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CONVERTIDOR

Safad Ismail

P.G Student,Computer Science and Engineering, Department of Computer Science and Engineering, RIT, Kottayam

Abstract – *Understanding regional languages in a country like India has been very difficult for foreigners. When there are many regional languages no one would be able to study all these languages, but it is necessary to understand the meaning of the text in that regional language when a person visit that region. This application focuses on eliminating this difficulty.*

Through this application CONVERTIDOR a user will be able to understand a regional language. This application translates the regional language to a person's native language and read out the text in native language. For translation a user has to take a picture of the text to be translated and this application will then extract the text data from that image and translate it to the user's native language and speak out the text in required language The application also helps users to read latest news in required language and also for text messaging in required language.

Keywords: *Extracting text, Translator, Speak out, News, Messaging*

1. INTRODUCTION

CONVERDITOR is a Multilingual enablement for extracting the text from an image and converting it into required language and speak out it This application doesn't require any other hardware other that a smartphone with internet facility. This application doesn't require an assistance from a third party for most users. It can even be used by blind people with proper assistance**.**

Organization: This paper mainly contains 5 chapters. 1st one is the introduction which gives a brief over view of the topic. Section 1.1 includes the background information. Chapter 3 discusses the related works and requirement specifications and chapter 4 contains the details of implementation of the system and various interfaces of the system. And finally the 5th chapter contains conclusions and future scope of the system.

1.1 BACKGROUND

Understanding regional languages in a country like India has been very difficult for foreigners. When there are many regional languages no one would be able to study all these languages, but it is necessary to understand the meaning of the text in that regional language when a person visit that region. Now for these foreigners require the help of a third party for this purpose. By the application convertidor this difficulty can be avoided. The application helps to understand the language which is unknown to the user.

II.OBJECTIVE

To capture an image of the text to be translated, extract the text from that image, translate the extracted text using a translator and to speak out the text that is translated.

How the objectives are to be tackled,

I. First taking the image of the text to be translated using a camera.
II. Captured image will be send to the server using internet.
III. In the server text will be extracted from the image using an OCR.
IV. Then by using translator, converting the text to native language.
V. Send the native language text back to the phone.
VI. Then by using a text to speech converter convert the text to speech and speak out the text using a speaker.

2.1 Existing system

At present scenario, there exist applications that extract image from text, translator applications and text to speech applications separately. Since they exist independently we can't use them in an efficient manner. User need to have all the above applications separately for obtaining efficient output.

2.2 Proposed system

The proposed system CONVERTIDOR combines the functions of image extraction, translation and text to speech. This application enables the user to get an efficient result using a single application. The application helps the user to get updated to the things happening around by providing the user with the latest news from different newspapers. It also enables the user to send a text message in the required language.

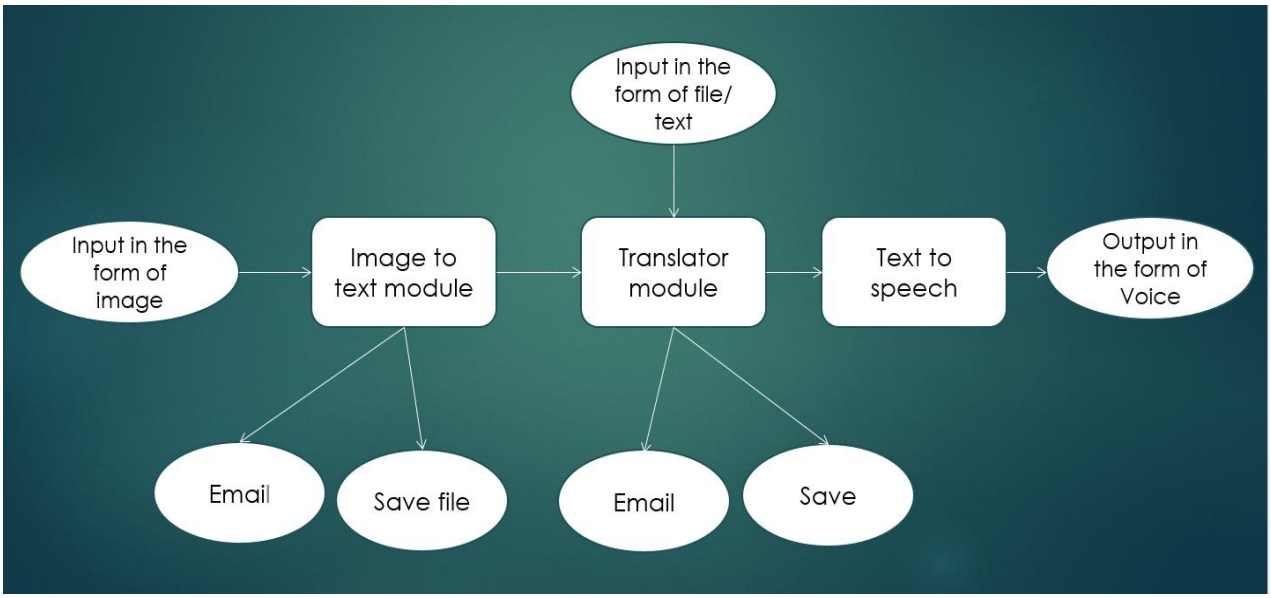


Fig 1 : Proposed Architecture of the system

2.3 PROBLEM DEFINITION

Understanding foreign languages has been a problem for many of the people visiting a foreign country. They find it difficult to understand the text written in foreign places. Our application focuses on solving this problem. Through this application a user can capture a foreign language text to the users native language and speak out the text. This application can even benefit blind people by reading out the text in his/her native language.

The main advantage of the system is that the only requirement is a smart phone no other hardware is required for this purpose. User needs to take the snap of the text to be learned and the application will give the output in his preferred language. The system also helps the user to read latest news in required language from different newspapers and also allows to send messages in required language.

III: RELATED WORKS

1.Optical Character Recognition (OCR) Performance in Server-based Mobile Environment [2013 International Conference on Advanced Computer Science Applications and Technologies]

This paper proposes a framework of Optical Character Recognition (OCR) on mobile device using server-based processing. Comparison methods proposed by this paper by conducting a series of tests using standalone and server-based OCR on mobile devices, and compare the results of the accuracy and time required for the entire OCR processing. Server-based mobile OCR obtains 5% higher character recognition accuracy than the standalone OCR and its format recognition accuracy is 99.8%. The framework tries to overcome the limitation of mobile device capability process, so the devices can do the computationally intensive application more quickly.

2. Image to Speech Conversion System for Telugu Language [International Journal of Engineering Science and Innovative Technology (IJESIT)Volume 2, Issue 6, November 2013]

In this work, they deal with Image reading, image to text extraction, speech synthesis application. This work takes input as image which contains numeric data and extracted as text information using OCR technology [1].Then this text information is converted into speech by using Speech Synthesis tool to speak numeric content. This application is more helpful in banking, toys and many other applications like checking marks, railways, aid to the physically challenged persons, language education and fundamental and applied research. etc. This work focused on numerical digits with efficient outcome.

IV: IMPLEMENTATION

The proposed system includes 6 modules namely,

I. Extraction of text from image
II. Translator
III. Text-to-speech
IV. News module
V. Messaging module
VI. Location module

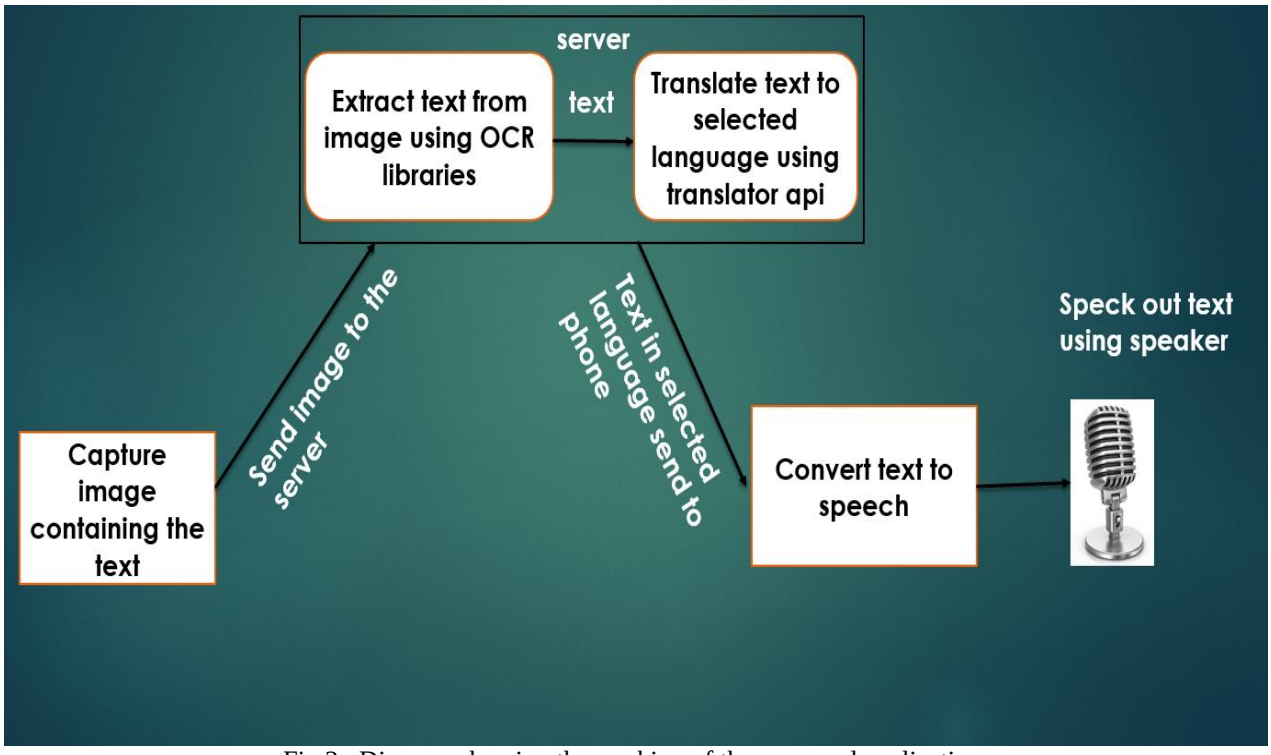


Fig 2 : Diagram showing the working of the proposed application

4.1 Extraction of text from image

Extraction of text from image is the mechanical or electronic conversion of images of typewritten or printed text into machine-encoded text. It is widely used as a form of data entry from printed paper data records, whether passport documents, invoices, bank statement, receipts, business card, mail, or other documents. It is a common method of digitizing printed texts so that it can be electronically edited, searched, stored more compactly, displayed on-line, and used in machine processes such as machine translation, text-to-speech, key data and text mining. OCR is a field of research in pattern recognition, artificial intelligence and computer vision.

Early versions needed to be trained with images of each character, and worked on one font at a time. Advanced systems that have a high degree of recognition accuracy for most fonts are now common. Some systems are capable of reproducing formatted output that closely approximates the original page including images, columns, and other non textual components.

I. Image to text module takes image as input and extracts the text from the image.
II. Image to text module gives the extracted text in the form of string as output in the form of string and it will be given to translator module.
III. The extracted text can also be shared via Email or can be saved to phone memory as text file.

4.2 TRANSLATOR

Translator module involves the conversion of text from one language to another language this is done using translator API. Translator involves first dividing the source language into different tokens or words and then matching it with words in destination language.

Microsoft translator API is used for translation from one language to another.

Microsoft Translator API is a cloud-based automatic translation (aka machine translation) service supporting multiple languages that reach more than 95% of world gross domestic product (GDP). Translator can be used to build applications, websites, and tools, or any solution requiring multi language support.

Microsoft Translator is built on more than a decade of natural-language research at Microsoft. Rather than writing hand-crafted rules to translate between languages, modern translation systems approach translation as a problem of learning the transformation of text between languages from existing human translations and leveraging recent advances in applied statistics and machine learning.

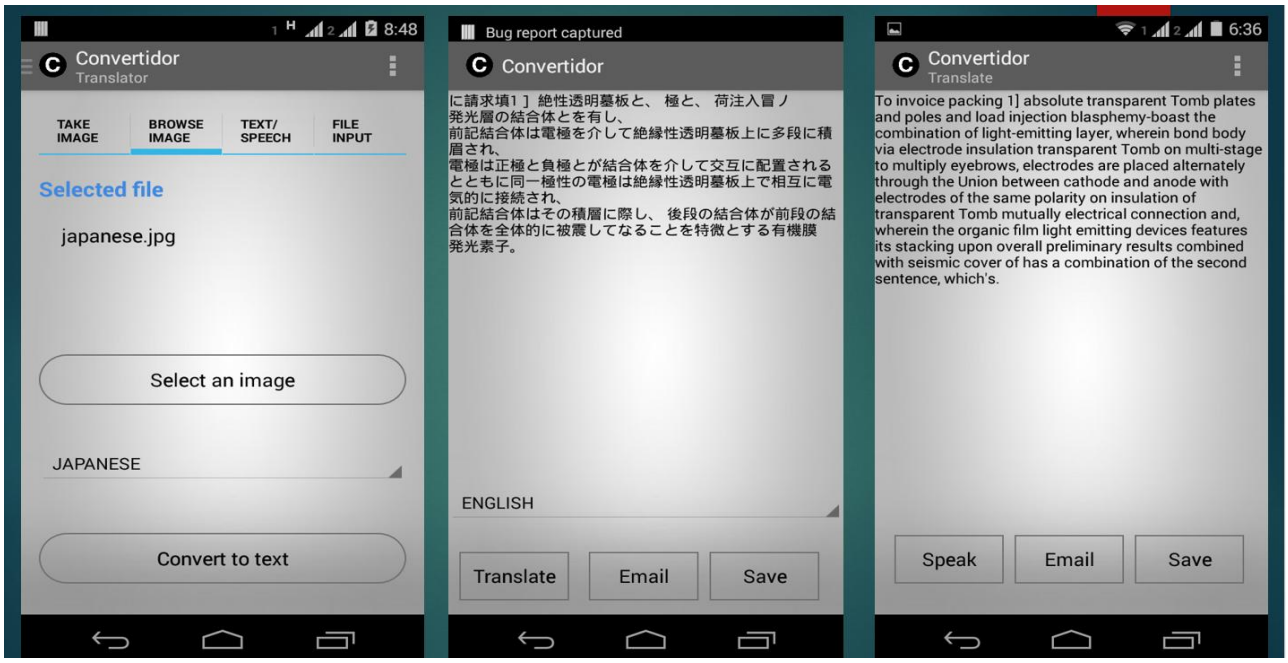


Fig 3 : view of the translator module

4.3 TEXT TO SPEECH

Text to speech system converts normal language text into speech. It involves the artificial production of human speech. A computer system used for this purpose is called a speech synthesizer, and can be implemented in software or hardware products. Synthesized speech can be created by concatenating pieces of recorded speech that are stored in a database. Systems differ in the size of the stored speech units; a system that stores phones or diphones provides the largest output range, but may lack clarity. For specific usage domains, the storage of entire words or sentences allows for high-quality output. Alternatively, a synthesizer can incorporate a model of the vocal tract and other human voice characteristics to create a completely synthetic voice output.

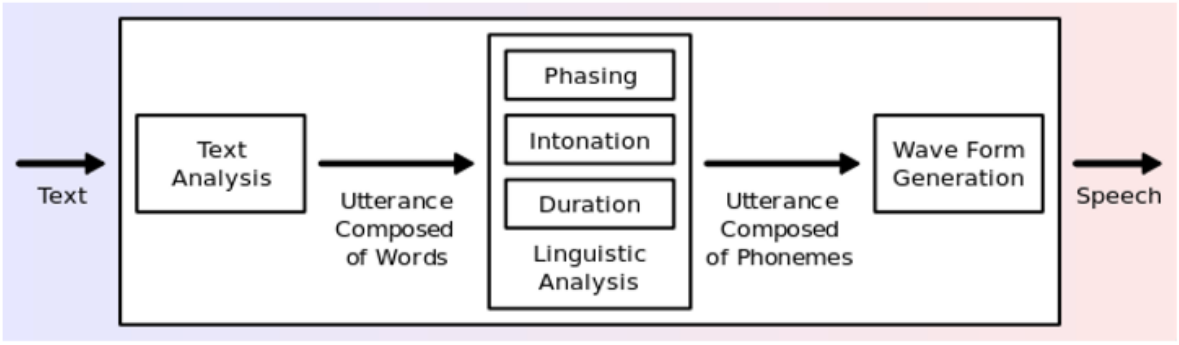


Fig 4 : Working of text to speech conversion

A text-to-speech system is composed of two parts a front-end and a back-end. The frontend has two major tasks. First, it converts raw text containing symbols like numbers and abbreviations into the equivalent of written-out words. This process is often called text normalization, pre-processing, or tokenization. The front-end then assigns phonetic transcriptions to each word, and divides and marks the text into prosodic units, like phrases, clauses, and sentences. The process of assigning phonetic transcriptions to words is called text-to-phoneme or grapheme-to-phoneme conversion. Phonetic transcriptions and prosody information together make up the symbolic linguistic representation that is output by the front-end. The back end often referred to as the synthesizer then converts the symbolic linguistic representation into sound.

4.4 News module

News module helps the user to get updated to the things happening around by providing latest news from different newspapers in the required language. The newspaper module fetches the news from the official website of the newspapers we require and converts it to required language. News module makes use of the translator module for translation. The newspaper module provides both headlines and detailed news about each headline also.

The application provides news from The Hindu, Times of India, Mathrubhumi, and Manoramma newspapers. In the case of Hindu and Times of India news is fetched from latest news tab of the official website of corresponding newspapers. The news fetched from Hindu and Times of India will be in English and it can be converted to required language.

In the case of Mathrubhumi and Manoramma the news is fetched from RSS feed links of corresponding newspapers. RSS (Rich Site Summary) often called Really Simple Syndication; uses a family of standard web feed formats to publish frequently updated information: blog entries, news headlines, audio, and video. An RSS includes full or summarized text, and metadata, like publishing date and author's name. The news fetched from Mathrubhumi and Manoramma will be in Malayalam it will not be converted to any other language.

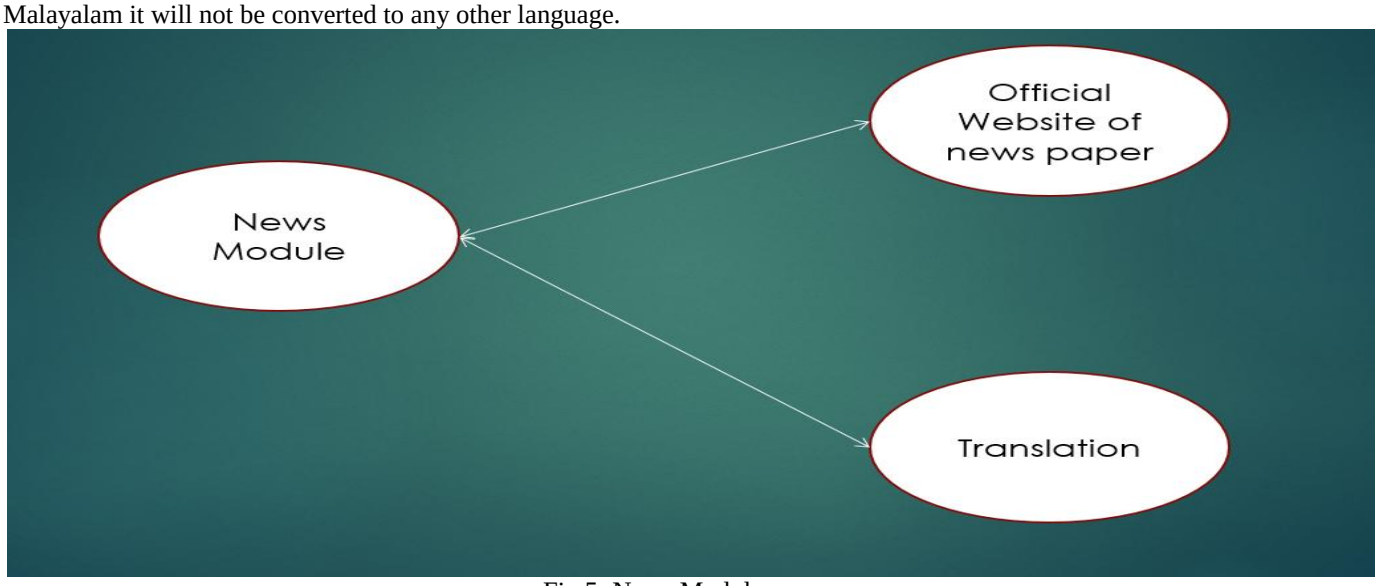


Fig 5 :News Module

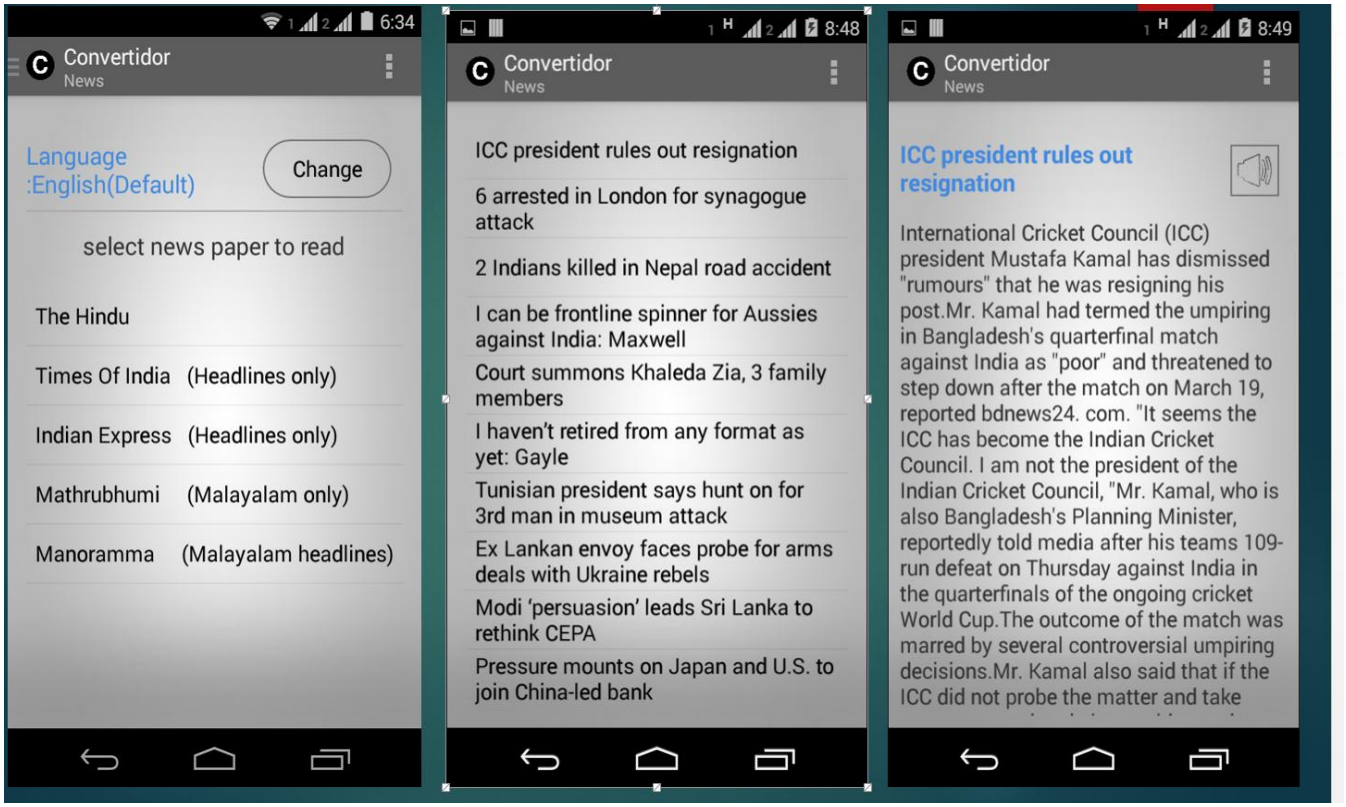


Fig 6 : View of News module in the application

4.5 Messaging module

Messaging module helps for text messaging in required language. Messaging module takes the message and the contact number as input and translates the message to required language and sends then sends the message to required contact. Messaging module makes use of translator module for translation.

Messaging module takes the contact number, message and the language in which message as input and then translates the message to required language using translator which make use of Microsoft translator API. Then the message will be given as input to sms manager of the phone for sending the message.

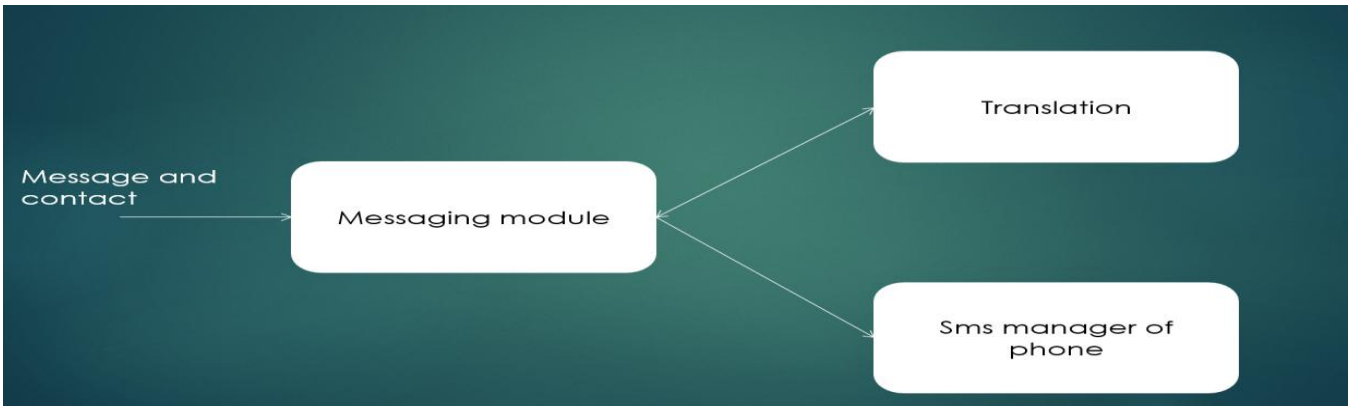


Fig 7 : Messaging Module

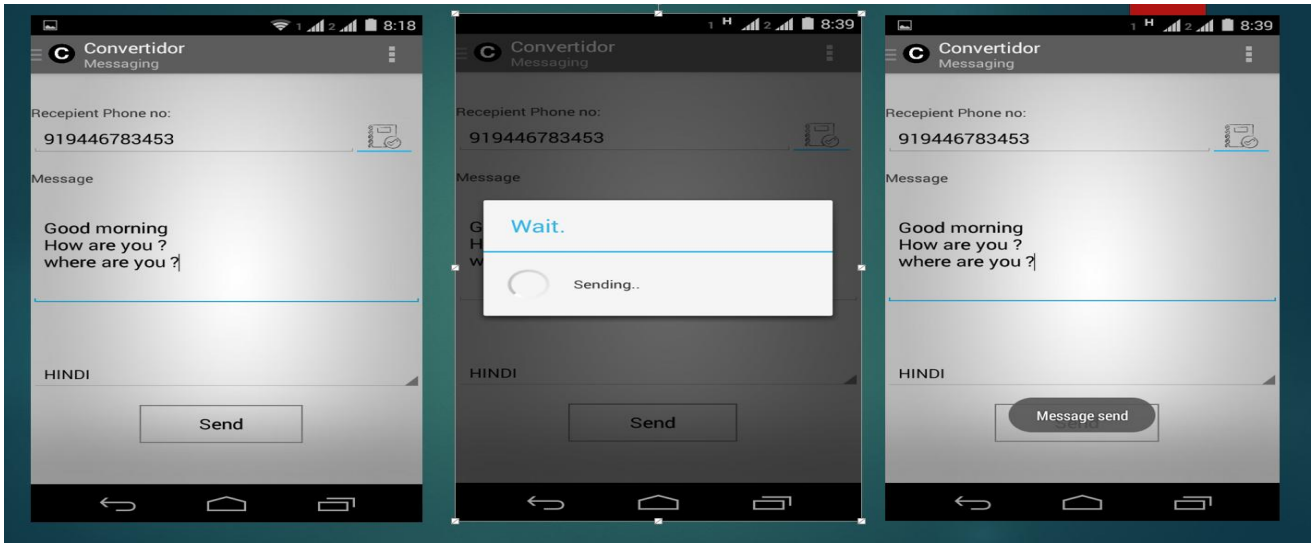


Fig 8 : View of messaging from the application

4.6 Location module

Location module helps the user to identify the current location and surroundings and also helps to find the path to destination. Location module makes use of google map. Google Maps is a desktop and mobile web mapping service application and technology provided by Google, offering satellite imagery, street maps, and Street View perspectives, as well as functions such as a route planner for traveling by foot, car, bicycle (beta test), or with public transportation. Also supported are maps embedded on third-party websites via the Google Maps API,[1] and a locator for urban businesses and other organizations in numerous countries around the world. Google Maps satellite images are not updated in real time; however, Google adds data to their Primary Database on a regular basis. Google Earth support states that most of the images are no more than 3 years old.

4.6 Interfaces

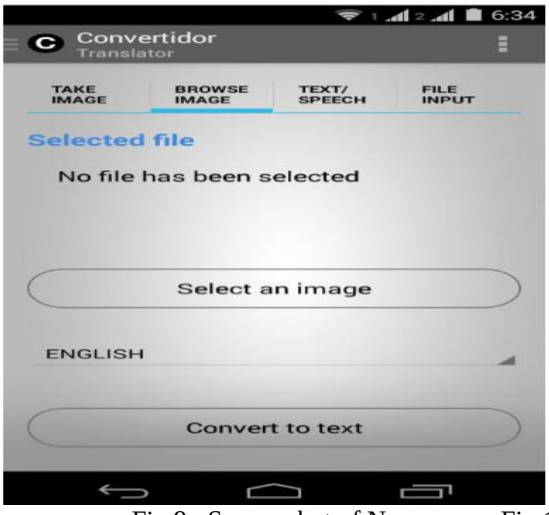
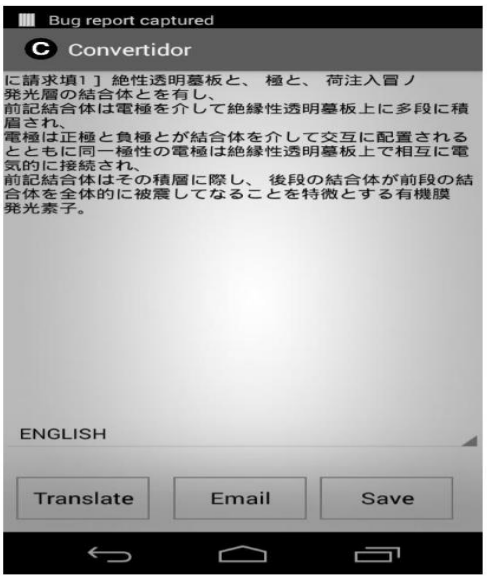


Fig 9 : Screen shot of News paper

Fig 10 :Screen shot of navigation drawer



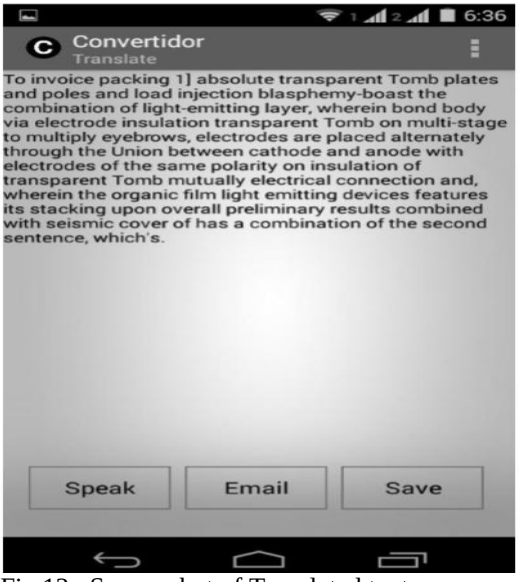


Fig 11 : Screen shot of Extracted text Fig 12 : Screen shot of Translated text

V.CONCLUSION AND FUTURE SCOPE

The application helps people overcome the difficulty of understanding different languages. We also think that this application will be used by many users as it is required in daily life. This application will make the life of people living in a foreign place easy. The application helps for people to get the latest news in the required language and also helps the users to send text message in required language to others Future scope of Convertidor project is immense. The project can be modified by adding more languages to it. The application can be enhanced to implement a Multilanguage chat so that users with different language skills can chat with each other comfortably .Google maps can be added to the application since application mainly aims the travelers.

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