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ABSTRACT.....	5
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TABLE OF CONTENTS

1. INTRODUCTION	
1.1 Context or Background.....	6
1.2 Project Description	6
1.3 Current Scenario	7
1.4 Aims and Objectives.....	7
2. REVIEW OF LITERATURE	
2.1 Research Work	9
2.2 Libraries	11
2.3 API	14
3. REVIEW OF TECHNOLOGY	
3.1 Languages to code.....	13
3.2 Similar Applications.....	13
3.3 Used Platforms.....	17
4. METHODOLOGY	
4.1 Considered Methodology	21
4.2 Approached Methodology	23
5. SOFTWARE REQUIREMENT ANALYSIS	
5.1 Introduction	25
5.2 Scope	25
5.3 Proposed System.....	25
5.4 System Requirement Specification	26
6. PRODUCT DESIGN	
6.1 Gantt Chart.....	27
6.2 ER Diagram.....	27
6.3 Use Case Diagram.....	28

6.4 Class Diagram.....	30
6.5 Wireframe.....	31
6.6 Prototype Design.....	36
 7. IMPLEMENTATION AND TESTING	
7.1 Background.....	41
7.2 Test Plan	41
7.3 Implementation and Test Approach	41
7.4 Test Cases	42
 8. EVALUATION	
8.1 Product Evaluation	57
8.2 Project Evaluation	58
8.3 Limitation.....	59
8.4 Appendix A.....	59
8.5 Appendix B.....	64
8.6 Appendix C.....	68
 9. SUMMARY AND CONCLUSION	
10. REFERENCE.....	69
	70

LIST OF TABLES

Test 1	42
Test 2	43
Test 3	44
Test 4	45
Test 5	46
Test 6	47
Test 7	48
Test 8	49
Test 9	49
Test 10	50
Test 11	50

Test 12	52
Test 13	52
Test 14	53
Test 15	53
Test 16	55
Test 17	56

ABSTRACT

These days, mobile phones and tablets that are powered by Google's Android operating system are quite popular and have millions of users all over the globe. This operating system's ability to handle several tasks at once, together with its user-friendliness and extensive hardware support, has contributed to its widespread adoption. The "Speech to Action" is an android application that is designed for the people who want to improve their public speaking skills, disabled people who are unable to write on a keyboard or who have difficulty doing so. The user is expected to verbally articulate the instructions and symbols that are necessary for their software. The application's voice recognizer system sends a word to the program, and the program is meant to pick up keywords. An application is designed to pick up these keywords because they are comparable to the word. The "Speech to Action" includes many features that are accessible externally, such as a reports, top news and a speech recognizer, so that users feels interactive and friendly using these features. These plug-ins are sent in the form of libraries and pre-coded files, and in order to use them, the main application must be modified to accommodate their addition.

Keywords: [Speech to Action, Public speaking, Speech, Application]

INTRODUCTION

1.1 Context or Background

The act of speaking in front of a huge crowd has traditionally been referred to as "Public Speaking". In this developing field, Public Speaking became the general, usually neutral term for non-elocutionist oral communication (Keith, 2008). Today, it covers any type of public speaking, including pre-recorded speeches given all over long distances via technology. Public speaking assists political candidates, an accounting lesson for potential entrepreneurs or a presentation on projects best practices for an individuals. Because of their fear, these people may underachieve at job or in school, and they frequently avoid speaking in class (Harris, Kemmerling and North, 2002). So, this mobile application is built for those people who want to improve presentation and public speaking skills.

1.2 Project Description

The project's main goal is to develop an Android application for those who wish to enhance their public speaking and presenting abilities by assisting them in developing confidence when giving a speech. More than 61 percent of university students in the United States report a fear of speaking in public (Dwyer and Davidson, 2012). Many people might use this software because Android smartphones are more convenient and versatile than any other device. This application not only helps you to speak in public, but also helps you build confidence. With an application, people will be able to practice public speaking skills in a safe environment. They should not, however, be concerned about forgetting their lines or being judged by their peers. In front of any audience, they will feel confident and prepared. An application is not only helpful in listening and speaking but it also provide useful tips to help individual in body postures and hand movement while giving the presentation.

1.3 Current Scenario

Public speaking can be a very stressful task. Most people are afraid of it, yet the greatest way to learn is in a comfortable place with a helpful and encouraging audience. It allows user to create relationships in their entire community, which certainly benefits one's business grow. It makes absolutely no difference if an individual is a teacher, a businessman, or a politician.

However, in meeting, conferences, online video links and presentations are all things they have to deal with on a daily basis. Public speakers must learn how to communicate with a wide variety of audiences, from small crowds to vast halls and auditoriums. The subtext of this shift was that public speaking was becoming a kind of communication that occurred in many circumstances and was justified by its success in those contexts, rather than the possession of a few—the skilled, the elite, the platform performers (Keith, 2008). They must accomplish things up in a particular amount of time with the best possible outcome or reach certain milestones. Furthermore, studies have shown that the effectiveness of psychological therapies in reducing social and public speaking anxiety varies widely depending on the measures employed to measure it (Ebrahimi, Pallesen, Kenter and Nordgreen, 2019). This is where Internet comes to handy as these skills of communications are must essentials basically for business purpose.

We cannot guarantee that all users will receive positive outcomes and feedback since virtual learning may not be as effective as classroom learning. Departments of English and speech and communication, for the most part, have gladly embraced the burden of teaching their students skills, emphasizing functional competence (Keith, 2008). Even with all of the experience from the application, a user may still be scared and terrified to speak in front of a massive gathering.

1.4 Aims and Objectives

Talking about the recent context, development has made a solid impact on the society. It is the framework for any human society. As the society is grown up the needs and fulfill needs is increasing day by day. It's a handy task for the developer as they must suit all of the people's and society's needs. So, this topic have been

assigned and introduced to develop such an application called "**Speech to Action**" who really want to improve their public speaking skills and presentation skills.

Public speaking is an essential skill in the professional life. It enables you to communicate, market ideas, and express oneself clearly. Likewise this application, "**Speech to Action**" will guide and cover everything from how to start a speech to how to conclude it. The aims of this application are discussed below:

- Suggesting the user in developing Vocabulary and Fluency
- Checking and balancing the pauses or breathing stops
- Analyzing speech will ensure that all words are pronounced correctly
- Providing an opportunity to learn how to become a better listener and speaker
- Providing recent top news to engage audience in conversation so that they are not bored
- View the reports and feedback from the system
- To suit public wants or needs, developers must expand their capabilities
- While checking punctuality, it adds some recent words and phrases
- Avoids repetition of words

REVIEW OF LITERATURE

2.1 Research Work

Android is a Linux-based software package and operating system for mobile devices like tablets and smartphones (javatpoint, 2022). It has been developed almost 15 years, first by Google and then by the OHA (Open Handset Alliance). Although other languages can be used, the Java language is the most commonly have been used to build the Android code.

Android uses an app-level architecture, where each application has its own processes that can access the same shared resources provided by Android OS. This architecture allows applications to have independent lifecycles. These applications are organized into a series of classes, which are then put together in packages for distribution as separate programs.

According to a research, there are over 2.6 million programs available in the Google Play Store, although apps from the web can also be side loaded (Android Authority, 2022). This operating system's appeal stems from its multitasking, ease of use, and variety of device alternatives. The Speech Recognition Application for Android is intended for persons who are unable or have trouble typing on a keyboard. This application allows the user to recite words and develop a Java program without using a keyboard.

According to a May 2013 survey, 71% of mobile developers are creating apps for Android. Over a billion Android users are currently active (Yu & Yu, 2014). Its open source nature allows the user or developer to use its code as a base for community projects. Moreover, since it's developed by Google itself and has its own library Google Speech Recognition. The current study presents an overview of the current state of the text-to-speech (TTS) system ARTIC (Artificial Talker in Czech), showcasing the advancements made over the past decade of research and development (Sojka, Kopeček and Pala, 2006).

Furthermore, more than six decades, researchers have sought to translate spoken words into text using machine speech recognition (SR). It is also known as Automatic Speech Recognition (ASR), computer voice recognition, or simply Speech-To-Text (STT). Speech recognition by machine research encompasses a wide range of areas, comprising signal analysis, acoustics, pattern recognition, communication and information theory, linguistics, physiology, computer science, and psychology. (Yu & Gande, 2015).

Google Text-to-Speech is one of the most successful text-to-speech synthesis tools developed by Google itself, which can be used for speech recognition. Users can not only listen to their translation but also have the text read out loud by Text-to-Speech. This feature allows for more accurate translations and less time consuming efforts between users and the Google Translate engine. As a result, this tool has been used to create a library of thousands of words in many languages worldwide, making it one of the most widely used text-to-speech tools in mobile applications, voice assistants, and other smart devices.

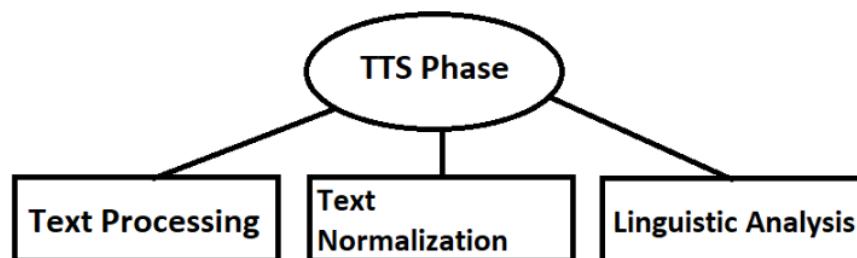


Fig 2.1:Text-To-Speech Phase

As shown in the Fig 2.1 Text-to-Speech has three phases. Its phases has been discussed below:

I. Text Processing

A text-to-speech system (or speech synthesis) is a computer system that can produce human speech. Text-to-speech systems convert normal language text into phonetic representation which by means of a digital to analog converter in real time is spoken by a voice.

II. Text Normalization

The goal of text normalization is to match the text. Proper normalization makes the good output. The text normalization handles abbreviation and acronyms. For example, the name 'Allison Moore' could be normalized as Allison Moore or Allison M. Moore depending on how you want to display it on your website or application.

III. Linguistic Analysis

Linguistic analysis is used to determine how a sentence should be spoken, with the help of accenting and phrasing. The goals are to handle ambiguities in written text as well as to ensure proper word pronunciation. It is generally used in the narrow sense of a computer's attempt to extract meaning from text or inputs (Linguistic Analysis Explained - Ascribe, 2022).x

Thus, several TTS systems have been developed by research institutions, software companies, and open source communities over the years

2.2 Libraries

Google Speech Library is a software application developed by Google Company. This application has been widely used in Google PC products and Android Operating Systems. The application allows the users to write documents and emails using natural language sentences. It also allows users identify the voice commands in the form of text and perform certain operations with those commands. Furthermore, it helps user to convert speech into text and vice versa with very high accuracy. It's designed to work best with U.S. English and other major languages such as Spanish and French.

After introducing the new technology of deep learning neural networks, Google has achieved an error rate of 8% in 2015, that is the reduction of more than 23% from year 2013 (Kępuska, 2017). Google Speech Recognition was an innovative program at the time, and it added many new features to Android platforms. The developer can use its library to dictate a sentence for Google search, and the application will accept the input, transform it to text, execute Google search, and display the results to the end user. For example, a device user can dictate a statement for the Google search,

and the application will accept the input, convert it to text and automatically perform the Google search. After that it display the results to the user, improving their experience with greater accuracy.

2.3 API

The term Application Programming Interface (API) is a set of programming language that enables data transmission between one software to another software product (AltexSoft, 2022). The most popular examples of APIs are those for web services, which allow your application to integrate with a third-party service without having to actually talk directly to the service at all. These days, many modern apps use APIs from other services and websites so that they can perform actions using data from those other sites without having to store it locally itself.

An API is a tool that allows you to call applications, information and data from outside the application by using codes. This allows users to access a large amount of data via one place, even if they don't have the required app or software on their device. The Google Speech API is an ideal tool for apps, web solutions and more. The library can be added to any application or website to make speech control simpler. Once implemented, users can easily pass commands and queries to their program with a few simple words of speech, which is then processed by the Java API and carries out the appropriate action. It is recommended to import the JAR file into the Java class while constructing an offline speech recognizer that recognizes dictated words and converts them to text (Zigh, et al., 2021).

The news API has been integrated with the application, so users can now read the news feed straight from their phone in all places. Since we are the global source for news, information and entertainment. It allows developers to access articles, stories and categories for their applications and businesses.

REVIEW OF TECHNOLOGY

Mobile technology has improved dramatically in recent years, allowing us to obtain information from any device, at any time. As a result, there is a huge need for mobile-friendly software. Modern applications empower shoppers to remain associated and get to data from any gadget, at any time. Estimating software is crucial for providing the most exact size figure and building confidence between developers and users. Almost each and every organizations and individuals uses modern technologies in order to promote good services and to enhance their business. So it's up to the developer to plan and develop in such a way that it displays everything in an easy-to-understand style that is straightforward to navigate, making it easier for the user to understand and more secure. The products and services are an important component of the application "**Speech to Action**" and everything is presented in a professional manner. Furthermore, users can select a specific topic to better their knowledge on something specialized, making it available.

3.1 Languages to Code

This application will be developed in both java and HTML. This application's primary language is Java. However, HTML is also utilized to build a relatively basic user interface. The application is really simple to use and its user interface provides an easy and effective way to navigate among the pages, allowing the user to get what they are looking for fast and efficiently. An application performance is relatively excellent. There are no delays or lags when operating the service. The application makes use of jQuery for its user interface. To make things look attractive and seamless, the front end makes use of frameworks such as jQuery.

3.2 Similar Applications

These applications *Grammarly*, *Ummo*, *Orai*, *LikeSo* are similar applications to one another in functionality. *Grammarly* and *Ummo*, two web-based writing applications, perform similar responsibilities. *Grammarly* focuses on document grammar, spelling, and punctuation. Using artificial intelligence, *Ummo* can recognize complicated

structures and idioms inside a phrase. *Ummo* is compatible with Gmail, *Evernote*, and Google Docs. Another free software that leverages artificial intelligence to provide comments and suggestions on written content is *Orai*. *LikeSo* is a social network that allows users to discover each other based on comparable interests or interests they communicate with other individuals.

3.2.1 Grammarly

Grammarly supports streamlined and effective writing. It helps in identifying and replace complicated sentences with more efficient ones, refresh repetitive language, and uphold accurate spelling, punctuation, and grammar. *Grammarly* is a cloud-based typing assistance that evaluates spelling, grammar, punctuation, and other writing skills to help individual improve. It's similar to a spell checker, but for grammar. It improves an individual's writing so that what user write is clear, effective, and error-free.

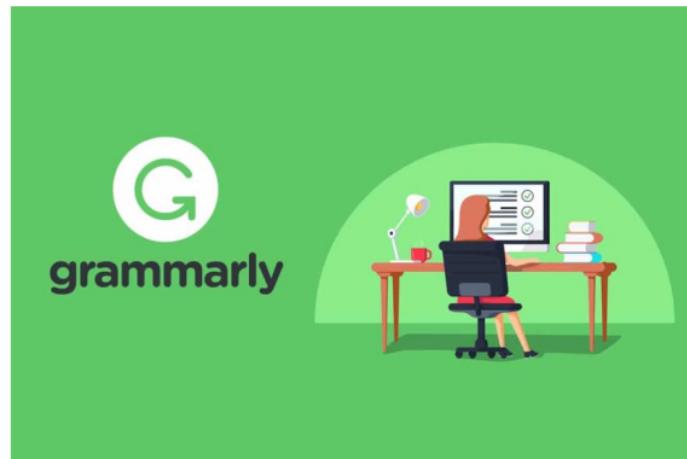


Fig 3.2.1: Similar Application (Grammarly)

3.2.2 Ummo

Ummo is a Personal Speech Coach that's perfect for any individual looking to improve their everyday vocabulary and delivery of conversations. It is useful for those who want to practice for a presentation or improve their day-to-day communication. It

will help track filler words, pacing, word power, clarity and more. Just click the record button to start listening and click it again to stop listening.

Ummo is the most advanced, yet simple and easy-to-use speech analysis tool with a mobile app. It computes with users Speech Fitness at the word level using cutting-edge Speech Recognition and Speech Analysis algorithms. It monitors user speech and gives the user with personalized feedback



Fig 3.2.2: Similar Application (Ummo)

3.2.3 Orai



Fig 3.2.3: Similar Application (Orai)

Orai is an AI-powered app for practicing presentations and receiving instant feedback on areas for improvement (Orai, 2022). It helps in public speaking, speech improvement, toastmasters and communication training. Enterprises use Orai to run communication and soft skill training in a cost effective and scalable manner. It is a learning and social platform by providing the world's most widely used coaching solution for learning oral communication in multiple languages.

Orai provides users with instant feedback on communication metrics such as pace, filler words, energy, facial expression and more. And, it's the first platform to offer customizable, interactive lessons based on their communication goals and needs. Furthermore, user can also track their progress over time, target specific challenging areas, and get tips for improvement.

3.2.4 LikeSo

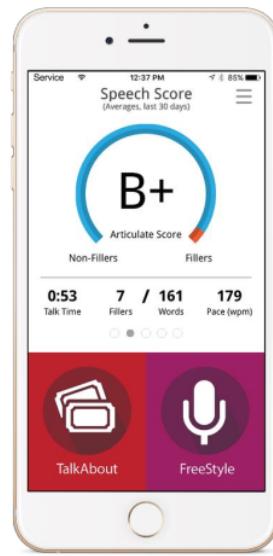


Fig 3.2.4: Similar Application (LikeSo)

LikeSo serves as the user's own speech coach. LikeSo is a fun and effective approach to break bad habits and practice speaking clearly and confidently. It has two modes of play: freestyle (open mic) and TalkAbout, a conversation game to practice speaking on. LikeSo gives real-time analysis of an individual speech, including optimal

pacing for quick or slow talkers. This application appears to be a game, but underlying the chatty fun is a serious goal: to aid in the development of formal speaking abilities (LikeSo App Review, 2022).

It offers users a fun, friendly way to improve difficult parts of their speaking skills. For example, like many people, tends to use filler words. By playing through a series of games on LikeSo and taking some time for reflection and observation, user was able to identify where it was most likely to fall back on those words and have made significant progress in eliminating them from speaking patterns. The only downside of LikeSo is that the app doesn't offer any tips for improvement after the monitored sessions; instead, user can access the companion website for more information.

3.3 Used Platform

A programming software is a tool or application used in software development to create, debug, maintain, or otherwise support other programs and applications. There are several different pieces of software that were used to develop this app. The design and development of this app took several months to build, from the way the user interacts with the app, to how it functions. Software used to design and develop this app includes Adobe Photoshop, Android Studio, QSEE SuperLite, Google Chrome, Github (code saving), Notepad++ (for notes), Firebase (for data storing). The used platforms and its purposed are discussed below:

3.3.1 *Android Studio*

Android Studio is the official integrated development environment (IDE) for Android, developed by Google and based on IntelliJ IDEA. This platform is used for coding the “**Speech to Action**” application as it provides various tools, including a source code editor with features such as code refactoring, syntax highlighting and auto-completion. It is designed for customization, so that it can modify the window layout to suit development and developer style. The Editor Tool Window gives user the instant access to shortcuts and actions that let the programmer quickly import resources, improve code quality, manage device state, debug applications, and more.

Android Studio uses the Instant Push functionality to push code and resource changes to a running application. A code editor helps programmers write code by providing code completion, refraction, and analysis (Contributor, 2018).

3.3.2 Firebase

Firebase is a mobile platform developed by Google that assists app developers in creating more satisfying user experiences. Its core mission is to assist the developers build better apps, grow their user base and increase engagement by providing products and its solutions. It provides cloud storage and is the must require tools for developer to implements its features like authentication, app analytics and crash reporting, cloud messaging, dynamic links, hosting, measuring retention and more. Since it is lightweight, cloud-based solution that helps to manage authentication and cloud hosting for mobile apps. It was also used to store user information and sync data in real time between the devices.

3.3.3 Google Chrome

Google Chrome is a cross-platform web browser created by Google. It's made for fast searching, browsing and safe online activities. It is very fast and secure web browser built with an emphasis on web standards. It was first released in 2008 and has been rapidly growing in popularity ever since. Built using free software components from Apple WebKit and Mozilla Firefox, Chrome provides a great experience for all of your favorite websites. Similarly, Chrome was used as a case study, research and development of case studies in the appendix or supplement for developing an application. It's the default browser on Linux, macOS, iOS, and Android. The browser is the major component of Chrome OS to run online applications (Wikipedia, 2022).

3.3.4 Notepad

Notepad is a simple text editor that comes with all versions of Windows. It lets you create, open, and read plaintext files. It's a great place to quickly take notes in ASCII format, or to write small scripts. It uses the default Windows font and color scheme, but user can change these style attributes if you would like. Notepad will not open a file that has specific formatting or is not a plaintext file. (Hope, 2021). It is also the favorite application of several users because it is designed to be simple and effective.

3.3.5 Adobe Photoshop CC

Adobe Photoshop CC is a piece of professional software that's capable of editing, processing, compiling and manipulating digital images on all levels. From basic digital photo retouching to advanced 3D rendering, it offers more tools and options than designer would ever need. It was used to create both the company logo, and an application UI. Wireframe was also made using Photoshop and I used as vector art as a background image. Its graphic design program enables designers to create, edit, and modify a variety of visuals and digital art. It was designed in 1988 by Thomas Knoll and John Knoll and is the program's official distribution license. There are many versions of Photoshop (Walker, 2022).

3.3.6 Github

GitHub is a version control system for tracking changes to computer files and coordinating work on those files among multiple people. It is widely used by developers to store their source code, which can be shared with others or kept private. Its repository was used to save the previous errors into the server for further use which provides an important feature for test case for an application while developing. Commonly, version control makes it simple to access prior versions of an individual's work and see the differences between them. Work on programming in parallel with others without having to merge changes or check out files. GitHub can be used to

save the previous into users PC, so they can make presentations of their work, and share it through social media.

3.3.7 QSEE SuperLite

QSEE SuperLite is a general modeling environment that supports a variety of modeling tools. It was developed by Dr. Mark Dixon. It is the result of many years of development work (QSEE, 2022). It can be used to build large and complex models, or small and simple ones, with any combination of blocks, base-level components and libraries. There is no need to learn a new language or toolset when switching from one task to another. It is designed for speed and performance and is perfectly suited to meet the needs of today's engineer. This was implemented to start with QSEE Super Lite, which is an extremely easy environment to create class diagrams and UML diagrams.

METHODOLOGY

4.1 Considered Methodology

A software development methodology is the segmentation of software development activity into discrete phases (or stages) that contain tasks in order to improve planning and administration. A model of software creation, development and maintenance. Features include: all the material in one place; hierarchically organized; comprehensive coverage of all topics related to software development process; easy to learn, use and understand. Software development is performed using various methodologies. These include:

- i) Waterfall Methodology and
- ii) Agile methodology

Other types of methodologies include prototyping, spiral development, etc.

4.1.1 *Waterfall Methodology*

The waterfall model is a sequential design method. System requirements are identified and implemented in sequential phases of design, construction and testing. The Waterfall model serves as the basis for other development models (Dora & Dubey, 2013). This approach was designed to allow a development team to understand and meet the objectives of a project early on in the development cycle without much risk or wasted effort. It does this by progressively elaborating the solution through clearly defined stages: initiation, analysis, design, coding, testing and deployment.

Generally an organization software development life cycle is based upon the waterfall model (Dawson, et al., 2010). A common example is waterfall, which specifies that work be divided into separate phases representing distinct activities. The different phases involved in waterfall methodologies are:

- Requirement
- Analysis
- Design
- Implementation
- Testing
- Deployment
- Maintenance

4.1.2 Agile Methodology

The Agile methodology is a process of software development that emphasizes small, rapid iterations and comprehensive documentation. It is more flexible, thereby enabling developers to provide the best possible product in a more efficient manner. The concept seeks to improve time-to-market and time-to-innovation by changing the way products are designed, created, and delivered.

The agile development model is also a type of incremental model in which the ultimate aim is to deliver working software to the customer. Agile software development is a collection of methodologies that encourage adaptive preparation, development, change, and delivery. Agile methods are a subset of iterative and evolutionary methods. Iterations are short in order to provide more fast input to the project team (Dora & Dubey, 2013). Its development promotes adaptive planning when compared to the waterfall approach, in which the requirements and solution are set in stone at the start of a project. More importantly Agile provides opportunities to assess the direction of developer's project throughout the development lifecycle. The different phase cycle involved in agile methodologies are:

- Plan
- Design
- Develop
- Test
- Release
- Feedback

4.2 Approach Methodology

After researching through all the methodology, Waterfall Methodology was implemented for this project. The project is divided into tasks, with phases being the highest level of classification. A proper waterfall approach involves stages that are developed sequentially and have specific exit criteria that are frequently signed off on by project stakeholders. This is also the approach that system integration take when developing “**Speech to Action**” applications for the end users because budget, resources, deliverables, and scope must all be handled extremely carefully.

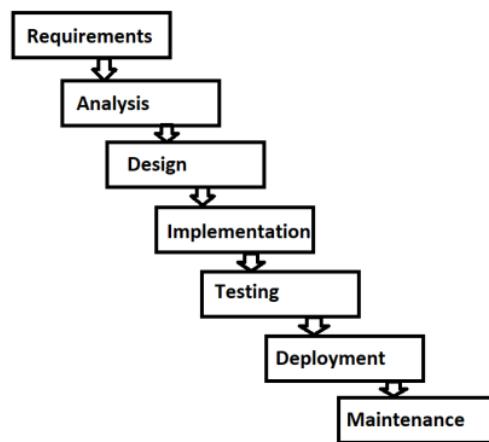


Fig: 4.2.1 Waterfall Methodology

The above figure 4.2.1 depicts about the different phases of Waterfall methodology. Similarly, the different steps were approached in order to carry out this project in an efficient mannered way.

- I. Early in the project, requirements are completed, allowing the project to define scope, construct a detailed timetable, and design the whole application.
- II. Then it optimizes resource usage by allowing activities to be separated and completed in parallel, or aggregated to maximize resource skills.
- III. For the better outlook an application design, all requirements and deliverables are better understood.
- IV. A thorough timetable and measured plan allows for easier measurement of project status.

- V. Then testing and deployment was done separately, which creates no impact on the final tests.

However the necessary approach was taken but it has also the side effects. As it's unsuitable for complex project apparently the project requirement changes frequently. This leads to rise of bugs in an application during the phase.

SOFTWARE REQUIREMENT ANALYSIS

5.1 Introduction

Software Requirement Analysis helps developer to merge the requirements from the client's perspective and technical perspective. Software Requirements Analysis is an important activity for any software development project. It is performed after elicitation and before design. Analysis helps in understanding the requirements and makes consistent, unambiguous, and complete requirements before proceeding further in software development process. The Software Requirement Analysis describes in detail what the software will do and how it will be used.

5.2 Scope

The aim of this project is to lay out the topic "**Improving Presentation and Public Speaking Skills by Analyzing Speech**" functional specifications. This paper includes an in-depth analysis of the current system and a comprehensive profile of the external interfaces and design limitations that will be implemented on the subsequent implementation. This research paper proposal aims at developing an online application for those users who wants to improve grammar and presentation skills. It discuss about an application software from various aspects like, architecture of the software, user interaction model with the software, evaluation of the results and finally market the positioning strategy of this application.

5.3 Proposed System

The "**Speech to Action**" application is developed by Java code, written in accordance with a certain Java syntax and then dictated to the application. Firstly, this application allows the user to register for an application and then login with a Firebase server which is connected to an array of other servers, with this in mind, it makes the system available in a variety of ways, including mobile devices and any device with internet connectivity.

Moreover, the proposed system provides real-time text to speech conversion, which not only allows users to read their own sentence, but also allows them to have full control over the process making it easy for them to improve their skills or learn. The system uses a sequence of phonemes with a particular pitch associated with each one for better accuracy of matching sounds with letters. For instance, the user does not need to speak every single component; instead, they only speak the word, and because this application has a speech to text feature, it auto corrects the grammar and phrase filling the gap filters. The proposed system allows the user to check grammar, spelling and punctuation. After allowing them to check grammar, they will then be able to read a report that gives suggestions and instructions on how to correct the mistakes.

5.4 System Requirement Specification

Hardware Requirements

- A minimum Android version of 2.2 - 2.4 is required
- Processor speed should be no less than 500 MHz
- RAM should be at least 200 MB
- SD card with at least 516 MB
- USB debugging should be enabled on the device

Software Requirements

- Android Mobile Operating System (2.2 or later)
- Development Tools: Eclipse or Android Studio
- Internet Require: Yes
- Read and Write Storage Require: Yes
- Mic Require: Yes
- Code used: Java, XML

PRODUCT DESIGN

6.1 Grant Chart

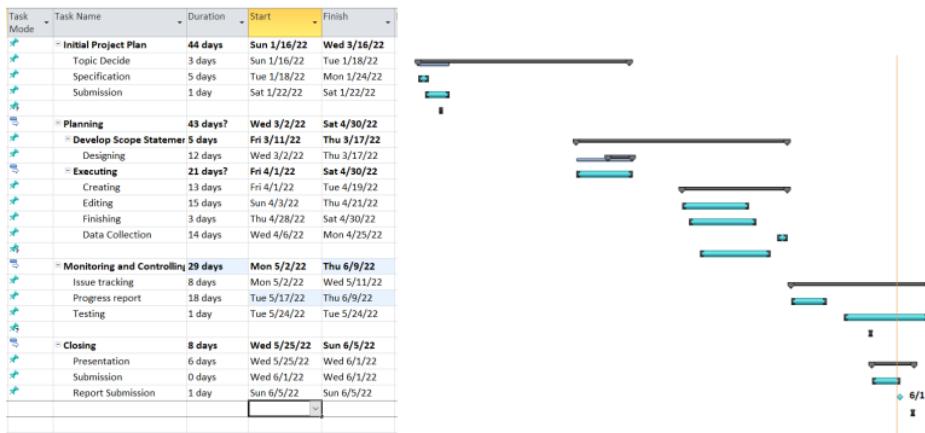


Fig: 6.1.1 Gantt chart

The Gantt chart is an informative chart for every solution. It highlights the informative data collection on accumulated date by using start to end timestamps. The fig 6.1.1 illustrates the tasks involved and researched in different timeframe.

6.2 ER Diagram

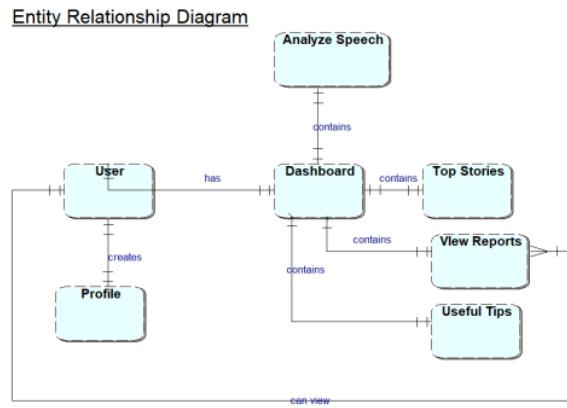


Fig: 6.2.1 ER Diagram

An ERD is based on this application. The fig 6.2.1 interprets in the perspective of user entity and how it functions. The user can only access to their profile by logging to their dashboard. Moreover, dashboard entity is the main component of this system which redirects the user to perform various activities. A dashboard contains analyze speech to check users grammar. Top stories entity for viewing global news. Useful tips entity to provide extra knowledge regarding public speaking techniques. User can also view their profile and as well as the reports generated when checking the user grammar.

6.3 Use Case Diagram

A use case diagram is a UML following diagram a system from of the perspective of its users and their interactions with it. A use case diagram illustrates how actors engage with the system, their goals or needs, and how the system operates. It usually focuses on the actions and interaction between users and systems within.

A proposed Unified Modeling Language (UML) is made for the mobile application named "**Speech to Action**". It consists of all the key features that was to be included in the application. The application consists of two major actors. They are:

- i) User and
- ii) Admin

The User and the Admin role has been discussed in Fig: 6.3.1. As the mentioned diagram keep the track while working on the development.

User Use Case Model

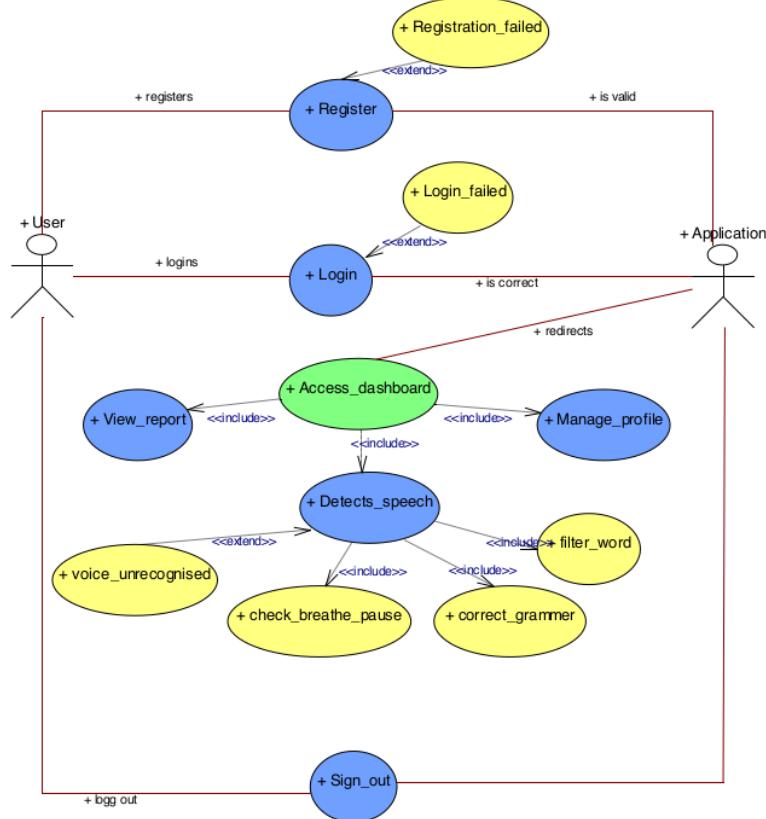


Fig 6.3.1: User Use Case Diagram

The above diagram Fig 6.3.1 discusses about the User role. Firstly when the User clicks into Register button the system redirects the user to register form. The User have to fill their basic information which will be essential to be used during registration. The system checks and validates the User inputted data. After successfully registration the new user record is inserted into database. The system then redirects the user to login page.

The login systems allow the user or the administrator to access an application. The User have to fill up their credentials which was used during registration. The system checks the entered credentials and redirects the User to its particular dashboard respectively.

After accessing to dashboard, User can now use the application features.

Talking about its working, when the user clicks on recording button it analyses user voice and transform it into text. It checks the grammatical errors, checks breathes and pauses, fills and add up the words, checks the accuracy of the user. After all of these tasks have been completed, a report is created. The user can also manage their profiles, view profile, view reports. If they desire to sign out of the system, the system will log them out as well.

6.4 Class Diagram

Speech to action

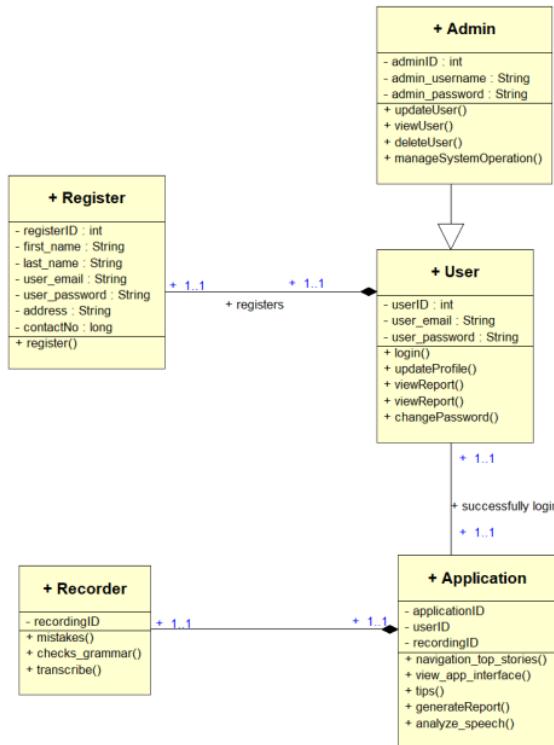


Fig 6.4.1: Class Diagram

In object-oriented modeling, the most important structural component is known as the class diagram. It is used in the process of broad conceptual modeling of the structure of the application, as well as in the process of detailed modeling, which

involves the translation of models into programming code. When it comes to application development, it enables the developer to work more quickly and easily.

In the process of constructing an application, several classes may be developed. Fig 6.4.1 provides an interpretation of these classes. The primary structural component clarifies each class's operations as well as the characteristics that define it.

6.5 Wireframe

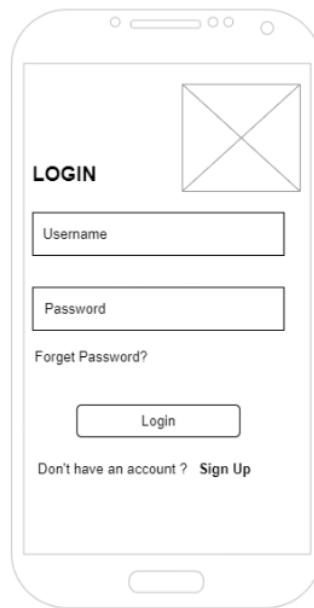


Fig 6.5.1: Login wireframe

The figure 6.5.1 is the wireframe for login page. It consists of two text field area placed for user email and password. There are also two buttons (i.e. Login and Sign Up). Log in is for logging the user and while the other is for user registration.



Fig 6.5.2: Register wireframe

The figure 6.5.2 is the wireframe for register page. It consists of all the details required for user for registration. It includes first name, last name, email, and password, confirm password, contact number and address. There are also two buttons (i.e. Register and Sign In). Register is for registering the new user and while the other is for redirecting the user for login.

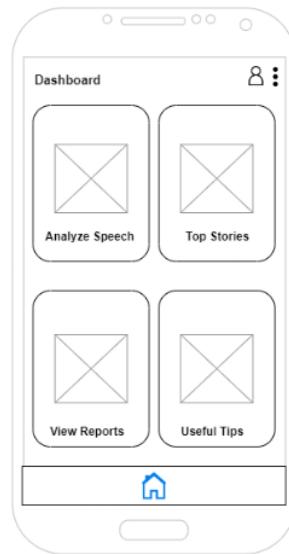


Fig 6.5.3: Dashboard wireframe

The figure 6.5.3 is the wireframe for dashboard page. It consists of four major buttons for redirecting the user for different purpose. At the top of the title the profile icon redirects user to view their profile. Pressing on breadcrumbs enables the dropdown link for Log out, which log out the user from the application.

Analyze speech for redirecting the user for testing, and checking grammar. Top stories is for redirecting the user for viewing top global news. View reports is for redirecting the user for viewing their progression. Useful tips is for redirecting the user for providing the user with public speaking tricks.

Lastly, the home icon is placed for redirecting the user to their main dashboard.



Fig 6.5.4: Tips for public speaking wireframe

The figure 6.5.4 is the wireframe for useful tips. It displays tips for user in order to enhance public speaking skills.



Fig 6.5.5: Profile wireframe

The figure 6.5.5 is the wireframe for profile page. It shows the details of the user. User can also change their password accordingly.



Fig 6.5.6: Analyze speech wireframe

The figure 6.5.6 is the wireframe for analyze speech page. It consists of text field and two buttons. The mic button is for getting the input from user voice and the check button is for checking the user's grammatical errors.



Fig 6.5.7: Top stories Wireframe

The figure 6.5.7 is the wireframe for top stories page. It displays the global news for the user.



Fig 6.5.8: Change password wireframe

The figure 6.5.8 is the wireframe for change password page. It consists of two text field where user can change their password accordingly. The change password button checks and changes the user's password.

6.6 Prototype Design

A prototype design was made based on the wireframe. It was used solid works to design the prototype while keeping the ideas and vision in mind. Then the built prototype is carried out to test its functions, quality and usability on real users

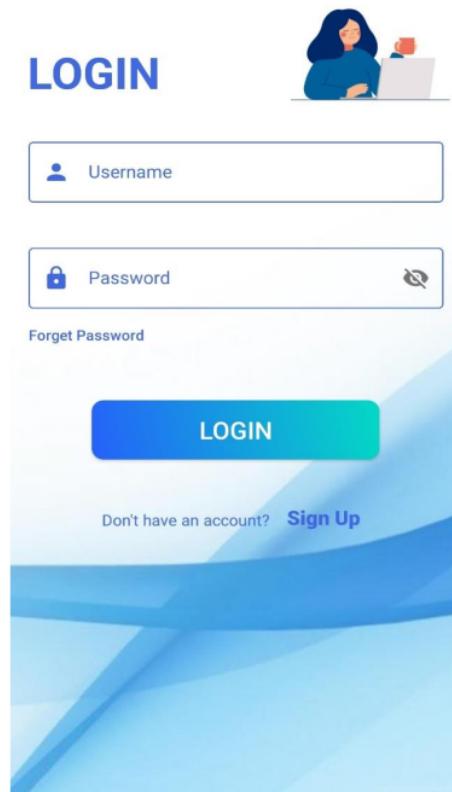


Fig 6.6.1: Login User Interface

The above fig 6.6.1 is the prototype design of Login User Interface. The login page allows a user to log in to the dashboard.

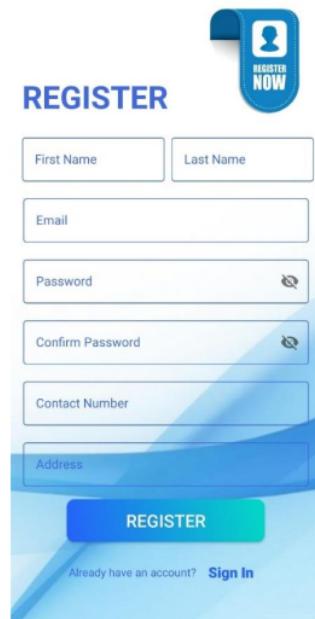


Fig 6.6.2: Register User Interface

The above fig 6.6.2 is the prototype design of Register User Interface. The register page registers the user for accessing the application.

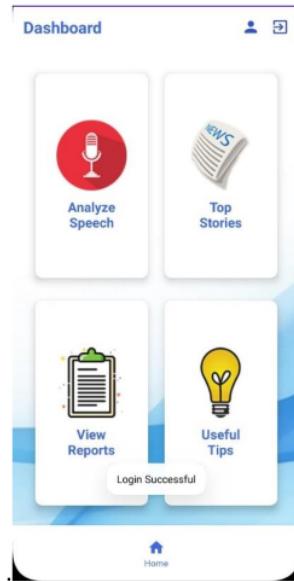


Fig 6.6.3: Dashboard User Interface

The above fig 6.6.3 is the prototype design of Dashboard User Interface. It allows the logged in user to access application features to the user. User can perform various tasks and redirects to the user accordingly via dashboard.

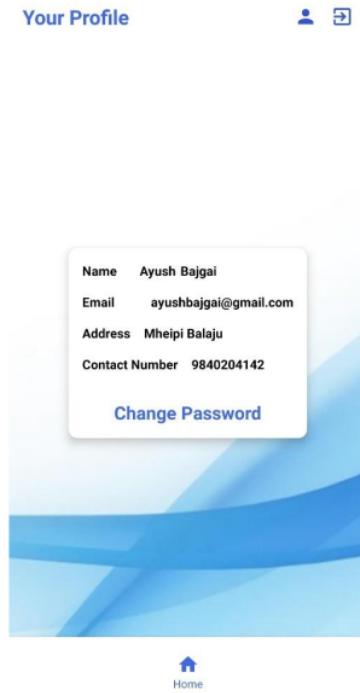


Fig 6.6.4: Profile User Interface

The above fig 6.6.4 is the prototype design of Profile User Interface. The logged in user can view their profile info as set by them.

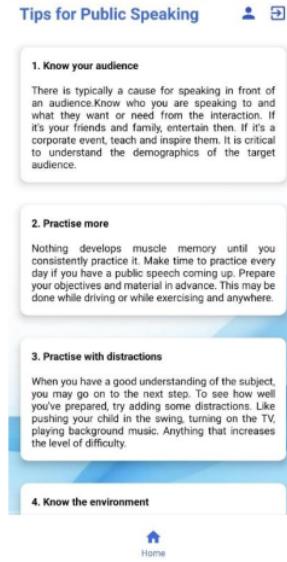


Fig 6.6.5: Tips for Public Speaking User Interface

The above fig 6.6.5 is the prototype design of Tips for Public Speaking User Interface. It displays the useful tips for the user who wants to improve their presentation skills.

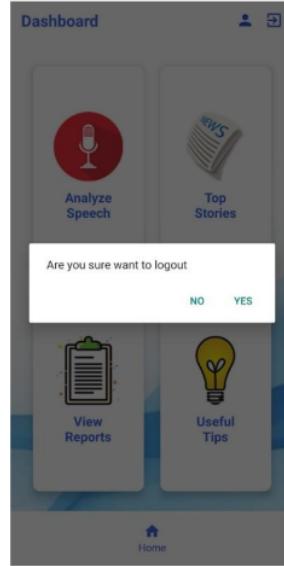


Fig 6.6.6: Logout Confirmation User Interface

The above fig 6.6.6 is the prototype design of Logout Confirmation User Interface. It displays the pop message for confirming the user to log out of an application.

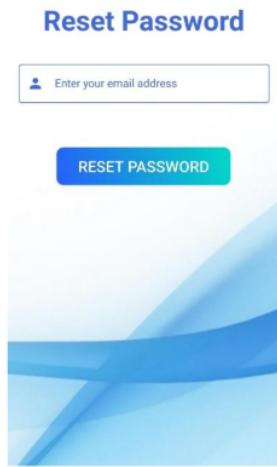


Fig 6.6.7: Reset Password User Interface

The above fig 6.6.7 is the prototype design of Reset Password User Interface. The user can reset their password by using their email address.

IMPLEMENTATION AND TESTING

7.1 Background

In general, implementation testing refers to the process of testing technology requirements' implementations. This procedure verifies both that the specification is implementable in practice and that implementations comply with the specification. This method supports in the improvement of implementation quality and compatibility (WCAG WG, 2022).

7.2 Test Plan

Defects in software can cause various impact as a result of improper design, coding, configuration, usage, or any operation in which a user is involved. Testing is an important phase in the Software Development Life Cycle (SDLC). Moreover beginning with unit testing and progressing to system testing to identify defects and errors that occur during implementation. Without comprehensive and appropriate testing, software development results in low system testing, high maintenance costs, unreliable and wrong outcomes, and eventually customer disappointment and loss of reputation.

7.3 Implementation and Testing Approach

The approach of the testing begins with the system design. It is implemented and initiated during SDLC. To generate the desired output, all of the preplanned and presented system design components are manufactured accordingly. The product's specifications are then followed. The user-friendly UI is developed using Android Studio using XML designed according to the database, taking notice of all the requirements in the project and applying them to develop an "**Speech to Action**" application. Thus, referencing to the Wireframes generated the early stage of an application is the developed.

After then tables are created in the database that have been built using the help of ERD (Entity Relationship Diagram) study before coding so that it incorporate all of the ERD table's database features that are essential while programming. However, for this project, it requires a real-time database that is built on Firebase and does not require an ERD to be implemented. For the project's backend, Java programming was used with JSON, and XML files were used for creating user interface layout process, resulting in the frontend.

Last but not the least, during the development of this application many alternatives methods were considered. First and foremost, a requirements analysis was initiated in order to identify and implement what application will be built in. Furthermore, data design was completed prior to the development of any tool. Data modeling was also done using UML diagrams, which helped to determine how data will be arranged across the system and what types of entities will be added to provide greater functionality.

7.4 Test Cases

The testing is done to check the performance of an application and how it functions. The test results of the “Improve Speech” application is illustrated below:

1. Test 1

Objective	To test fields with empty data in login page
Expected Result	Error message should be displayed
Actual Result	Error message displaying Username and Password field is required
Conclusion	Pass

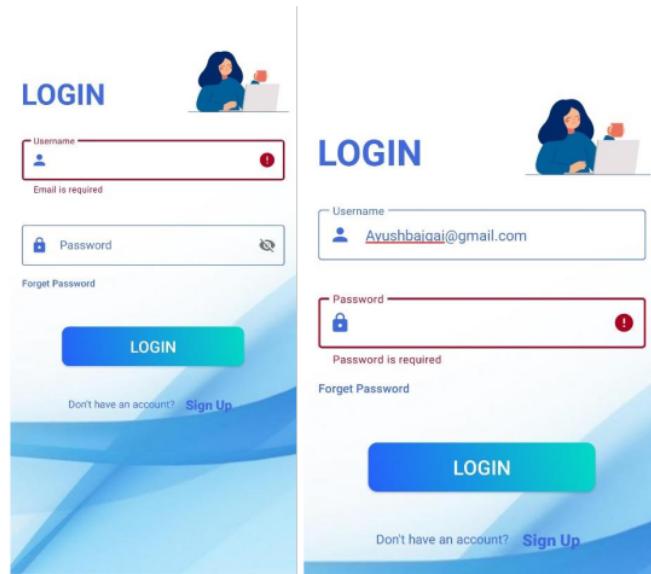


Fig 7.4.1: (Test 1) Empty field required message

2. Test 2

Objective	To test user can login with invalid email and password
Expected Result	Error message should be displayed
Actual Result	Error message displaying Invalid Username and Password
Conclusion	Pass

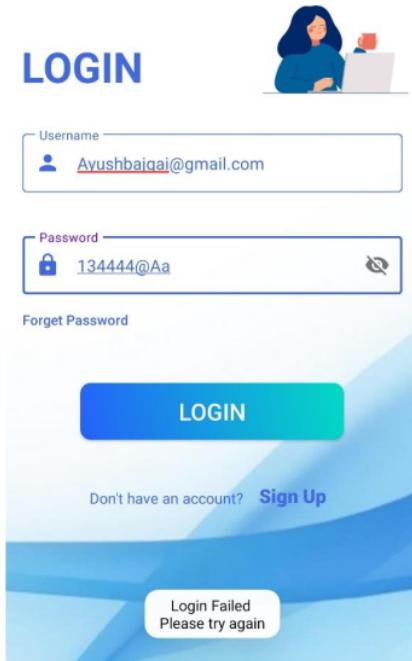


Fig 7.4.2: (Test 2) Login Failed Message

3. Test 3

Objective	To test fields of password validation in login page
Expected Result	Error message should be displayed
Actual Result	Error message displaying : <ul style="list-style-type: none">• Password must contain 1 capital letter• Password must contain 1 small letter• Password must contain 1 numeric value• Password must contain 1 special character• Password shouldn't be less than 6 characters
Conclusion	Pass

The figure consists of four separate screenshots of password input fields, each with a red border and a red exclamation mark icon in the top right corner. The first two screenshots are grouped together at the top left, and the last two are grouped together at the bottom right.

- Top Left Screenshot:** The password field contains "123". Below it, the error message "Password can't be less than 6" is displayed in red.
- Top Right Screenshot:** The password field contains "134444". Below it, the error message "Required at least 1 special character" is displayed in red.
- Bottom Left Screenshot:** The password field contains "134444@". Below it, the error message "Required at least 1 capital letter" is displayed in red.
- Bottom Right Screenshot:** The password field contains "134444@A". Below it, the error message "Required at least 1 small letter" is displayed in red.

Fig 7.4.3: (Test 3) Password validation error message

A screenshot of a username input field. The field contains "Hdhdhshs". Below it, the error message "Invalid email address" is displayed in red.

Fig 7.4.4: (Test 4) Invalid email error message

4. Test 4

Objective	To test fields of email validation
Expected Result	Error message should be displayed
Actual Result	Error message displaying: <ul style="list-style-type: none"> • Invalid email address
Conclusion	Pass

The image shows a mobile application's registration screen. It consists of five input fields, each with an error message indicating it is required:

- First Name:** An empty red-bordered field with a red exclamation mark icon. Below it, the message "First name is required" is displayed.
- Last Name:** A blue-bordered field containing the text "Hello". To its right is a red exclamation mark icon. Below it, the message "Last name is required" is displayed.
- Email:** An empty red-bordered field with a red exclamation mark icon. Below it, the message "Email is required" is displayed.
- Password:** A blue-bordered field with a red exclamation mark icon. Below it, the message "Password is required" is displayed.
- Contact Number:** A blue-bordered field containing the text "+977". To its right is a red exclamation mark icon. Below it, the message "Phone number is required" is displayed.
- Address:** An empty red-bordered field with a red exclamation mark icon. Below it, the message "Address is required" is displayed.

Fig 7.4.5: (Test 5) Field required error message

5. Test 5

Objective	To test fields with empty data in Register page
Expected Result	Error message should be displayed
Actual Result	Error message displaying:

	<ul style="list-style-type: none"> • First Name is required • Last Name is required • Username is required • Password is required • Confirm password is required • Contact number is required • Address is required
Conclusion	Pass

Email

!

Email is already taken

Fig 7.4.6: (Test 6) Email taken error message

6. Test 6

Objective	To test the user trying to register with same email address
Expected Result	Error message should be displayed
Actual Result	Error message displaying :
	<ul style="list-style-type: none"> • Email has already been registered
Conclusion	Pass

Password

!

Password can't be less than 6

!

Required at least 1 special character



Fig 7.4.7: (Test 7) Register password validation error message

7. Test 7

Objective	To test fields of password validation in register page
Expected Result	Error message should be displayed
Actual Result	Error message displaying : <ul style="list-style-type: none">• Password must contain 1 capital letter• Password must contain 1 small letter• Password must contain 1 numeric value• Password must contain 1 special character• Password shouldn't be less than 6 characters
Conclusion	Pass



Fig 7.4.8: (Test 8) Confirm password not matched error message

8. Test 8

Objective	To test confirm password and password when written incorrectly
Expected Result	Error message should be displayed
Actual Result	Error message displaying: <ul style="list-style-type: none">• Confirm Password not matched
Conclusion	Pass



Fig 7.4.9: (Test 9) Invalid phone number error message

9. Test 9

Objective	To test fields of contact number validation
Expected Result	Error message should be displayed
Actual Result	Error message displaying: <ul style="list-style-type: none">• Invalid phone number
Conclusion	Pass

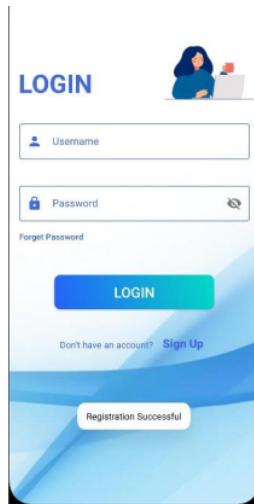


Fig 7.4.10: (Test 10) Registration Successful message

10. Test 10

Objective	To test user registered
Expected Result	Success message should be displayed and redirects user to Login page
Actual Result	Success message displaying: <ul style="list-style-type: none">• Registration Successful
Conclusion	Pass

11. Test 11

Objective	To test user login credentials
Expected Result	Success message should be displayed and redirects user to Dashboard page

Actual Result	Success message displaying: <ul style="list-style-type: none"> • Login Successful
Conclusion	Pass



Fig 7.4.11: (Test 11) Login Successful message

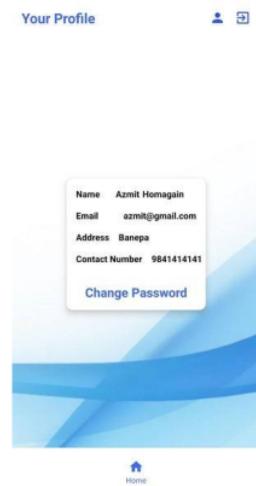


Fig 7.4.12: (Test 12) View user info

12. Test 12

Objective	To test user can view their profile
Expected Result	User can view their details on profile page
Actual Result	Displays user profile and information
Conclusion	Pass

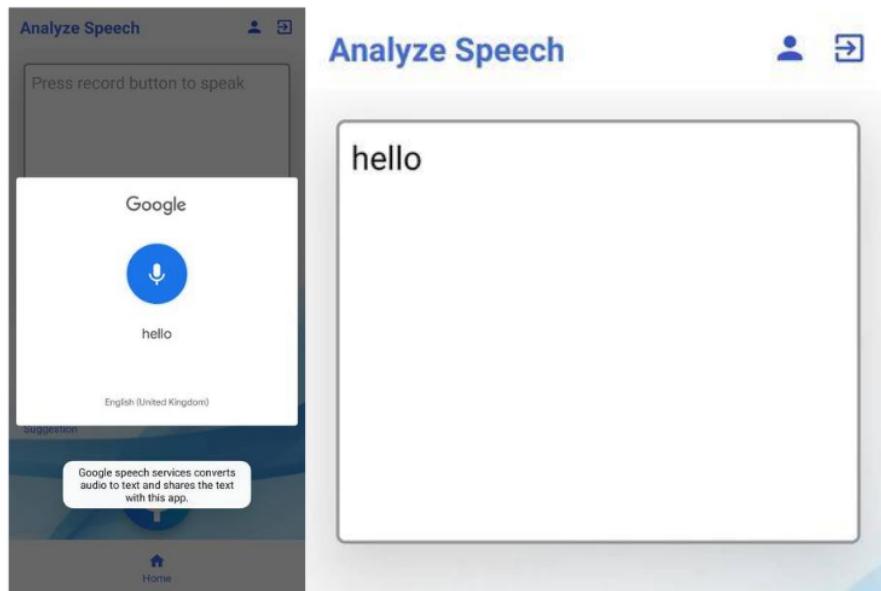


Fig 7.4.13: (Test 13) Transcribes speech to text

13. Test 13

Objective	To test user speech can be transcribe to text
Expected Result	User voice should be transcribed to text input

Actual Result	Successfully transcribes user speech into text form
Conclusion	Pass

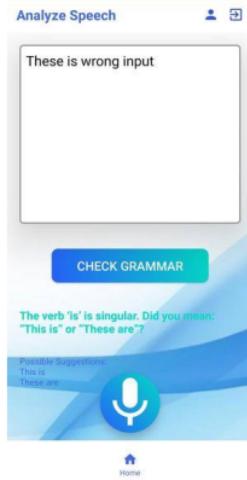


Fig 7.4.14: (Test 14) Displaying description and suggestions

14. Test 14

Objective	To test user grammar
Expected Result	Clicking on Check Grammar button provides description and suggestions to user grammar
Actual Result	Successfully provides suggestions and description message to the user
Conclusion	Pass

15. Test 15

Objective	To test user can view their report
-----------	------------------------------------

Expected Result	User can view their profile on View Report page
Actual Result	Displays Report to user
Conclusion	Pass



Fig 7.4.15: (Test 15) Displaying User grammar reports

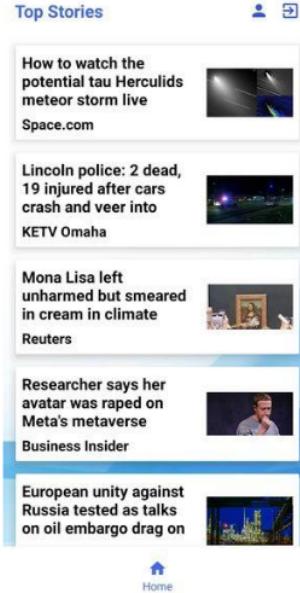


Fig 7.4.16: (Test 16) Displaying News reports

16. Test 16

Objective	To test user can view top stories
Expected Result	User can view top stories on Top Stories page
Actual Result	Displays top stories to user
Conclusion	Pass

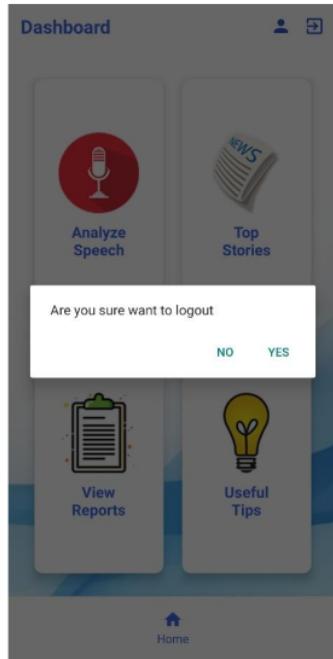


Fig 7.4.17: (Test 17) Logout message

17. Test 17

Objective	To test user should terminate from the system
Expected Result	Clicking on exit icon and again clicking on Yes message logs out from the system and redirects user to login page
Actual Result	Logs the user out from the system
Conclusion	Pass

EVALUATION

8.1 Product Evaluation

The final product contains all initial project plans including modal verbs, ability to detect speech as well as its other features, such as notifying users of unrecognized voice, checking for breathe pause, filter words and correct grammatical errors. It also provides suggestions on improvement of effectiveness and simplicity for other to read and understand the content. Not only that, the product is designed to reduce hassle of tedious logging in and registering process with simple and easy procedures. Once the details are verified to the credentials in database, users are freely allowed access the feature of the application. On other hand, if the login details didn't match an error it reports the user stating what have happened and also have the ability to retrieve the account if the password is forgotten. The product also provides top stories section as well as view reports section to view reports of previously analyzed speeches. Inclusion of useful tips also work towards sharpening user's speech ability. Once in 'Analyze Speech' section user can simply press record button and speak their hearts out and at last they can view suggestions on the speech above and also can check grammar of the speech provided. Furthermore, this application uses Google Speech Recognition insuring accuracy with minimum false positive. The application also provide user with their own profile where one can view their information's provided and also provide the feature to change their password. Also, the Test Cases (i.e. Title 7.4) describes and evaluates the feature of the product that has been implemented.

The product was developed to small number of people to use and to captivate their opinion. The findings indicate that users are quite satisfied with the application, as seen by a high return rate and the majority of users' declarations that they are very likely to suggest this app to their close friends and family members. The application was finally deployed with testing and the database server and front-end all work as intended.

8.2 Project Evaluation

The project after deployment is concluded finished and have slightly more functionality in compare to other similar app. The initiative is chosen and targeted because it helps persons with poor public speaking self-esteem and grammar fear. To solve these problem the project act as a crucial step by providing hands on practice and provide feedback of errors made by the user. On top of that, the project also provide reports of previous speeches so the user can improve anywhere. Moreover, the project deals with android system so eliminating hassle of using beefy computing power and provide environment so that a user can practice whenever and wherever. Every methodologies of this project is important block to form an effective and accurate working product. The only requirement for this project for a user is to have an android device and a suitable internet connection. Other plus point of this project is that it is built from scratch so have a very user-friendly environment and also very gentle on system resources. The project is a simple yet very effective intake to single-handedly solve the problems of having low public speaking confidence and make everyone grammatical wizard. The target point of this project is its simplicity and ability to improve individuals speaking skills without any personalized assistance. Its development from scratch have also make sure that the application become lightweight, responsive in different android devices. The administration have full access over the app and is very swift with patch and update. Due to the fact that the project was constructed from the ground up, all of the permissions connected with it are held by the developer; thus, updates, permits, and copyright issues may be simplified.

Thus, the positive aspect of this project conceal its short coming making this project one of the best choice of anyone willing to improve their public speaking.

8.3 Limitation

However, there are certain restrictions associated with the use of this product. The program is aimed for users who are interested in enhancing their ability to communicate effectively in public places. It is able to determine an unfamiliar language if the individual's tone does not correspond to their voice. It is necessary for the user to practice in a quiet environment so that the Analyze speech feature does not pick up on any background noise. In addition, the system does not alert the user when they have used perfect grammar since it is only concerned with the mistakes that a person makes.

8.4 Appendix A (Meeting Record)

School of Computing, Creative Technologies and Engineering 2021/22		Level 6 Production Project	
MEETING RECORD SHEET:			
Student: Ayush Bajaj		Meeting Number: 1	
Student I.D.: 7722151		Date of Meeting: 21st Feb, 2022 Supervisor: Seraf Shakya	
Actions agreed at previous meeting (completed or comment):			
1	<input type="checkbox"/>		
2	<input type="checkbox"/>		
3	<input type="checkbox"/>		
4	<input type="checkbox"/>		
5	<input type="checkbox"/>		
6	<input type="checkbox"/>		
Comments of student (if any):			
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting.</small>			
Next meeting (date/time):			
Agreed Actions to complete before next meeting:			
1	Topic feasibility		
2			
3			
4			
5			
6			
Comments of supervisor (if any): 			

Fig 8.4.1: Meeting Record 1

School of Computing, Creative Technologies and Engineering 2021/22 Level 6 Production Project			
MEETING RECORD SHEET: Meeting Number: 2			
Student: Arvish Boraqai	Student I.D.: 77227151	Actions agreed at previous meeting (completed or comment):	
Date of Meeting: 11 th March 2023	Supervisor: Sajid Shabana	1 Topic feasibility <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of student (if any):			
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting.</small> Next meeting (date/time): Agreed Actions to complete before next meeting: 1 Background study of existing systems 2 Requirement gathering 3 UML diagram 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>			
Comments of supervisor (if any):			

[Handwritten signature]

Fig 8.4.2: Meeting Record 2

School of Computing, Creative Technologies and Engineering 2021/22 Level 6 Production Project			
MEETING RECORD SHEET: Meeting Number: 4			
Student: Arvish Boraqai	Student I.D.: 77227151	Actions agreed at previous meeting (completed or comment):	
Date of Meeting: 24 th March, 2023	Supervisor: Sajid Shabana	1 UML diagram requirement <input checked="" type="checkbox"/> 2 Class diagram <input type="checkbox"/> 3 Block flow diagram <input checked="" type="checkbox"/> 4 Sequential diagram <input type="checkbox"/> 5 Illustration of diagram in report <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of student (if any):			
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting.</small> Next meeting (date/time): Agreed Actions to complete before next meeting: 1 Demonstration of use of UML diagram 2 Demonstration of Class diagram 3 Illustration of diagram in report 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>			
Comments of supervisor (if any):			

[Handwritten signature]

Fig 8.4.3: Meeting Record 4

School of Computing, Creative Technologies and Engineering 2021/22	
Level 6 Production Project	
MEETING RECORD SHEET: Meeting Number: 5	
Student: Aayush Baigani	Student I.D.: 71227151
Date of Meeting: 31st May, 2022	Supervisor: Savoj Shakya
Actions agreed at previous meeting (completed or comment):	
1 Demonstration of use of UML diagram <input type="checkbox"/> 2 Demonstration of use of Class diagram <input checked="" type="checkbox"/> 3 Illustration of diagram in report <input checked="" type="checkbox"/> 4 UML notation <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of student (if any):	
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting.</small>	
Next meeting (date/time):	
Agreed Actions to complete before next meeting:	
1 UI design 2 Prototype modeling 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of supervisor (if any):	
	

Fig 8.4.4: Meeting Record 5

School of Computing, Creative Technologies and Engineering 2021/22	
Level 6 Production Project	
MEETING RECORD SHEET: Meeting Number: 7	
Student: Aayush Baigani	Student I.D.: 71227151
Date of Meeting: 7th May, 2022	Supervisor: Savoj Shakya
Actions agreed at previous meeting (completed or comment):	
1 Report writing strategy <input type="checkbox"/> 2 Product Progression <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of student (if any):	
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting.</small>	
Next meeting (date/time):	
Agreed Actions to complete before next meeting:	
1 Demonstrate of product progression 2 Demonstrate of report progression 3 Report writing (Topic wise discussion) 4 Turnitin Issues 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of supervisor (if any):	
	

Fig 8.4.5: Meeting Record 7

School of Computing, Creative Technologies and Engineering 2021/22	
Level 6 Production Project	
MEETING RECORD SHEET: Meeting Number: 8	
Student: Ayush Baigai	Student I.D.: 77227151
Date of Meeting: 12 th May 2022	Supervisor: Sajal Shakya
Actions agreed at previous meeting (completed or comment):	
1 Demonstration of product progression <input checked="" type="checkbox"/> 2 Demonstrate of report writing <input checked="" type="checkbox"/> 3 Turnitin issues <input checked="" type="checkbox"/> 4 Topic wise discussion of the report <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of student (if any):	
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete AT the Meeting</small>	
Next meeting (date/time):	
Agreed Actions to complete before next meeting:	
1 Report writing (Level of similarity) 2 Discussion & preparation of presentation slides 3 4 5 6	
Comments of supervisor (if any):	
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting</small>	

Fig 8.4.6: Meeting Record 8

School of Computing, Creative Technologies and Engineering 2021/22	
Level 6 Production Project	
MEETING RECORD SHEET: Meeting Number: 9	
Student: Ayush Baigai	Student I.D.: 77227151
Date of Meeting: 26 th May 2022	Supervisor: Sajal Shakya
Actions agreed at previous meeting (completed or comment):	
1 Level of similarity <input type="checkbox"/> 2 Turnitin issues <input checked="" type="checkbox"/> 3 Discussion & preparation of presentation slides <input checked="" type="checkbox"/> 4 Required documents for submission <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>	
Comments of student (if any):	
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting</small>	
Next meeting (date/time):	
Agreed Actions to complete before next meeting:	
1 Report writing (required topic & marking) 2 3 4 5 6	
Comments of supervisor (if any):	
<small>ABOVE here - student to complete before Meeting with supervisor. BELOW here - complete at the Meeting</small>	

Fig 8.4.7: Meeting Record 9

School of Computing, Creative Technologies and Engineering 2021/22		
Level 6 Production Project		
MEETING RECORD SHEET:		Meeting Number: 10
Student: Aswush Baisai	Student I.D.: 772293151	
Date of Meeting: 24th June 2022	Supervisor: Svej Shakyia	
Actions agreed at previous meeting (completed or comment):		
1	Report writing required topics & marking	<input checked="" type="checkbox"/>
2	Preparation for presentation of my product	<input type="checkbox"/>
3		<input type="checkbox"/>
4		<input type="checkbox"/>
5		<input type="checkbox"/>
6		<input type="checkbox"/>
Comments of student (if any):		
<p>.....</p> <p>.....</p> <p>.....</p>		
<small>ABOVE here – student to complete before meeting with supervisor. BELOW here – complete at the meeting.</small>		
Next meeting (date/time):		
Agreed Actions to complete before next meeting:		
1		
2		
3		
4		
5		
6		
Comments of supervisor (if any):		
<p>.....</p> <p>.....</p> <p>.....</p>		

Fig 8.4.8: Meeting Record 10

8.5 Appendix B (Ethical Consent Form)

STAGE 1 - RESEARCH ETHICS APPROVAL FORM

Research by students and staff at the University must receive ethical approval before any data collection commences. Applications may be made on the Research Ethics Online system or via approval forms.

If using the approval forms, applicants complete this Stage 1 - Research Ethics Approval Form which includes the Risk Checklist.

For student projects classified as Risk Category 1 (e.g., many literature reviews), these can be approved on this Stage 1 – Research Ethics Approval Form by the Research Supervisor.

Applicants whose research studies are classified as Risk Category 2 or 3 must also complete and submit the separate Stage 2 - Research Ethics Approval Form.

Guidance for completion of this form and the application process is provided on pages 3 and 4.

APPLICANT DETAILS	
Your name (if a group project, include all names)	Ayush Bajgai
School	The British College
STATUS	
• Undergraduate student	<input checked="" type="checkbox"/>
• Taught Postgraduate student	<input type="checkbox"/>
• Research Postgraduate student	<input type="checkbox"/>
• Staff member	<input type="checkbox"/>
• Other (give details)	
IF THIS IS A STUDENT PROJECT	
• Student ID	77227151
• Course title (eg. BA (Hons) History)	Bsc. Hons Computing
• Student email	ayushbajgai@gmail.com
• Research Supervisor's name Or Director of Studies' name	Saroi Shakya
THE PROJECT/STUDY	
Project /study title	Improving presentation and public speaking skills by analyzing speech
Start date of project	01/22/2022
Expected completion date of project	04/15/2022
Project summary – please give a brief summary of your study (maximum 100 words) The project aims at the development of an android application for the users who really want to improve their presentation skills. An app is designed such a way that it is interactive, supportive, clean and easy to navigate. This app will feature real-time data on what individuals are trying to convey or say, as well as gap filters and corrects the repetition of words. It will also check for words that aren't supposed to be there and filters them. It also analyzes user's speech and checks its punctuality, clarity, accuracy and provides reports to the users. This app can increase the impact of what the speaker is trying to express while allowing the listener to focus on the topic itself.	
CONFIRMATION STATEMENTS	
The results of research should benefit society directly or by generally improving knowledge and understanding. Please tick this box to confirm that your research study has a potential benefit. If	<input checked="" type="checkbox"/>

Fig 8.5.1: Ethical Consent Form Page 1

<i>you cannot identify a benefit you must discuss your project with your Research Supervisor to help identify one or adapt your proposal so the study will have an identifiable benefit.</i>	<input type="checkbox"/>
Please tick this box to confirm you have read the Research Ethics Policy and the relevant sections of the Research Ethics Procedures and will adhere to these in the conduct of this project.	<input checked="" type="checkbox"/>

RISK CHECKLIST - Please answer ALL the questions in each of the sections below – tick YES or NO		YES	No
WILL YOUR RESEARCH STUDY.....?			
1	Involve direct and/or indirect contact with human participants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Involve analysis of pre-existing data which contains personal or sensitive information not in the public domain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Require permission or consent to conduct?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Require permission or consent to publish?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Have a risk of compromising confidentiality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Have a risk of compromising anonymity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Collect / contain sensitive personal data?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	Contain elements which you OR your supervisor are NOT trained to conduct?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Use any information OTHER than that which is freely available in the public domain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Involve respondents to the internet or other visual/vocal methods where participants may be identified?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Include a financial incentive to participate in the research?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	Involve your own students, colleagues or employees?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Take place outside of the country where you are enrolled as a student, or for staff, outside of the UK?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	Involve participants who are particularly vulnerable or at risk?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	Involve any participants who are unable to give informed consent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	Involve data collection taking place BEFORE informed consent is given?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17	Involve any deliberate deception or covert data collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18	Involve a risk to the researcher or participants beyond that experienced in everyday life?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	Cause (or could cause) physical or psychological harm or negative consequences?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20	Use intrusive or invasive procedures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21	Involve a clinical trial?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
22	Involve the possibility of incidental findings related to health status?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
23	Fit into any of the following security-sensitive categories: concerns terrorist or extreme groups; commissioned by the military; commissioned under an EU security call; involves the acquisition of security clearances? If yes, see the guidance.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CLASSIFICATION	Tick the box which applies to your project
The following guidance will help classify the risk level of your study	
If you answered NO to all the above questions, your study is provisionally classified as Risk Category 1 (literature reviews will be Risk Category 1).	<input checked="" type="checkbox"/>

Fig 8.5.2: Ethical Consent Form Page 2

If you answered YES to any question from 1-13 and NO to all questions 14-22, your study is provisionally classified as Risk Category 2.	<input type="checkbox"/>
If you answered YES to any question from 14-22, your study is provisionally classified as Risk Category 3.	<input type="checkbox"/>
If question 23 has been answered YES, your application will be reviewed by the Chair of the University Research Ethics Sub-committee	<input type="checkbox"/>

DECLARATION AND SIGNATURE/S

I confirm that I will undertake this project as detailed above. I understand that I must abide by the terms of the approval and that I may not make any substantial amendments to the project without further approval.

Signed	Ayush Bojgai	Date	02/25/2022
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FOR RISK CATEGORY 1 STUDENT PROJECTS

Approval from the Research Supervisor or Director of Studies for a student project:

I have discussed the ethical issues arising from the project with the student. I approve this project.

Name	Saroi Shakya	Signed		Date	02/26/2022
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NEXT STEP

RISK CATEGORY 1 PROJECTS: IF YOUR PROJECT HAS BEEN CLASSIFIED AS RISK CATEGORY 1:

- Students: The Research Supervisor should return the signed form to the student and send a copy to the Local Research Ethics Co-ordinator and where relevant, the Research Module Leader, for information.
- Staff: Submit this form to your Local Research Ethics Co-ordinator.

RISK CATEGORY 2 OR 3 PROJECTS: IF YOUR PROJECT HAS BEEN CLASSIFIED AS RISK CATEGORY 2 OR 3 please complete the Stage 2 - Research Ethics Approval form and submit both forms together with supporting documentation.

QUESTION 23: If this question has been answered YES, your application will be reviewed by the Chair of the University Research Ethics Sub-committee, and the forms should be submitted directly to Professor Karl Spracklen, k.spracklen@leedsbeckett.ac.uk. You will need to submit the Security-sensitive research form available from the Research Ethics web page.

Research ethics application forms will be retained in the School for the purposes of quality assurance of compliance and audit for THREE years

NOTES FOR COMPLETION

University Research Ethics Policy and Procedures: The University Research Ethics Policy and Research Ethics Procedures should be read prior to commencing this application. Consideration of the application by the reviewer/s will be undertaken in accordance with the Policy and Procedures.

External requirements for the project: Applicants should consider if there are requirements by any relevant professional, statutory or regulatory body, or learned society, which may be relevant to the project or if the project also requires external approval.

Fig 8.5.3: Ethical Consent Form Page 3

Submission

- Student applicants: email the typed form/s to your Research Supervisor or Director of Studies.
- Staff applicants: email the typed form/s to your Local Research Ethics Co-ordinator.

How to complete the form

You can navigate through the form by using the tab keys. If you prefer to complete a normal Word document, you can unlock the form by selecting the 'Restrict Editing' button on the Developer tab, then click on 'Stop Protection'. The boxes should expand to allow space for your text.

Signatures

Electronic/typed signatures are acceptable for emailed forms, as the emails provide the audit trail for all parties' agreement and approval of the forms (e.g., student applicant → Research Supervisor → Local Research Ethics Co-ordinator).

Outcome

Applicants will be advised of the outcome of the application by receipt of the signed form from:

- The Research Supervisor or Director of Studies for Risk Category 1 student projects;
- The Local Research Ethics Co-ordinator or the School level group for Risk Category 2 and 3 projects.

YOU MAY ONLY BEGIN ANY DATA COLLECTION ONCE YOU RECEIVE NOTIFICATION THAT THE PROJECT HAS ETHICAL APPROVAL. If the circumstances of your research study change after approval it is your responsibility to revisit the Risk Checklist and complete a further application.

Advice

When completing the Stage 1 - Research Ethics Approval Form, if you are uncertain about the answer to any question, read the relevant section of the Research Ethics Procedures document, and if you are still unsure:

- if you are student, seek guidance from your Research Supervisor or Director of Studies;
- if you are a staff member, contact your Local Research Ethics Co-ordinator.

Fig 8.5.4: Ethical Consent Form Page 4

8.6 Appendix C (Risk Register)

RISK REGISTER

ID	Risk	Risk Description	Likelihood	Impact	Severity	Owner	Mitigation	Status
1.	Undefined project purpose	Project purpose is not well defined	5	2	Low	Ayush Bajgai	Proper research and counselling	Open
2.	Connection Loss	Loss of internet connection	5	1	Low	Ayush Bajgai	Using proper networking facilities	Close
3.	Performance risk	Improper results of the project	2	3	Medium	Ayush Bajgai	Full concentration by project developer	Close
4.	Operational risk	Operational failure on user end	1	3	Medium	Ayush Bajgai	Providing proper tutorial	Close
5.	Security failure	May loss of customer data	3	2	Low	Ayush Bajgai	Implementing proper security measures	Close
6.	Bug	May have a lot of bugs	5	2	Low	Ayush Bajgai	Testing and debugging	Open
7.	Insufficient User	Low number of targeted users	5	3	Medium	Ayush Bajgai	Proper market research	Open

Fig 8.6.1: Risk Register

SUMMARY AND CONCLUSION

In global era speaking is determined factor for success or failure, and one's public speaking ability determines that person's intelligence. However, this project "Speech to Action" works to eradicate this gap and make everyone able to speak their heart out without having fear of grammar errors and guide them toward speaking fluent and accurate speaking. This app's plus point is its dynamic nature as it is very easy to cope with and can change to any scenario required by the user. Once user installed this application "Speech to Action" they will see as their mandatory part of their life and one step towards their public speaking and high self-esteem. This app being coded using Java as main case of being dynamic and a general programming language. This application also collects development and management information making it easy to debug and trace step back. Furthermore, this app help nonnative English speaker to test and improve their speaking ability and practice without embarrassing themselves.

Hence "Speech to Action" as name suggest act upon your speech to improve and sharpen them so that user can have a fluent and accurate grammar to be proud of. Being written in Java and easy to understand and fun to learn interface is the best speech assistance available for now. Current portable innovation is increasing and penetrating many aspects of life, thus it plays an important role in learning knowledge (Altynbekova and Zhussupova, 2020). If anyone wants to improve their public speaking and fluency "Speech to Action" is their go-to application. With this application, any user can quickly improve their vocabulary and fluency. Last but not the least, the easiness and dynamic nature of this application will surely rank this application and targeted for many users worldwide. So, captivating this application is being one step closure to users dream fluency.

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Third

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