

Language Translator Application

Vinayak Vathare¹, Shreyash Belle², Shishir Tirth³, Prashant Nandiwale⁴, P. K. Karve⁵

Students^{1, 2, 3, 4}, Professor⁵

Department of Computer Science Engineering

Sharad Institute of Technology Polytechnic Yadray, India

Corresponding Author's Email: - vinayak.vathare2004@gmail.com¹

Abstract

Language translator is a mobile application that can be utilized for translating from one language to another. The problem of language difference has hindered effective information communication over the years. This traditional approach used for solving the problem of language differences has not been productive and favorable. The study develops an android language converter app in order to make learning and language translation easy and facilitates stress-free communication. The system will also be able to evaluate language translation to determine their suitability for everyday conversation.

Keywords: *Language Translator, Mobile Application, Stress-Free Communication*

INTRODUCTION

Over the years, language differences have complicated the meaningful transmission of information. To date, the only way to translate has been for 'human translators' to study many languages and attempt to interpret and bridge language boundaries for various purposes.

The complexities of the characters may certainly put even the most modern

technology to the test. Translation applications may be lifesavers when you're travelling and are surrounded by people who speak or read a language you don't understand.

As a result, we have built an android-based project written in JAVA to aid learning and language translation while also facilitating stress-free communication.

SCOPE AND OBJECTIVE

Using translation apps is an effective technique to break down language barriers and ensure communication among people who speak various languages. There are numerous benefits to using a translation tool, whether the communication is as simple as a message between friends or as complex as conducting business or travelling overseas. Translation services are critical for building strong ties between organizations from various nations. These linguists have the skills and credentials to ensure a high-quality translation. The translation app is capable of providing a clear translation in a timely manner and translating complex subjects.

METHODOLOGY

For text translation, the Translation App uses Google Translate API to translate entered text or message into a selected language. For instance, if the user entered text in English & translation language is selected as Marathi, the google translation API will translate it into the Marathi Language Users can switch languages; the user can enter the text in Hindi or Marathi or any other language. There is another option, if the user speaks any text or message, it will detect it and translate it into the selected language.

System Requirements

The Project application is loaded in Android Studio. We used Android Studio for Design and coding of project.

HARDWARE REQUIREMENT

Laptop or PC

- a Windows 7 or higher
- b I3 processor system or higher
- c 8 GB RAM or higher
- d 100 GB ROM or higher

Software Requirement

1. Laptop or PC
2. Android Studio

Modules and their Description

The system comprises 4 major modules with their sub-modules as follows:

Home Screen

1. Text- The user can translate any text they want.
2. Picture- The user can translate any object or text on the picture

Text Translation Module

Translation

- Choose the Source & Language to be translated in.
- Type text from the keyboard.
- If the source language selected is not downloaded offline to type from the

keyboard, the system will guide you to download.

- Translated text can listen through the speak button.
- It will automatically correct grammar and spelling for the English language only.

Conversation

- Choose 2 languages
- Use Speech to have a conversation
- The speech is converted into text, translated, and converted back to speech for the other person to hear in the translated language and vice versa.

PICTURE TRANSLATION MODULE

Object Detect

- Capture or choose any photo of an object.
- By default, Source Language will be English.
- Choose the Language to translate the result.
- Speak option available.

Text Detect

- Capture or choose any photo to translate the text in that Photo.
- By default, Source Language is English.
- Choose the Language to translate the result.

- Speak option is available.

PROPOSED SYSTEM

- For text translation, the Translation App uses Google Translate API to translate entered text or message into a selected language. For instance, if the user entered text in English & translation language is selected as Marathi, the google translation API will translate it into the Marathi Language.
- Users can switch languages; the user can enter the text in Hindi or Marathi or any other language. There is another option, if the user speaks any text or message, it will detect it and translate it into the selected language. For entering any language text or message users have to install that particular language keyboard.
- The app will automatically do the grammar and spelling check for the English language only.

- For picture translation, the system uses Object Detection from Google Cloud vision API to recognize the object and it is a part of Machine Learning (ML). Similarly, for Text on pictures, we are using Text Detection from Google

Cloud vision API to recognize the Text, and it is also part of ML.

- Another option is available here; the same user must pick the image on which text is accessible, and that text or message will be transformed into the specified language.

FUTURE SCOPE

Conveying the data to the app source language message into the target language accurately and in a way that makes sense for the target audience cost will be very efficient as compared to storing all the customer data on the spreadsheet or

physically in the record books. Translation App is design as an easy way. So, maintenance is also easy.

Features

Since the system will be available only the admin logs in the amount of load on server will be limited to time period of admin access. Records can be easily accessed and store and other information respectively. Our project website/application will be giving very user-friendly approach for all users. Maintaining the all secured and database on the server which will be accessible according the user requirement without any maintenance

PROJECT LIFECYCLE DETAILS

Waterfall Model



The Waterfall Model is a linear sequential flow. Which progress is seen as flowing steadily downwards (like a waterfall) through the phases of software implementation. This means that any phase in the development process begins only if the previous phase is complete. The waterfall approach does not define the process to go back to the previous phase to handle requirement changes. The waterfall approach is the earliest approach that was used for software development.

Overview of Technologies Used

Introduction to Android

Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA. On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps, such as:

- A flexible Gradle-based build system
- A fast and feature-rich emulator
- A unified environment where you can develop for all Android devices
- Instant Run to push changes to your running app without building a new APK
- Code templates and GitHub integration to help you build common app features and import sample code

- Extensive testing tools and frameworks
- Lint tools to catch performance, usability, version compatibility, and other problems
- C++ and NDK support
- Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine.

Existing System & Proposed System

Problem with the current scenario

- The complexities of the characters certainly put even the most modern technology to the test.
- There are often mistakes with translated words, particularly with grammar, structure, and context.

Drawbacks of the existing system

1. This conventional method of resolving the problem of linguistic variations has not been fruitful or beneficial.
2. The traditional techniques used for translating have been proved lacking in terms of providing accurate translations.

Multiple APK Support

Multiple APK support allows you to efficiently create multiple APKs based on screen density or ABI. For example, you can create separate APKs of an app for the

hdpi and mdpi screen densities, while still considering them a single variant and allowing them to share test APK, javac, dx, and ProGuard settings.

Debug and Profile Tools

Android Studio assists you in debugging and improving the performance of your code, including inline debugging and performance analysis tools.

Inline debugging

Use inline debugging to enhance your code walk-through in the debugger view with inline verification of references, expressions, and variable values. Inline debug information includes:

- Inline variable values
- Referring objects that reference a selected object
- Method return values
- Lambda and operator expressions
- Tooltip values

CONCLUSION

In this paper, I described the brief introduction of our project Language Translator. Finally, we concluded that, this helps to remove language barrier between humans between humans a lot of knowledge about the development field. We hope this will prove fruitful to us.

REFERENCES

1. en.wikipedia.org
2. applications-and-research-pdf-free.html
3. https://www.researchgate.net/publication/350555260_Artificial_Intelligence_Based_Language_Translation_Platform
4. <https://www.hindustantimes.com/cities/mumbai-news/iit-bombay-designs-ai-based-translation-app-to-help-students-from-linguistic-minorities-101631632296794.html>