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Language Translator Application

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Abstract: ***A language translator is a mobile application that can be utilized for translating from one language to another. The problemof 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: Android application, ML Kit,Firebase, Java, XML.

I. INTRODUCTION

In communication, language has been a significant barrier for centuries now, and human beings have always tried to provide a solution to the issues of language translation.
Over the decade's humans have developed different ways of translating languages in other to solve the problems associated with language differences.
Real time world contains different significant messages, labels and useful information but most of them are written in different official languages which depend on the host country.
Besides that, it is inconvenient for a traveler to carry on their tasks in a foreign country if they don't understand the language used in that country.
They need to carry a pocket dictionary or use an online translation service in order to understand the message. Optical character recognition (OCR) has been introduced to simplify the digitization process for users. However, OCR is not able to translate scanned text images into different human readable languages.
Therefore, this paper proposed an Android-based application programming interface (API) developed using Firebase as an improvement text recognition program that is able to translate the scanned text images into language of user preference.
This proposed API processes text images, detects text from the scanned images, and translates the text into user-preferred languages.

II. LITERATURE SURVEY

1) *Paper[1]:* The Author aims to create a mobile application for Indonesian and Madurese translators using RESTful API with JSON data format.In order to build a translator system that can be used by all platforms, including Android, a web service must be created. Web service isa standard and a programming method for sharing data between several applications.
2) *Paper[2]:* This paper talks about language translator where most of the population don't understand language and area unit unable to speak effectively with the deaf. Therefore, the deaf realize it tough to converse with folks on daily to day basis, this issue are often solved through asmartphone application.
3) *Paper[3]:* This research work proposes a portable and 24x7 available system with support for bidirectional translation i.e. from sign language to speech and speech to sign language. The mobile application will give normal speech output as audio and text and sign language output asa 3D animated video sequence, with the help of Unity3D.
4) *Paper[4]:* According to the research results, there are some recommendation on this system to fulfil the needs and requirements of the end-users. In future, new improvements can be implemented on this application where the upgraded versions can provide the user to access more languages for translation. Moreover, online functions can be added to provide more updated information.

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5) *Paper[5]:* This device basically can be used by people who do not know English and want it to be translated to their native language. e. It involves extraction of text from the image and converting the text to translated speech in the user desired language.
6) *Paper[6]:* In this paper, authors developed and introduced an Android- based framework that translates the American Sign Language to a text that can be used anywhere. The mobile camera shots the picture, and skin segmentation is achieved using YCbCr systems. Features are extracted from the image using HOG and list to recognise the symbol. Using the Support Vector Machine (SVM), the classification was completed.
7) *Paper[7]:* In this paper, author developed an English to Igbo Language Translation Natural Language Processing System in Android. The Design Word, Reference System, and Decoder were performed in Microsoft Hub.
8) *Paper[8]:* In this paper, authors developed an Android-based program that could precisely translate the sign language transmitted in written language by deaf voice. The conversion process starts with the OpenCV hand recognition and the conversion of the K-NN classification hand signals. In this program, the demonstration functions were introduced to teach users intensively the use of sign language.
9) *Paper[9]:* The new English Text to Multilingual Speech Translator using Android (T2MSTA) is designed to help people who lack the power to talk or non-native speakers and individuals who do not share a common dialectal.
10) *Paper[10]:* In this paper the author talks about Android Platform for Machine Translation -A Focus on Yorùbá Language. Which was developed on a mobile platform for easier accessibility, convenience, and portability? RST (Rough Set Theory) is the mathematical tool used in decision support and data analysis of words or phrases to be translated.

Base Paper
Andriod language translator application :It is an android based application where we will be implementing language translator which helps toursits, people who are dumb and deaf and the people travelling between states in India.

III. PROBLEM IDENTIFICATION

As observed in the literature survey most of the projects implemented till date are all concentrated on providing the application which uses network and any one of the functionality might have an issue and google uses internet for translation. So in order to extend this we have come up with the project which provides complete working modules which doesn't uses network and translates to the user specified language.

IV. PROBLEM STATEMENT

To develop an android application for language translation that facilitates the user to understand unknown languages.

A. *Features of Proposed System*

In the proposed system where we will be implementing translation with all the functionalities like scanning text, speech recognition and translates the text and includes the languages which are popular in our country as well as popular all over the world. The advantage of this application is it doesn't require internet connectivity.

B. *Objectives*

To develop the language translator in order to understand unknown languages
To convert image to text with firebase optical character recognition, translate to user specific language
To convert voice to text, translating to user specific language.
User specific language as input text and translate to user interested language that support firebase.

V. METHODOLOGY

A. *System Architecture*

System architecture shows the overall flow of the project and how the one system component is connected to other component and also the role of each component in the project.

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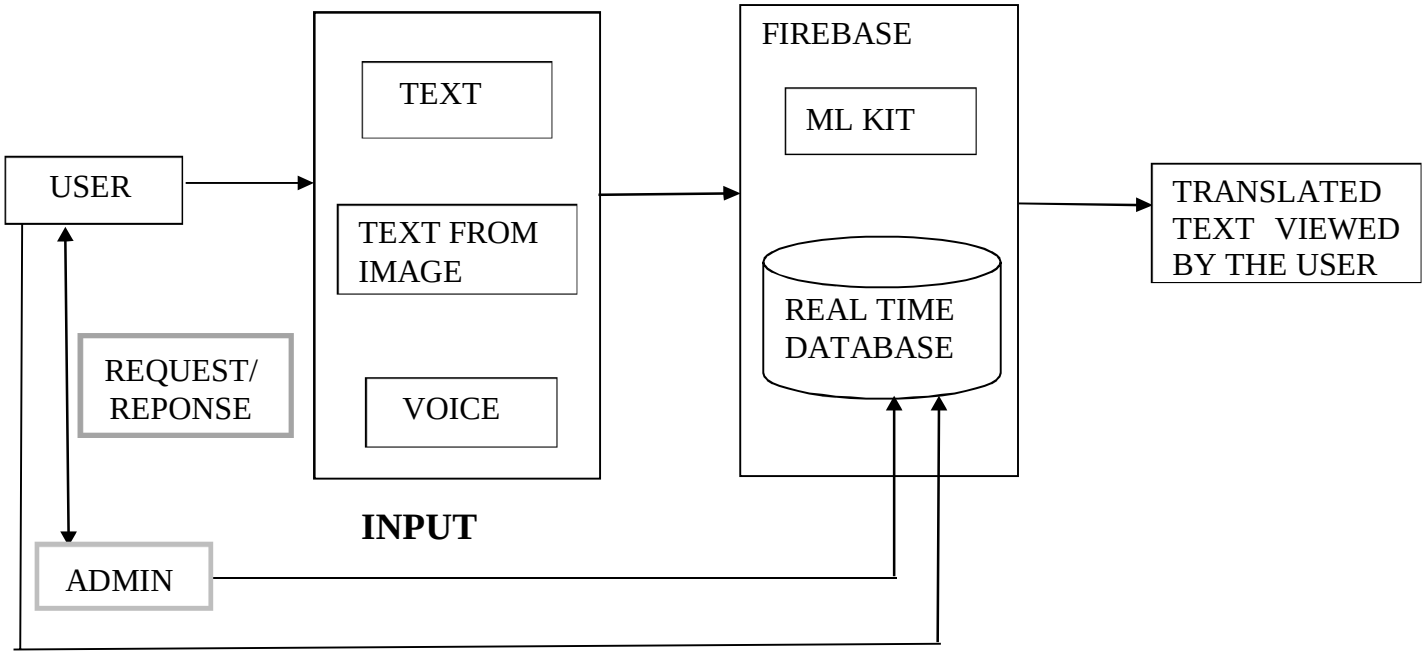


Fig 1. System Architecture

USER: First user will request through the application by choosing text or text from image or voice and the translator sends the request to the firebase and finally the user will get response from firebase.
ADMIN: Admin can view all the details of the registered users and the user send a request to admin in case if he/she had any issues with the application and the admin responds back to the user.

B. Snapshots

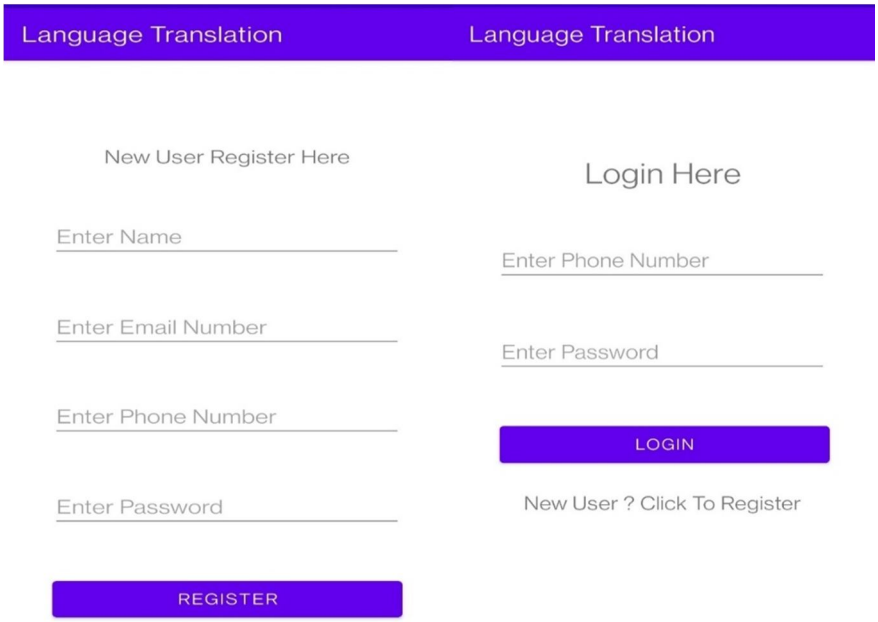


Figure 2: User Registration

Figure 3:User Login





Figure 4: Home Page

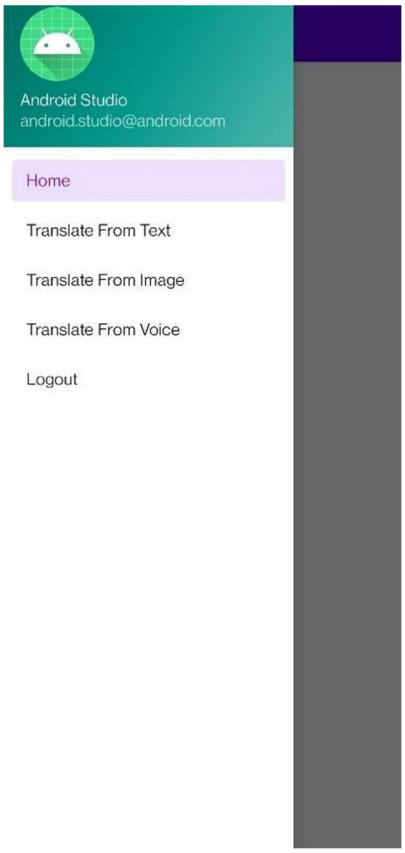


Figure 5: Functions Column

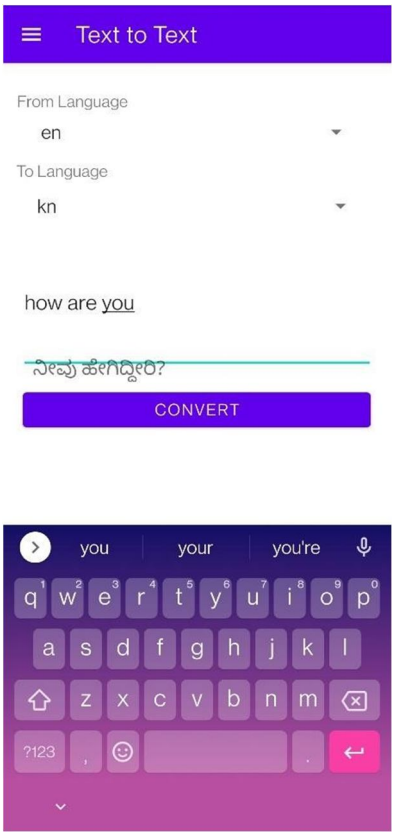


Figure 6: Text Conversion

Enter the text and select the language to which you want to translate and click on convert then you will be able to see the translated text in the result panel.



Figure 7: IMAGE TO TEXT



Figure 8 IMAGE CONVERSION

Select the image either from gallery or camera and the captured text will be converted to text.
Captured text from image will be directed to text area and then converts the text to which user

C. Specifies

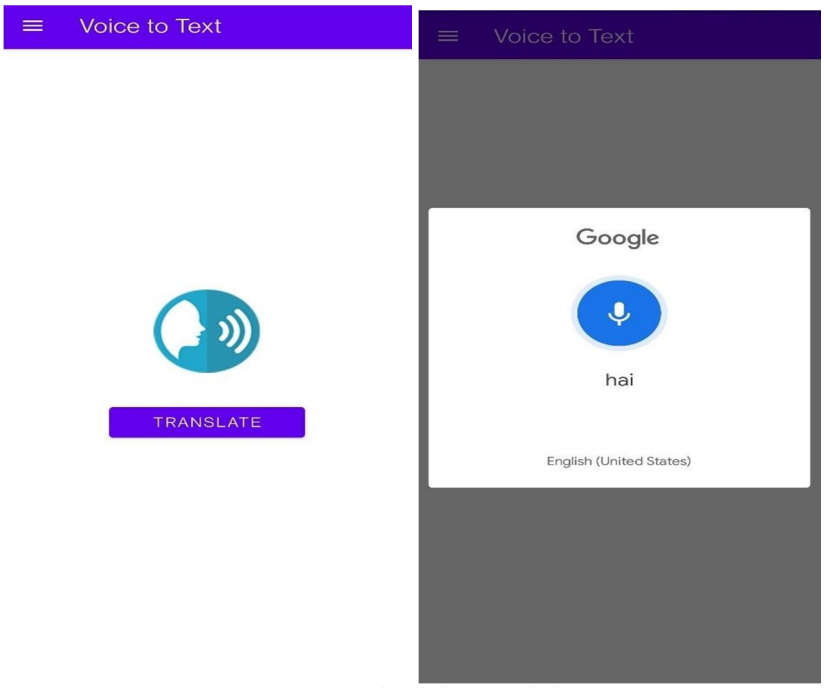


Figure 9: VOICE CONVERSION

Record the voice and then it changes to text and choose the language and click on convert then the result will be displayed.

VI. FUTURE SCOPE

1) The system can be further implemented by using the Machine Learning techniques for the voice recognizing other languages as well
2) The System can be extended to implement scanning the languages which are hand written and other scanned documents

VII. CONCLUSION

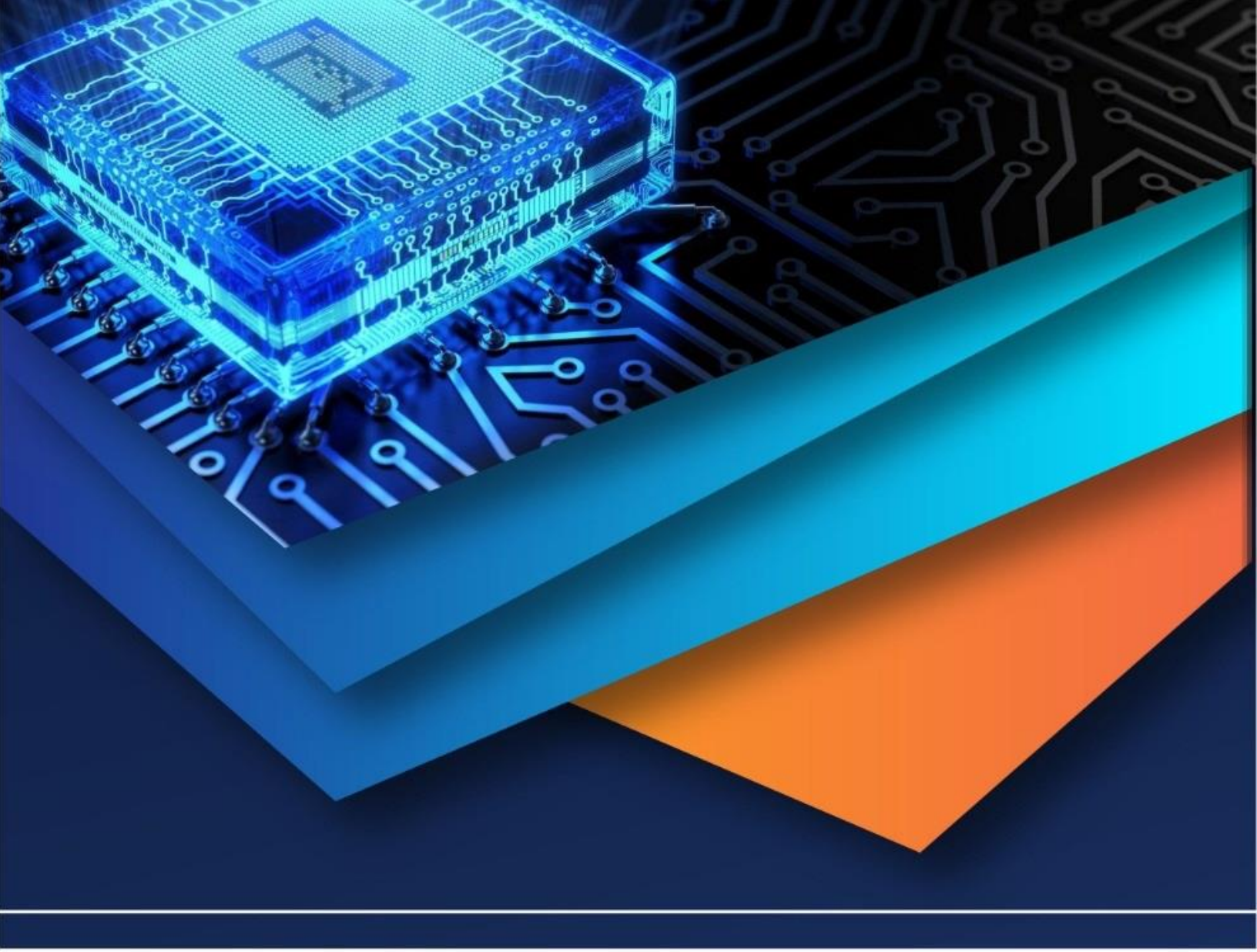
In the existing system, we have google translator which utilizes internet connectivity whereas internet may not be available all the time and there are also many android application available that may not support all the functionalities like scanning text, speech recognition and translates the text and which are applicable for specific and limited languages which are not useful for all the users. So here in the proposed system where we will be implementing translation with support all the functionalities like scanning text, speech recognition and translates the text and includes the languages which are popular in our country as well as popular all over the world.
The advantage of this application is it doesn't require internet connectivity.

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