection: Analyses facial expressions to incorporate emotional context in the translation.

5. Cross-Platform Compatibility: Works on mobile apps, web platforms, and wearable devices, making it accessible on various devices.

**Tools/Technology Uses:**

**1) Hardware Requirements (Minimum Requirements):**

a) Processor:

1. RAM:
2. Storage:
3. Graphics Card:
4. Others:

**2) Software Requirements (Minimum Requirements):**

a) Operating System:

1. Development Tools:
2. Database:
3. Web Browser:
4. Others:

**3) Others (If any):**

(To be Filled by Faculty/Evaluator)

**Proposal Evaluation:**

1. Right Identification of the Problem (Appropriate selection of the problem)?
   1. Excellent b) Good c) Needs Improvement d) Unacceptable

1. Relevance of the Solution (Adequately addressing the problem/need)?
   1. Excellent b) Good c) Needs Improvement d) Unacceptable

1. Innovativeness in the Solution (Distinctive innovative components/features of the solution)?
   1. Excellent b) Good c) Needs Improvement d) Unacceptable

1. Uniqueness of the Solution (Intellectual Property Component)?
   1. Excellent b) Good c) Needs Improvement d) Unacceptable

**Improvements/ Suggestions by the Evaluator:**

1.

2.

3.

4.

**Name of Faculty:**

**Designation:**

**Signature with Date:**

Guidelines:

* + One Proposal per team will be submitted by the team leader only.
  + A Team can have maximum 5 Members.
  + For Heading font Size=14, Content font size =12, single spacing, Times New Roman type only.
  + Maximum Proposal length may 3 pages excluding evaluation sheet.