



Android Based Travel Application

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Abstract— *Android Tour Partner (ATP) is useful for native Tourists and Travelers who possess Android Smart phones and are willing to go to Germany. The application is divided into three sections. The first section is the language translation section. It enables Travelers and Tourists to easily capture the native country language Books pages, signboards, banners and hotel menus and convert into their own language. This paper, attempts to contribute the conversion of German into English using OCR for tourist leaving to Germany as well giving task notification to tourist when he will nearby selected location to suggest visit that place. It also has a help section in which the chat-bot gives assistance to the tourist whenever the tourist has any query related to the place he/she is visiting.*

Keywords— *Android, ATP, OCR, Language Translation, Chat-bot, Location Based Task Notifier*

I. INTRODUCTION

There has been an upsurging demand for new developments in android ever since its emergence. Android makes it easier for tourists to get and use new content and applications on their Smart phones. ATP (Android Tour Partner) is an extremely fast and user friendly Android Application. The application has three modules. The first module is the language translation module. It allows tourist to capture the Books pages, signboards, banners and hotel menus etc. image which is in German language. The built-in OCR converts the text embedded in the captured image into Bitmap format. It also provides translation facility so that Tourists can translate the German text into English. The second module is the Location Based Task Notifier. It enables the user to create numerous tasks that provides alarm notification for the specified location. This eases out on remembering multiple locations as the application itself notifies the details about the place chosen. Also it has location mapping that generates queries in real time using Location services. The user gets to choose from a list of famous places already provided in the application. He can also update & delete tasks as per requirements. The third module is the help module. This module has a chat-bot that acts as a guide for the tourist .This makes the application a one stop solution for a tourist exploring Germany.

II. ARCHITECTURE OF SYSTEM

A. Language Translation Module:

Image Capture

In this the user is allowed to capture the only concerned text image from signboard, banner and book pages. Once the capture button is pressed the beep sound plays and the captured image is sent to Tesseract OCR engine module.

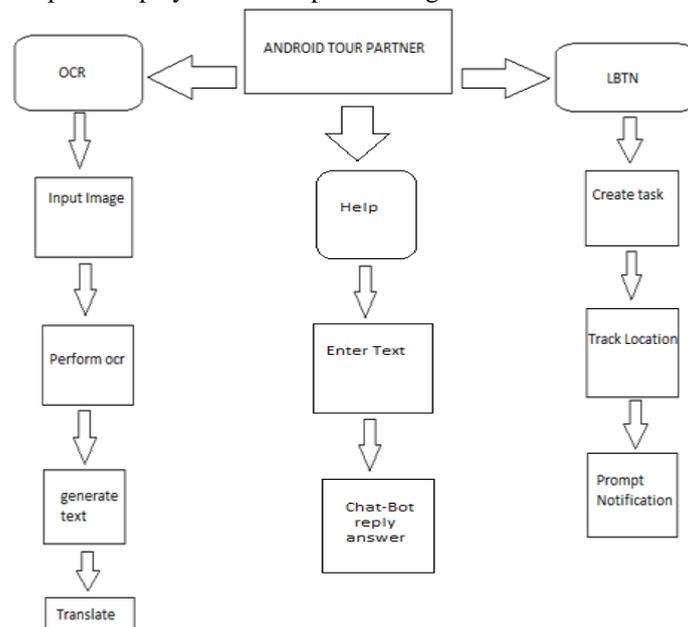


Fig.1 System Diagram

Tesseract OCR Engine

In this the binarization of Captured Image takes place. Here the application first checks for the Tesseract file for German language on the user device. Further, it extracts the text on the image and presents it in the form of “bitmap” sequence in the next screen.

Unicode Text Post processing

In this module, the recognized characters are displayed as Unicode characters and the user is allowed to translate the recognized text into English language available in the drop down list from settings. Here on, using Bing Translator user can translate the string (text) into German language.

Dictionary word Matching

In this each group of sequential characters is searched for a dictionary based word match, that helps in identifying the word more accurately rather than just giving a meaningless word as result. Finally the recognized text is transferred to Unicode text Post processing Module.

B. Location based task notifier Module:

Task construction

In this module, user creates Task. Task is nothing but place which tourist want to visit. User clicks on create Task button. After clicking on button one pop up window is displayed that contains list of destinations and their brief description. User clicks on one of the destination and that destination is selected and task is constructed. When user is nearby the place of that Task, notification is generated to suggest the user to visit that place

Google map

In this module, User is able to see destination place with use of Google map.

C. Help Module:

This module helps in solving queries of the tourist related to Germany. This module consist of a chat-bot that is scripted in AIML. It starts with providing of input by the user through the chat interface. The chat-bot takes any query relate to some place in Germany from the user and reply their query related to that place. It also translates for the user in case the input from the user is in German language.

III. WORKING

A. Working of translation module:

We present a system to translate and interpret printed documents, such as periodicals, letters, or official papers. The system is based on the use of a commercially available mobile device equipped with a camera. The user takes an image of the printed document. The image is then analysed to extract its text. More specifically, we perform a layout analysis followed by Optical Character Recognition (OCR). The text is then translated, taking into account the presence of context-sensitive words/phrases, which we call tokens.

We evaluated different existing open source layout analysis and OCR methods and identified two suitable ones for our projects. The translation and interpretation module includes the use of a Rule Based Machine Translation (RBMT) engine, and an encyclopedia for a list of words, including but not restricted to all tokens. More specifically, the process is divided in different steps: first, tokens are located in the source language text. Then, these tokens are interpreted; in particular, their grammatical function is determined (e.g., noun or adjective). They are then replaced by existing words in the RBMT dictionaries having the same grammatical function. After that, we use the RBMT to translate the whole text. The replacements have the same morphosyntactic relationships as their respective tokens, so they are translated properly along with the rest of the sentence. Once we have the text in the target language, another token search is performed to catch other tokens present in the database, in the target language. Finally, the source language tokens are back replaced and every token found is linked to one or more entries in the database. All the entries in the encyclopedia (including all tokens) can be browsed for disambiguation. Hence we get right translation text in our desired language.

B. Working of task notification module:

In this module, tourist will create a task in app. Task a nothing a place which user want to visit in Germany , he would get pinged as soon as he/she would reach a minimum distance from the point of action. This would prove to be a handy option as it eases out the process of locating places in alien environment.

C. Help Module

This module helps in solving queries of the tourist related to Germany. This module consist of a chat-bot that is scripted in AIML. It starts with providing of input by the user through the chat interface. Now the chat-bot checks whether input provided by the user is conversational or in German language. If the input is conversational the chat-bot undergoes casual chat with the user as well as helps user to solve queries related to some place like museums, historical monuments, parks, hotels etc. If the input is in German language and user wants it translated into English the chat-bot parses the German input to the Bing Translator that translates the given input and sends the response back to the chat-bot in English which is then forwarded to the user.

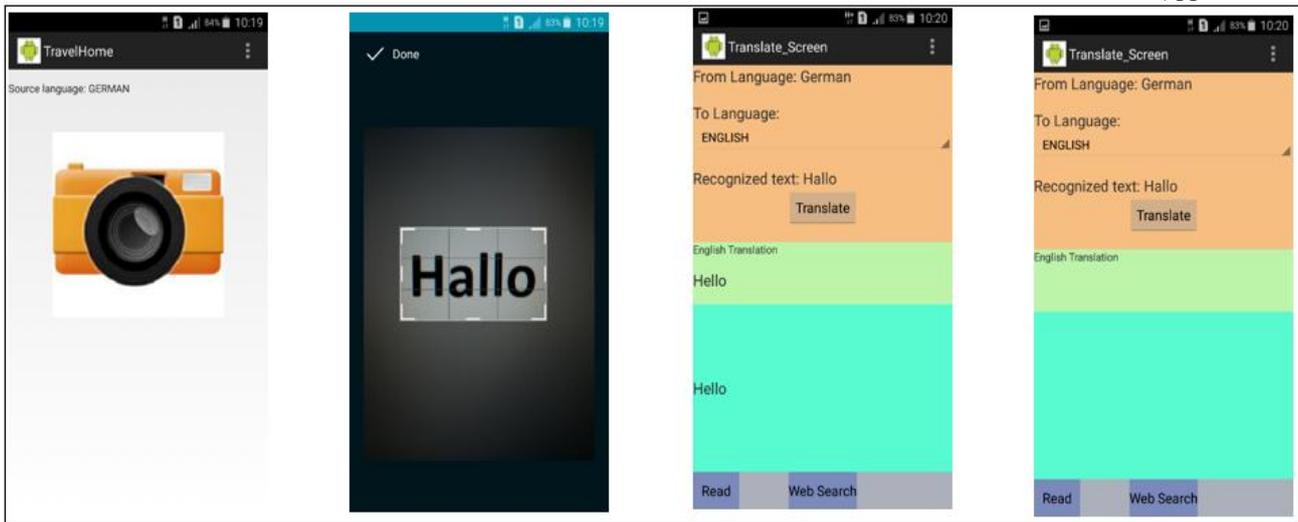


Fig. 2 Language Translation Module

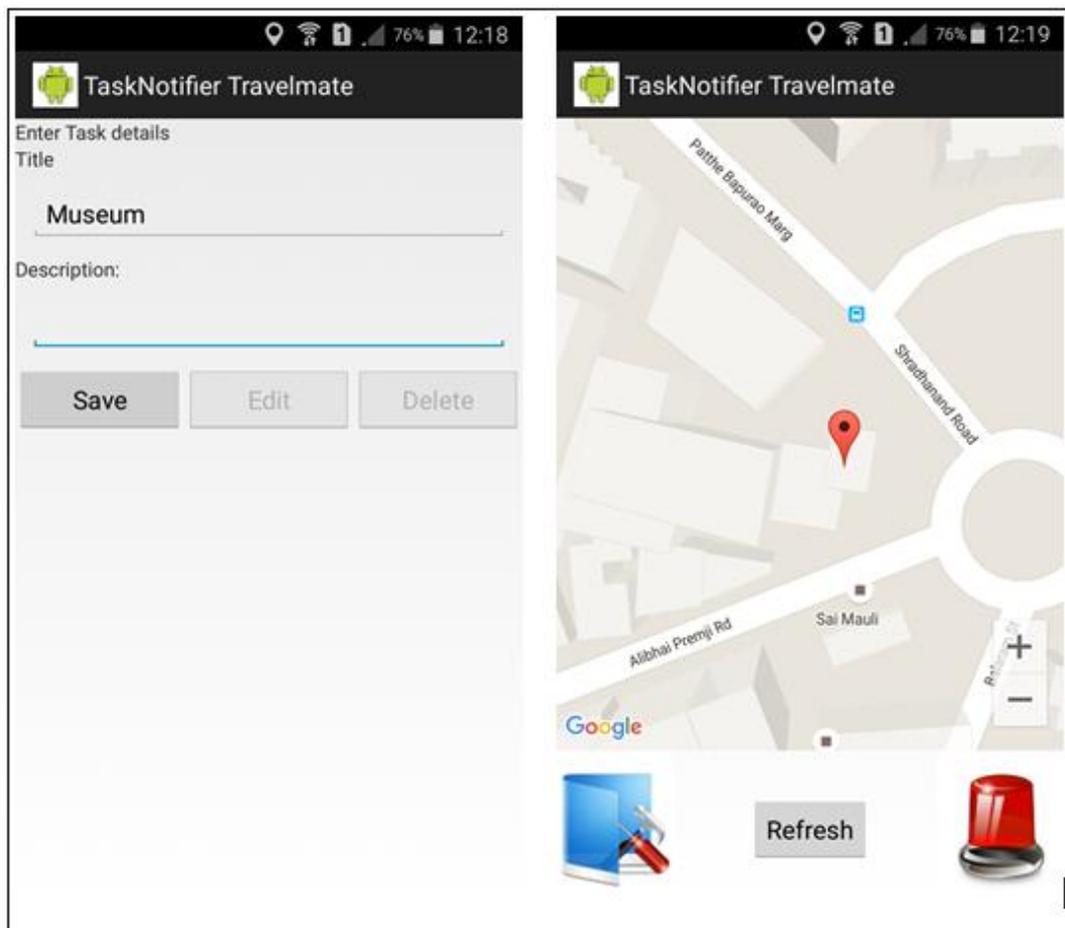


Fig. 3 Location based task notifier Module

IV. CONCLUSIONS

Android Tour Partner application will help tourist which is going to visit Germany first time. Tourist need to capture image through high quality camera and using system it able to decode German language and also able to create task so that tourist able to visit place in future. While using system tourist should have internet connection and should have high quality camera to capture image. This system have no thread of security while performing action. Performance of language module entirely dependent on Tesseract engine adaptation with German language.

The user, according to his leisures can create a task related to the selected place. In future, if he reaches close to the selected place, he would receive an automated notification by which he would notice that he had earlier prioritized the place for a visit. Moreover, the chat-bot provides help whenever the tourist has any question about the place he/she is visiting.

Hence the Tour Partner would be highly beneficial for tourists.

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