*Group Name : ASSISTIVE AIDES*

*Category : 3D Tech Design*

*Project name : ASSISTIVE LANGUAGE TRANSLATER SYSTEM*

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*SOP*

**Introduction**

Our team is excited to present an innovative project as you knowin today’s world , communication barriers for the speaking impaired remain a significant challenge , despite advancements in technology . This project aims to bridge this gap by developing an innovative robotic system designed to translate sign language into spoken language and it would also work for the blind people to translate any language into the spoken language .

**Project Goals**

The primary goal of our project is to develop a robotic system that translates the sign language into spoken language and support multilingual translation , delivering the spoken output through headphones for clarity and privacy . This system aims to empower individuals who are non – verbal and blind by providing them with an effective means of communication that integrates seamlessly into their daily lives . ultimately , the project aspires to enchase communication accessibility , improve interaction opportunities and contribute to a more inclusive society .

**Technical Approach**

1. System Architecture :
   1. Hardware Components

* Cameras and Sensors : High-resolution cameras or depth sensors are used to capture sign language gestures accurately. These might include RGB cameras or even depth sensors like Intel Real Sense.
* Headphones :

1. Is used to capture ambient sounds and any vocal input if necessary.
2. For delivering the AI generated voice will be natural-sounding and engaging, enhancing the overall experience.

1.2 Software Components

* SignLanguage Recognition System : we will create a software for interpreting sign language through computer vision and machine learning.
* Language Translation Engine : To translate text into different spoken languages .

2. Integration and Real-Time Processing

2.1. Website or application

* For this our team will develop a website or application to handle data from cameras , sensors , and microphones. Ensure it integrates gesture recognition, translation, and TTS seamlessly
* **Innovative Aspects :**
* Our project innovation lies in the use of 3D print technology and Arduino so the user have the full freedom for selecting the language in which the sign language should be translated .

**Impact and sustainability:**

Our team have made this project thinking about the good impact of our project.

After launching the project we would insure that both dumb and blind person will get a new device to communicate with someone . The project aspires to communication , improve interaction opportunities and contribute more in inclusive society .

*REAL LIFE EXAMPLE*

* ***Communication Barriers*** *:*
* ***The people who can’t speak (Dumb) and those can’t see (Blind) for them the communication can be in limiting and difficult in society they didn’t get much opportunities ?***

*Solve => Our project mainly focus on it and for them we find a permanent solution by creating the system which translate sign language into spoken language. For this we created the spectacles equipped with a high-resolution camera, capture and interpret sign language in real-time. , which is then conveyed through the earphones, allowing the user to "listen" using an AI-generated voice and for blind person it would work like the person can’t see that what is written in the document in English so he can just use the spectacles and the voice output he will get in ear bud or headphone . so he can know about the written information .*

* ***Social Inclusion******:***
* ***Social interaction can be challenging for individuals with speech disabilities, leading to feelings of isolation ?***

*Solve => Our technology enables users to engage in conversations with friends, family, and colleagues without the barriers imposed by traditional communication aids. This fosters more meaningful and inclusive interactions, helping to bridge gaps between individuals with speech disabilities and those without any problem .*

* ***Accessibility to Services and Opportunities:***
* ***In many department , including healthcare, education, and employment, effective communication is essential ?***

*Solve => Our system provides an accessible means for individuals with speech disabilities or blind person to interact with professionals and access services more efficiently. Whether scheduling an appointment, participating in a classroom discussion, or collaborating on a work project, the ability to communicate clearly and effectively opens doors to opportunities that might otherwise be limited.*

* ***Freedom to access***
* ***As we know that the different person knows different language so for that we can’t translate the language into only a single one ?***

*Solve => As per the information that there are many language in the world . So for that we created a software in which you can do so many changes*

*Just like : 1) If you want to change spoken language so you can .*

*2) If you want to pair with any other device for listening the output then you can .*