Annexure3b- Complete filing

INVENTION DISCLOSURE FORM

1. TITLE: AI-Powered Assistive Communication Software for Speech-Impaired Individuals

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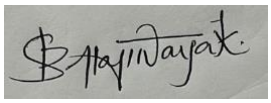
Signature (Mandatory)	

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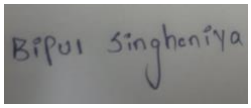
Signature (Mandatory)	

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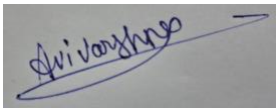
Signature (Mandatory)	

3. DESCRIPTION OF THE INVENTION: The AI-Powered Assistive Communication Software enables speech-impaired individuals to communicate by recognizing their lip movements, facial expressions, and hand signs. This software can be used for video or phone calls where the system interprets the user's silent speech and converts it into spoken words for the recipient. This innovation benefits individuals who cannot type, write, or speak, allowing them to engage in seamless conversations.

A. PROBLEM ADDRESSED BY THE INVENTION: People who are speech-impaired or illiterate face significant barriers in communication, particularly in phone or video calls where text-based options are impractical. Current solutions like text-to-speech or sign language interpreters are limiting and inaccessible to many. This invention provides real-time voice conversion by recognizing lip reading, facial expressions, and hand signs.

B. OBJECTIVE OF THE INVENTION :

1. To develop AI software that recognizes lip movements and facial expressions to generate real-time speech output.
2. To enable speech-impaired individuals to communicate effortlessly via phone and video calls without the need for typing or writing.

C. STATE OF THE ART/ RESEARCH GAP/NOVELTY:

Sr. No.	Patent I'd	Abstract	Research Gap	Novelty
1.	US20100063822A1	Speech-generating mobile device for speech-impaired individuals	Uses pre-stored audio files and manual menu selection, lacks real-time AI-based speech recognition	Uses AI to dynamically recognize lip movements, facial expressions, and hand gestures for real-time speech generation
2.	US20220148570A1	Speech recognition technology enabling individuals with non-standard speech to communicate and access voice systems	Requires personalized training and may not fully support real-time conversations	Recognizes lip movements, facial expressions, and hand gestures without extensive personalized training for immediate real-time speech conversion

D. DETAILED DESCRIPTION: This software leverages AI and machine learning models trained on large datasets of facial expressions, lip movements, and hand gestures. The system uses a camera to capture these movements, processes them in real-time, and converts them into speech using AI-based voice synthesis. The software is compatible with smartphones, tablets, and computers, ensuring accessibility across various platforms. Users can make phone or video calls where their non-verbal cues are translated into spoken language for the recipient. The software also supports multiple languages and accents, providing a personalized voice to each user.

E. RESULTS AND ADVANTAGES:

1. **Enhanced Communication** - Enables speech-impaired individuals to communicate effectively without typing or writing.
2. **Real-Time Speech Generation** - Converts non-verbal cues into spoken words instantly for seamless conversations.
3. **Multi-Platform Support** - Works on mobile phones, tablets, and computers with internet and camera access.
4. **Language & Accent Adaptation** - Supports various languages and voice customizations for personalized speech.
5. **Increased Accessibility** - Helps illiterate users and those with physical disabilities engage in conversations.

F. EXPANSION:

- Integration with smart assistants (Google Assistant, Alexa, Siri) for hands-free operation.
- Application in education and workplaces to assist speech-impaired individuals.
- Development of offline support for users in remote areas with limited internet access.

G. WORKING PROTOTYPE/ FORMULATION/ DESIGN/COMPOSITION:

Currently, this is in the idea stage, and no prototype has been developed yet. It may take up to 6 months to complete the prototype

H. EXISTING DATA:

- Research studies confirm that AI-powered lip-reading achieves up to 80% accuracy in controlled environments.
- Market analysis indicates a growing demand for assistive communication tools.

4. USE AND DISCLOSURE:

A. Have you described or shown your invention/ design to anyone or in any conference?	NO
B. Have you made any attempts to commercialize your invention (for example, have you approached any companies about purchasing or manufacturing your invention)?	NO
C. Has your invention been described in any printed publication, or any other form of media, such as the Internet?	NO
D. Do you have any collaboration with any other institute or organization on the same? Provide name and other details.	NO
E. Name of Regulatory body or any other approvals if required.	NO

5. Potential Chances of Commercialization:

With the increasing demand for assistive technologies, this invention has strong commercialization potential. The software can be monetized through:

- Direct licensing to healthcare institutions and NGOs.
- Subscription-based model for individual users.
- Collaboration with telecom companies to integrate it into video calling apps

6. Companies that can be contacted for commercialization:

- Google (https://www.google.com/)
- Apple (https://www.apple.com/)
- Microsoft (https://www.microsoft.com/)
- Amazon (https://www.amazon.com/)
- Samsung (https://www.samsung.com/)
- OpenAI (https://openai.com/)

7. FILING OPTIONS:

The invention is currently in the idea stage and can be considered for **Provisional Filing** to establish an early priority date. Once further development is completed, it can progress to **Complete Filing** or **PCT Filing** for international patent protection.

8. **KEYWORDS:**

- AI-assisted speech generation
- Lip-reading technology
- Facial expression recognition
- Assistive communication software
- Speech synthesis for disabled
- Non-verbal communication AI
- Sign language to speech conversion
- AI-powered accessibility tools
- Voice synthesis from gestures

(Letter Head of the external organization)

NO OBJECTION CERTIFICATE

This is to certify that University/Organization Name or its associates shall have no objection if Lovely Professional University files an IPR (Patent/Copyright/Design/any other…….) entitled "……." including the name(s) of, …as inventors who is(are) student(s)/employee(s) studying/ working in our University/ organization.

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(Authorised Signatory)