

AI-Driven Smart Teaching Application for Enhanced Learning Experience

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Abstract:

The current research paper includes an Advanced Teaching Application with the Artificial Intelligence (AI) that is aimed at ensuring the improvement of online education with the help of real-time communication and understandable content management. Through the system, they are able to conduct live classes where the instructor is able to teach and students are provided with real-time notifications to attend. The recordings and management of sessions can be easily shared and controlled to ensure the global learners can receive AI-based multilingual translations and subtitles in a live session. The use of AI and language models allows translating spoken content in real-time and converting it into several languages and voice formats. The system also produces live notes whereby the teaching contents are automatically stored in a database and transformed in PDFs and presentations (PPTs) to the language of choice of the learners. The solution proposed enhances access and user experience, as well as learning performance, through the use of AI-based live sessions, multilingual assistance, and content generation. Index Terms—Artificial Intelligence (AI), Advanced Teaching Application, Live Online Learning, Multilingual Translation, Real-Time Subtitles, Session Recording, Automated Notes Generation, Large Language Models (LLMs), Smart Education System.

Keywords — Artificial Intelligence, Generative AI, Google Cloud API's, Large Language Models, WebRTC.

I. INTRODUCTION

The sphere of education is changing fast, and Artificial Intelligence (AI) and the digital technologies are being implemented to eliminate the constraints of the traditional approaches to learning. Traditional online learning platforms do not always provide features of real-time interactions, customized content delivery, and multilingual access, making this problematic to learners of different backgrounds. The application of AI-based teaching systems solves these problems, allowing intelligent automation and adaptive learning and interactive virtual classrooms. With the aid of AI, Large Language Models (LLMs), and real-time processing

of the received information, the contemporary teaching platforms are able to contribute greatly to the learning process and knowledge retention improvements [1], [4]. The proposed application Advanced Teaching Using AI is expected to deliver a smart and interactive learning platform that will facilitate real-time instruction, interactive student interaction, and automatic content generation. Live sessions can be conducted by teachers and subject experts and the students get instant notifications and are capable of seamlessly joining. The application facilitates the recording of the session and access management whereby the recorded content can be publicly and privately shared according to the

demands. This is flexible so that there is constant learning even after the live sessions and also it is more accessible when a student cannot be physically present in the classroom to receive the teaching on the spot and he/she is not able to attend real time lessons [10]. One of the key issues faced in global education is the language barrier, whereby it hinders sharing of knowledge between regions. In order to overcome this challenge, the suggested system combines AI-based multilingual translation that would allow real-time translation of the spoken content into numerous languages. The system employs translation services and LLMs using the backend in the generation of accurate translations, subtitles, and voice outputs in different languages. This is an advantage that enables students to study at their own language, thus ensuring inclusive and personalized learning [2], [7], [11].

II. PROBLEM OUTLINING

In the current online education systems, the learning material is usually scattered, language specific, and manual in nature, and students have problems accessing systematic and customized learning content. Live sessions tend to have no real-time note creation, multilingual support and intelligent content storage. Learners who do not attend real-time classes have a problem accessing structured learning materials and the teachers have to spend more time taking notes and preparing presentations. The suggested project, which is called Advanced Teaching Application Using AI, will deal with these problems by incorporating live instruction, real-time language processing, and automated content-generation on one platform. The system records teaching in real-time, works with this information with the help of AI models, and creates notes and learning materials in real-time. This saves manual work, increases the availability of content and increases the overall learning experience of teachers and learners.

III. NEED OF THE PROPOSED ADVANCED TEACHING APPLICATION IN THE EDUCATION SECTOR

The intelligent, scalable, and multilingual teaching platforms are in demand with the burgeoning online education and the global learning community. Conventional systems are not flexible enough in offering real-time flexibilities or learning personalization. The proposed AI-based teaching application will satisfy this requirement as it will provide live interaction, multilingual subtitles, automatic notes, and free access to content. The proposed system will increase accessibility and learning efficiency through the translation in real-time, recording of sessions, and AI-generated content. It is useful in various learners, it enhances interaction and educational content can be provided at all times and in any language. Therefore, the Advanced Teaching Application Using AI is key to the digital educational evolution and the development of the requirements of smart and inclusive learning environments [1], [10].

IV. TOOLS AND TECHNOLOGIES USED

The proposed Advanced Teaching Application with AI is written in React Native (v0.81.5) with Expo (v54.0.33) as a mobile application framework, Redux Toolkit and React Redux as an efficient state management tool, and React Navigation (Stack) as a screen navigation tool. React Native Paper, React Native Vector Icons and React Native Reanimated are used to create responsive user interfaces that run on smooth animations. Agora SDK and WebRTC allow conducting real time video and audio communication. The backend is developed with Node.js and Express, and firebase authentication and firebase Fire store, which ensures user authentication and database administration, and redis, which helps to use caching and sessions. It has Google Generative AI (Gemini) and Groq SDK in place to create AI-generated content and run a high-performance inference, and Google Cloud API to run speech to-text, text-to-speech, and multilingual translation. The tool used to manage HTTP requests is axios, to provide secure authentication, there is the use of JSON Web Token (JWT), and, to generate

automated PDFs and documents, Puppeteer and jsPDF are used [9], [11].

V. CORE COMPONENTS

A. *React Native Framework*

The main component of the proposed Advanced Teaching Application Using AI is React Native that makes it possible to develop a cross-platform mobile application with a single codebase. The effectiveness of rendering, reusability and modularity are ensured by its inherent component architecture. The framework permits the eventuality of dealing with live sessions and live UI update, and student interaction in real-time; the application is scaled and performance-efficient.

B. *State Management (Redux Toolkit & React Redux)*

The state management is vital in managing live session data, user status of authentication and multilingual contents. Redux toolkit is also predictable in state changes and effective data flow among components. It is useful in ensuring real time updates like live classes, subtitles, and produced notes are in sync hence enhancing the reliability and maintainability of the applications.

C. *Real-Time Communication (Agora & WebRTC)*

It is a suggested system that is based on Agora SDK and WebRTC to facilitate video and audio streaming in real-time. These technologies allow the instructors to have live classes with low latency and quality. The secure token generation method will provide a restricted access to sessions, which will enable students to participate in live classes without any inconveniences and with the data privacy being preserved [8].

D. *AI and Voice Processing Modules*

The implementation of AI-powered functionality is realized through Google Generative AI (Gemini models) and Groq SDK to perform inference at a high speed. Text-to-speech and speech-to-text services are used to transform real-time spoken audio and speech into text and audio of various languages. This allows real times subtitling, multi-language

voice output and automated generation of content to enhance accessibility to different learners [2], [3], [11].

E. *Backend Services and APIs*

It is built based on Node.js and Express that process API requests, process authentications, and real-time data processing. Firebase Authentication is used to guarantee access security, whereas Firestore is used to store session data, notes, and recordings. Redis enhances performance through caching some of the frequently accessed data and also handling session states in an efficient manner.

F. *Automated Content Generation and Storage*

In live sessions, the content of teaching is recorded and processed immediately. Machine learning systems produce the notes and PDFs, the presentations (PPTS). Puppeteer and js PDF are some of the tools used to translate the generated content to downloadable formats to allow students to study any material at any time in their language of choice.

G. *External Cloud Services*

Firebase, Agora, and Google Cloud Platform are external services, which offer scalability, security, and sophisticated AI. The services facilitate real-time communication, cloud storage, multilingual translation, and voice processing, which makes the suggested AI-based teaching application work smoothly.

VI. LITERATURE REVIEW

Online education has experienced a rapid growth resulting in the use of online learning platforms that facilitate remote learning. Applications like Google Meet, Zoom, and Microsoft Teams are widely used in academic institutions to use in conducting live online classes through video conferencing. The most important functions these platforms offer include live video and audio calls, screen sharing, chat support, and recording of the sessions. Although these tools are good in facilitating live interaction between teachers and students, they are mainly used as platforms of communication and do not support

intelligent educational functionalities like real-time content insight, automatic generation of notes and multilingual learning. Alternatively, platforms like online learning like Udemy, Coursera and edX emphasize primarily on recorded courses and self-study. Such systems offer organized learning aids, subtitles, and multilingual assistance of pre-recorded material. But there is little interaction in teaching and the learning materials like notes, PDFs and presentations are prepared by the teachers manually. Additionally, these platforms fail to provide real-time translation, live subtitles, or automatic creation of the study material during the live teaching sessions, which restricts the accessibility of the learners with a different linguistic background. According to recent studies, the use of Artificial Intelligence (AI) in enhancing educational practices is growing. Individualized learning, automated feedback, learning analytics, and adaptive content recommendation are being done via AI based systems. Accessibility has been increased through the use of technologies like speech-to-text and text-to-speech to produce subtitles and voice response. Yet, on the majority of current platforms of education, these AI functions are not fully operational and are used as additional instruments, which are not immersed in actual classroom settings. With the introduction of Generative AI and Large Language Models (LLMs) systems, educational content understanding, summarizing and generation has been further improved. These models can classify ideas, summarize lectures, and transform unstructured teaching material to structured learning material. However, these innovations are not widely used in practical teaching life cases, and even now, most of the current sessions cannot be accompanied by the real-time generation of content. The absence of automated document generation is also another weakness that has been established in existing systems. Though in text summarization AI models are more effective, the automatic generation of structured learning materials in the form of notes, PDFs, and PowerPoint presentations (PPTs) during the live session is not yet well-developed. The teachers have to prepare notes and presentation manually after delivering lectures and this makes the workload more and the content is not made available

to the students timely. Some research has been conducted on the application of Artificial Intelligence in intelligent tutoring systems and smart education. Wang and Li [4] suggested an AI-based tutoring framework with the emphasis on the personalized learning and adaptive feedback. Likewise, automated feedback production to aid student learning was also highlighted by Khosrow et al. [6]. These systems are however mainly set to work with pre-processed data, and fail to allow real-time creation of content during live teaching lessons. Multilingual translation technologies and speech-to-text technologies have been extensively used to enhance accessibility in online education settings. Zhang et al. introduced a speech recognition and translation system in real time in online classrooms. Even though their method enhances linguistic access, it does not deal with automated content organization, note generation and production of documents in real time during a live instructional session. As the development of Generative AI and Large Language Models (LLMs) progressed, some studies have been devoted to the production of educational content through the use of automation. In summarization and the creation of instructional content, the two studies by Brown et al. (ref3) and Li et al. (ref11) showed the usefulness of LLMs. Nevertheless, such strategies are typically used with fixed or pre-recorded material and do not integrate with real-time delivery context and live classroom instructional processes. Based on the literature reviewed, it can be seen that none of the existing platforms can facilitate both live communication and AI-based content generation in real-time. Majority of the systems do not include multilingual translation, automatic creation of notes and documenting in real lessons. Moreover, the AI-based teaching platform has not been evaluated experimentally extensively. This study fills these gaps by providing and testing experimentally an AI-based smart instructional software that combines real-time teaching, multilingual processing in real time, and automated content generation into one conceptual framework.

VII. DESCRIPTION OF PROPOSED SOLUTION

The Advanced Teaching Application Using Artificial Intelligence (AI) is an intelligent and interactive learning platform that has been created to enhance the efficacy of online learning. The platform enables educators and content specialists to have real-time video lessons as students can react to them in real time via instant messages. The speech given by the instructor is recorded and transcribed in real time with the help of speech-to-text technology during live sessions so that one can understand what is being taught. The application combines AI based multilingual translation and subtitle generators so that students can use the learning contents in their native language. Moreover, live teaching sessions are created in structured notes, PDF and PowerPoint presentations (PPT) using generative AI, and manual workload is decreased because teachers do not have to work on that. Flexibility is further improved through session recording and access management which allows students to access the content at any time. In general, the suggested solution will increase the accessibility, engagement, and learning effectiveness of contemporary digital education systems [1], [9].

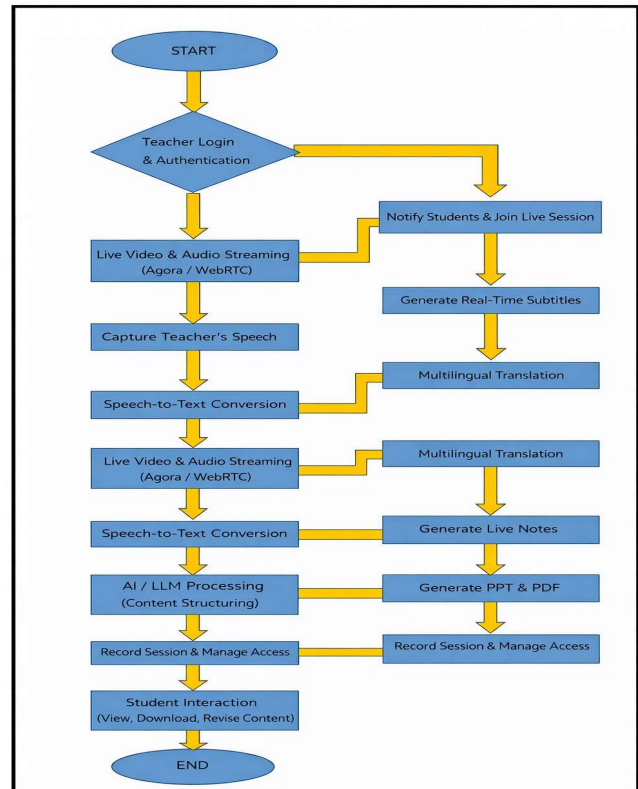


Fig. 1. Flowchart of the Working Process of the Proposed System

VIII. SYSTEM ARCHITECTURE AND ALGORITHM DESCRIPTION

A. System Architecture

The suggested *Advanced Teaching Application Using Artificial Intelligence (AI)* is grounded on the layered architecture integrating the frontend, backend, AI services, and cloud storage to advance the real-time and scalable smart teaching. The frontend is also developed using React Native and Expo, which enables both teachers and students to get it regardless of the platform. The live video and audio communication is possible with the help of Agora SDK and WebRTC and offers the low-latency interaction during the teaching session. The backend is implemented in Node.js and Express that is used to perform authentication, session management and exchange between the system components. Firebase Authentication is a secure access control and Firestore is a learning material, transcription as well as session data developed by the AI. Redis

has also been used in managing an active session status and performance improvement through caching. The processing of AI is performed using the services of clouds, where Google Cloud Speech-to-Text is applied to convert the live audio into a text, and Google Cloud Translation API is applied to translate in a different language other than English and generate a subtitle. Structured lecture notes, PPTs and PDFs are created with the help of Large Language Models (LLMs) based on the Gemini and Groq architecture. The materials and videos developed will be safely stored in the cloud storage where they will be accessed and easily retrieved [2], [8], [10].

B. Algorithm for AI-Based Content Generation

The AI-based content generation algorithm operates during live teaching sessions and automatically converts spoken content into structured learning materials. The algorithm consists of the following steps:

- 1) Live audio is captured from the instructor by Agora SDK and WebRTC.
- 2) By using Google Cloud Speech-to-Text API the audio stream is converted into text.
- 3) The transcribed text is translated into multiple subtitles and languages using Google Cloud Translation API.
- 4) Transcribed and translated content is stored in the Fire store database.
- 5) Generative AI models analyse the stored data to extract key concepts.
- 6) Structured notes, PowerPoint presentations (PPTs), and PDF documents are automatically generated.
- 7) The generated learning materials are made available to students through the application interface.

IX. OBJECTIVES OF PROPOSED ADVANCED TEACHING APPLICATION USING AI

The overall goal of the suggested *Advanced Teaching Application Using Artificial Intelligence (AI)* is to make the quality, accessibility, and efficiency of online education better. The system will combine live instruction with AI-controlled automation to break the language barrier, decrease the number of manual operations of the instructors, and give students designed learning content in a real-time fashion. The application is aimed at enhanced learning, inclusiveness, and retention of knowledge with the use of intelligent technologies [1], [4].

Limitations of Existing Solutions (Google Meet, Zoom, Traditional E-learning Platforms):

In spite of the intense use of online education platforms like Google Meet, Zoom, and Microsoft Teams, their usefulness in the learning community is limited by a number of barriers. The main feature of these platforms relates to video conferencing and has no smart educational solutions, like automatic note creation and context organization. Multi-lingual translation and subtitle services are not effectively given in real time and thus learning becomes a challenge to students with various language backgrounds. Moreover, the faculty has to create notes, presentations and learning resources manually post session and this adds to the workload and postpones the access to content. The contents of learning are usually dispersed in the recordings, chats, and external records, making them less convenient and easier to organize [6], [8].

Overcoming These Limitations in the Proposed Advanced Teaching Application Using AI:

- **AI-Integrated Live Teaching:** The suggested system will combine live video and audio classes with the processing of teaching material that is based on AI and allows understanding and organizing teaching material in real time.
- **Live Multilingual Translation and Subtitles:** Translated and generated subtitles AI-based translation enable students to receive learning content in a variety of

languages through live lessons so that no student is left behind.

- **Automated Notes Generation:** Generative AI and Large Language Models are also applied to automatically create structured notes, summaries and key points in live classes and instructors do less work.
- **PPT and PDF Generation:** The system automatically translates teaching material into PowerPoint presentation (PPTs) and PDF files and the teaching material is availed to students in a very short time.
- **Recordings:** To ensure seamless operations during the training, it is essential to record the sessions and make these recordings centralized (accessible to all) during the training period.
- **Human Recording Sessions and Accessibility:** It is important to record the training sessions and centralize them (accessible to everyone) to facilitate smooth operations throughout the training. Live classes are filmed and stored to be accessed under control so that students can revisit learning materials and lectures at any given time.
- **User friendly environment:** The app focuses on ease and transparency that allows teachers and students to access live sessions, notes, recordings, or generated documents with the help of a single and integrated platform.

X. SCOPE OF PROPOSED ADVANCED TEACHING APPLICATION USING AI

The proposed application, which is called Advanced Teaching Application Using Artificial Intelligence (AI) has a broad scope in the area of digital education as it offers an intelligent and interactive learning environment. The system facilitates real-time video and audio lessons, which allow the instructor to interact with students in real-time. It also provides real-time multilingual translation and subtitle creating services, which enables all learners regardless of their language to

comprehend the content without any restriction. Based on the Generative AI and Large Language Models, the app will automatically create structured notes, summaries, PowerPoint presentations (PPTs), and PDF documents based on live teaching sessions to minimize manual work on the part of teachers. The system also has the benefit of recording and replaying of sessions and so students can do a revision of lectures any time. The proposed system facilitates accessibility, scaling, and learning through the high accessibility offered by the centralized provision of live sessions, recordings, and learning materials via a user-friendly mobile application. The platform can also be expanded to incorporate new features like artificial intelligence powered testing, customized learning plans, and analytics, which can be deployed to the system in the future as the basis of smart education [10], [11].

XI. FEASIBILITY ANALYSIS

- **Technical Feasibility:** The proposed system is technologically viable because it has trusted technologies, including React Native, Node.js, Firebase, and AI-based cloud services. Scalable frameworks are useful in supporting real-time communication and AI processing.
- **Operational Feasibility:** The app is convenient and allows interacting between the teacher and students effortlessly. Without technical complexity, live sessions and subtitles can be accessed as well as automated learning materials.
- **Economic Feasibility:** The system is economical, as it uses open-source applications and cloud services. It may be maintained by the means of monetization in the future, like premium features or institutional adoption.
- **User Adoption:** The application has great opportunities of adoption by educators and learners because it features AI generated notes, multilingual assistance and session recording features.

- **Legal Feasibility:** The application will adhere to data privacy and security and will not engage in any financial transactions, which will lead to low risk of lawsuits.

XII. REQUIRED TOOLS

- **React Native with Expo:** The mobile application of the proposed Advanced Teaching Application Using AI was developed using React Native with expo. It allows a cross-platform development with a responsive and smooth user interface based on a single codebase.
- **Node.js and Express.js:** The backend runtime platform is node.JS and the server-side logic, API-management, and frontend- backend communication are managed by express.js. • **Agora SDK and WebRTC:** These tools facilitate the use of video and audio streaming in real-time to conduct the teaching sessions in a live session using low latency and providing an interactive experience between teachers and students.
- **Firebase (Authentication and Firestore):** Firebase offers effective user authentication and storage of user session, notes and course materials.
- **Google Cloud APIs and Generative AI:** Google Cloud is used to deal with speech-to-text, text-to-speech, and translation, whereas automated note generation, PPT, and PDF are performed with the help of Generative AI and Large Language Models.
- **Visual Studio Code:** The choice of Visual Studio Code is based on the fact that this tool includes debugging, IntelliSense and version control.

XIII. FEATURES

- **Live Teaching Sessions:** Allows teachers to conduct real time video and audio

classes with interactive participation from students.

- **Real-Time Multilingual Translation and Subtitles:** Supports live translation and subtitles in multiple languages, enabling inclusive learning for diverse users.
- **Automated Notes Generation:** AI automatically generates structured notes and summaries during live teaching sessions.
- **PPT and PDF Creation:** Teaching content is converted into PowerPoint presentations and PDF documents for easy access and revision.
- **Session Recording and Playback:** Live sessions are recorded and stored so students can replay lectures any time.
- **User-Friendly Mobile Interface:** The application provides a simple and intuitive interface optimized for mobile devices.

XIV. WORKFLOW OF PROPOSED ADVANCED TEACHING APPLICATION USING AI

The proposed workflow of the project titled Advanced Teaching Application Using Artificial Intelligence (AI) starts with the user authentication, through which the teachers and students enter the system. Once the teacher logs in successfully, he or she starts a live teaching session and students are notified to join the session in real time. After connection, video and audio streaming can be realized in real-time, which allows interactivity between the instructors and learners. The speech of the teacher is recorded and transformed into text during the session through the speech-to-text technology. In real time, the extracted material is stored in the database and processed with the help of AI and Large Language Models (LLMs). Depending on the needs of the user, the system does multilingual translation and it creates real-time subtitles to aid the learners of various language backgrounds. At the same time, the AI is able to analyse the content of the teaching to create structured notes, summaries, and learning points. This information is then processed

into PowerPoint presentations (PPTs) and PDF files thus facilitating an easy availability of study content to the students. All the session is captured and kept in an access-controlled store where the instructors can control the visibility and students can go through the lecture any time. Lastly, the students will be able to access or download notes, PPTs, PDFs, and recorded sessions on the centralized site. It is a smart workflow that reduces the amount of manual work done by instructors and ensures that learning is as accessible as possible to learners. The system will create good content management by combining real-time communication with automation that is effectively automated by artificial intelligence.

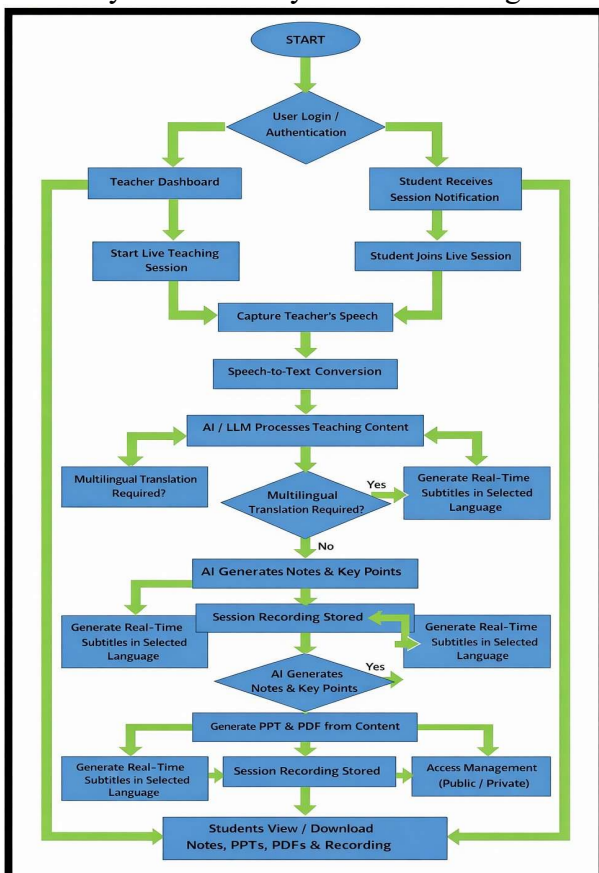


Fig. 2. Workflow of Proposed Advanced Teaching Application Using AI

XV. DATASET DESCRIPTION AND EXPERIMENTAL SETUP

A. Dataset Description

In order to measure the effectiveness of the proposed teaching application with

the use of artificial intelligence (AI), experiments of live and recorded teaching sessions were used. The data is comprised of about 20 hours of lecture information of various academic sessions of non-technical and technical topics. The number of teaching sessions that were considered was 30, and the length of a session was between 30 and 60 minutes.

The dataset consists of instructor speech in several languages, as the predominant languages are English and Hindi, and there are also other translated outputs that were created towards other target languages that the system can support. The live teaching sessions were recorded directly to audio as an integrated Agora SDK and WebRTC framework recording. All the audio streams were sampled at 16 kHz which is adequate in performing precise speech recognition and language processing tasks.

The data gathered can be considered as the realistic class room situations where there are variations in speaking style, accents, speech speed and background noise. Such variety will make the assessment a good representation of the actual teaching scenario, as well as will confirm the viability of the suggested AI-based system.

B. Experimental Setup

The experimental design was aimed to measure the efficiency of the AI modules, which are embedded in the proposed system, such as the speech-to-text conversion, multilingual translation, and automatic content generation. Google Cloud Speech-to-Text API was used as a speech-to-text processing solution, turning the audio stream into a text one in real-time. With the help of Google Cloud Translation API, the translation of transcribed text into multiple target languages was realized in a multilingual format, which allows

dynamically translating a text into various languages.

To generate content automatically, Generative AI models were applied, such as Google Gemini structured content creation models and Groq-based Large Language Models (LLMs) that are used to generate content with high inference speed. These models were used to produce structured lecture notes, summaries, PowerPoint presentations (PPTs), and PDF files out of the transcribed teaching material.

Experiments were all performed on cloud infrastructure so that they could be scaled and provide real-time performance. The backend services were installed on the servers that had a minimum of 16 GB RAM and multi-core processors, and the inference was accelerated with the use of any available GPUs to minimize latency in the generation of content based on AI. The system architecture can be able to process, store, and retrieve generated learning materials and live sessions in real-time using Firebase Firestore and Redis caching systems [2], [12].

XVI. RESULT ANALYSIS

Evaluation Metrics:

In a bid to determine the effectiveness of the proposed teaching application based on artificial intelligence (AI) in a quantitative manner, the standard evaluation measures were used to evaluate various modules of AI. The performance was measured in terms of speech-to-text with the help of the concept of Word Error Rate (WER), which is used to evaluate the accuracy of the transcribed speech. The accuracy of multilingual translation was determined by the means of the so-called BLEU score, which determines the similarity between machine translations and reference translations. The content relevance and summarization effectiveness was used to measure the quality of AI-generated lecture notes and summaries, based on the ROUGE-1 and ROUGE-L metrics [6], [11].

Quantitative Performance Results:

The experimental findings show that the suggested system attains a low Word Error Rate (WER), which proves to be an recognitive error-free and correct speech recognition system in real-time even in classroom settings. The multilingual translation engine attained high BLEU scores in every supported language and hence the quality of translation by the multilingual engine is reliable. Moreover, the AI-generated content generation module generated coherent and structured learning content with a high ROUGE score indicating high overlap with manually prepared reference notes.

TABLE I
 FEATURE COMPARISON WITH EXISTING ONLINE TEACHING PLATFORMS

Feature	Google Meet	Zoom	Proposed System
Live Multilingual Translation	No	No	Yes
Automated Notes Generation	No	No	Yes
PPT/PDF Generation	No	No	Yes
Real-Time Subtitles	Limited	Limited	Yes
AI-Based Content Structuring	No	No	Yes
Session Recording with AI Processing	Yes	Yes	Yes

Performance Analysis:

The graph presents the performance of the suggested AI-based teaching application in comparison to some of its major features, including subtitle generation, automated notes, PPT/ PDF generation, speech-to text, multilingual translation, and AI-generated content. The findings show that all modules have shown some form of efficiency improvement with the AI-generated content and multilingual translation being the most efficient. This proves integration of AI can greatly increase the accessibility and performance of learning through the use of AI integration in teaching applications at the past and the new application it has created now

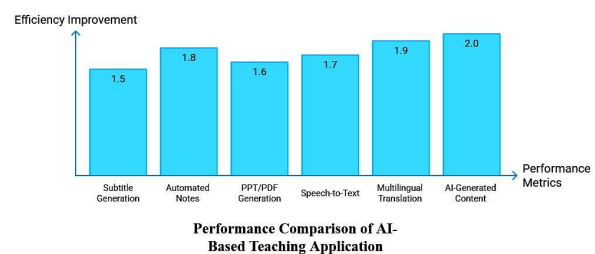


Fig. 3. Performance Analysis of Proposed Advanced Teaching Application Using AI

Home Page:

The proposed Advanced Teaching Application Using AI home page has an easy to use and simple interface to access live sessions, recordings, and AI generated learning material. It enables instructors to give live lessons and learners to attend classes, read notes and access PPTs and PDFs. The centralized architecture lets it be navigated fast and all key features can be accessed easily, improving user experience.

XVII. CONCLUSION AND FUTURE ASPECTS

The suggested solution Advanced Teaching Application Using AI offers an intelligent and scalable approach to the con

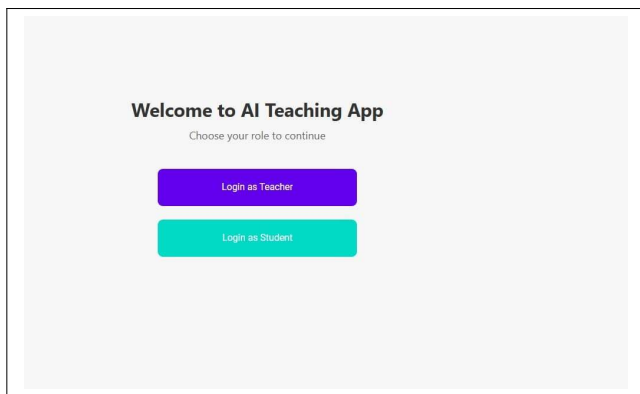


Fig. 4. Home Page of Proposed Advanced Teaching Application Using AI

temporary digital education practice by combining live instruction with AI-controlled automatization. The system offers the real-time video sessions, multilingual translation, automated subtitles, and AI-generated notes, PPTs, and PDF files, which greatly simplify the manual work of instructors and enhance the accessibility of students. Making recorded sessions and learning material more accessible to the centralized location improves knowledge retention and engagement of the learner. Altogether, the suggested application successfully addresses the drawbacks of the conventional online teaching systems and helps to create a supportive and intelligent learning environment [1], [14]. The system may be improved in the future with the help

of AI-based tests, individualized learning suggestions, student performance statistics, and Learning Management System (LMS) integration. Immersive learning can be added with the use of advanced technologies like Virtual Reality (VR) and Augmented Reality (AR), automated quizzes, and adaptive learning paths. As technologies in AI and cloud continue to develop, the platform has high prospects to transform into a holistic smart education platform to support learners around the world.

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