IMAGE TEXT TRANSLATOR

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ABSTRACT

Now-a-days the trend of Android mobile phones is increasing rapidly and we can see an Android mobile phone almost in every pocket. It is a big challenge for the tourists to understand the text written at different places. It becomes very difficult for them to analyze and understand what is written and what action they must perform. To help such people we have come up with an idea to make an android app which will help the tourists to convert the text in the language of their choice. The user simply has to click a picture of the text he/she wants to translate into some another language and the Android app will then process the image by extracting the text present in the image followed by translating the same text into some another language of users choice and provide the translated text as output to the user. This application will be very useful for the tourists to understand the useful text written on pamphlets, boards, milestones, menu cards in hotels, local bus tickets, etc..

Keyword: *- content based image retrieval, image processing, android*

1. INTRODUCTION

1.1 Image Processing- An image can be defined as a matrix of square pixels arranged in rows and columns. Image processing is a leading technology which enhances raw images received from gadgets such as camera or a mobile phone in normal day-to-day life for various applications. Due to the presence of high resolution cameras present in the mobile phone, it is very easy to click a picture from a mobile phone at any place and at any time. One can capture anything in the image such as living beings, scenery, text etc. In modern technology, the availability of high resolution camera has lead to new dimension in digital image processing. As the technology is being expanding, various technologies are being developed for mobile devices. Text extraction from image is one of the important aspect in image processing. There are methods and algorithms using which we can extract the text from the images. However it is very challenging to extract the text from the natural scene images due to the differences in text, style, font, size, orientation, alignment and complex background.

1.2 Text Extraction- Text Extraction from image is concerned with extracting the relevant text data from a collection of images. Rapid development of digital technology has resulted in digitization of all categories of materials. Lot of resources are available in electronic medium. Many existing paper-based collections, historical manuscripts, records, books, journals, scanned document , book covers , video images, maps, manuscripts, pamphlets, posters, broadsides, newspapers, micro facsimile, university archives, slides , book plates, pictures, painting, graphic materials, coins and currency, stamps, magazines, educational, TV programs, business card, magazines, advertisements, web pages , mixed text-picture-graphics regions etc are converted to images. These images present many challenging research issues in text extraction and recognition. Text extraction from images have many useful applications in document analysis , detection of vehicle license plate, analysis of article with

tables, maps, charts, diagrams etc., keyword based image search, identification of parts in industrial automation , content based retrieval, name plates, object identification, street signs, text based video indexing, video content analysis, page segmentation, document retrieving, address block location etc.

1.3 Text Translation- Translation is the communication of the meaning of a source language text by means of an equivalent target language text. The translation of text from one language to another can be performed using many Google applications such as Devangiri. Apart from this there are many more Google applications which are used to translate the text from one language to another i.e, the text is being converted from one language to another using some inbuilt dictionaries which are already present on the server. The text to be converted needs to be provided to the Google application along with the language in which we want to translate the text. The application converts the text from one language to another in approximate grammatically correct manner. The languages which can be converted to and from can be English, Hindi, Marathi, Malayalam, Punjabi, Chinese, Urdu etc.
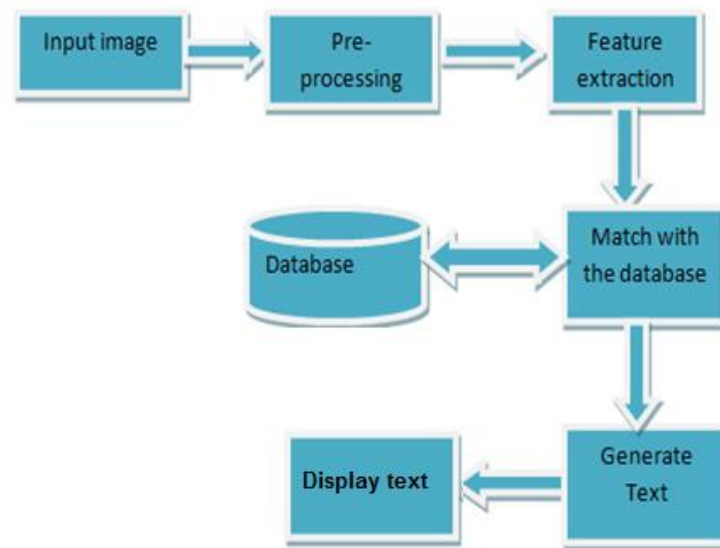
2. IMPLEMENTATION DETAILS –

Fig -1: System Architecture

The system architecture of image to text conversion system is illustrated in the Fig 1 above. There are various phases in which the system will work. They are:

2.1 Input image-

This image is the image entered as input image by the user to the system. The user provides the image to the App by clicking the picture of the text using App camera.

2.2 Pre-processing-

In this phase pre-processing on the input images is done such as removing noise, colour adjustment, grey scale conversion of image, binary scale conversion of image in order to make it more recognizable to the system for further processing.

2.3 Feature extraction-

This is the important phase in which the system extracts the preliminary features and divides them into geometric elements like arc, line and circle etc. In short, in this phase the text present in the image is extracted.

2.4 Matching with database-

After feature extraction, system requires assistance of database in order to recognize the objects in the image, so matching is done. So the features or text extracted from the image is matched with the database using Google plugins, so that the translation of the extracted text can be performed.

2.5 Generate text-

After successful recognition of objects, it is now the important phase to generate the translated text and display it to the user.
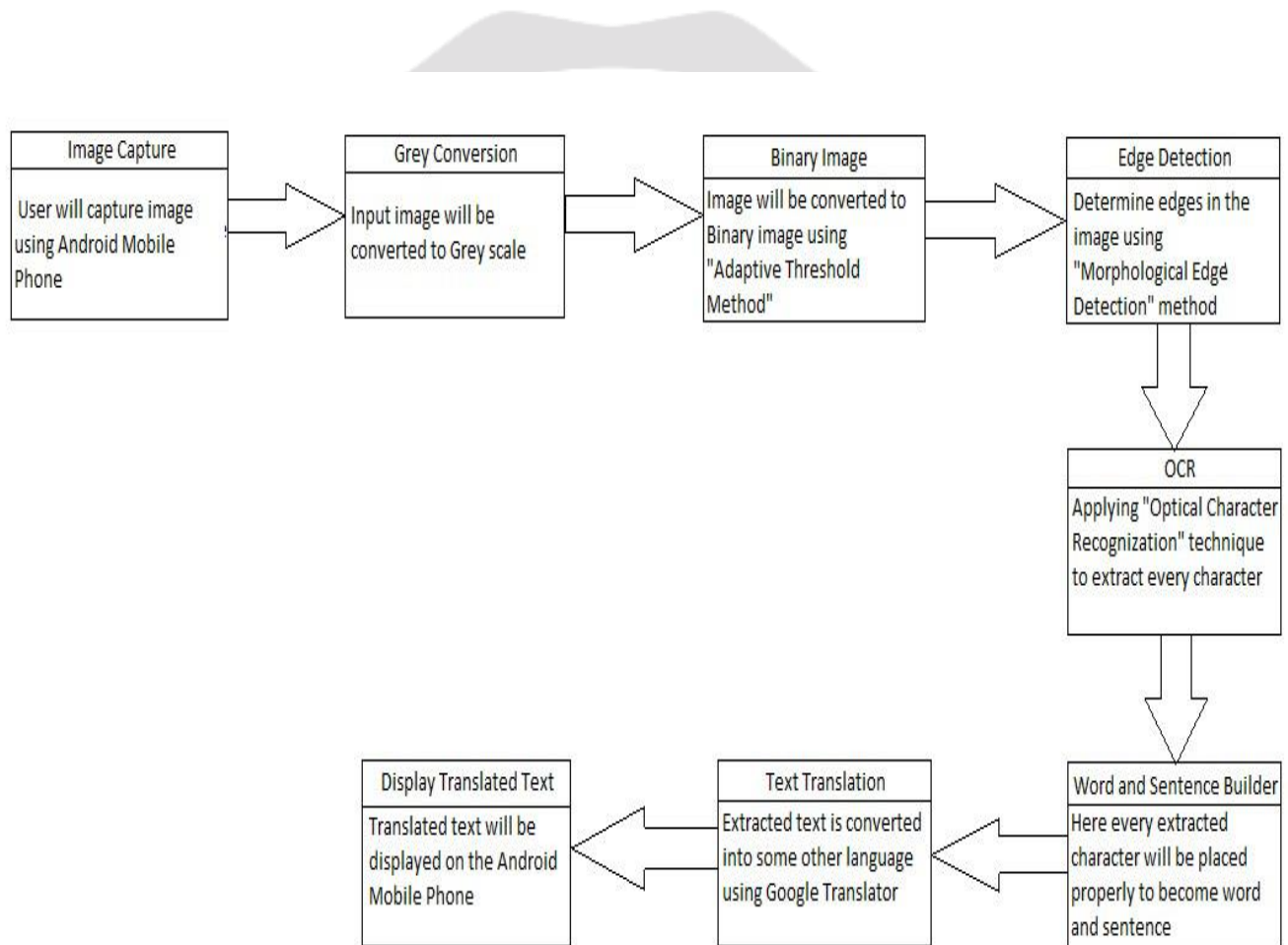
3. SYSTEM FLOW DIAGRAM-

Fig -2: .System Flow for Extraction and Translation of Text from Image

Fig -2 shows the system flow diagram. It gives us detailed information about the Process of extraction and translation of text from image. The flow of the system will be in the following manner:

3.1 Image Capture-The user will capture the image using the App camera as input. The image must be a PNG image.

3.2 Grey Conversion- The input image provided by the user is converted to grey scale image.

3.3 Binary Image-The grey scale image is further converted to binary image using Adaptive Thresholding Method, in which there are only two colors, white and black. The text in the image comes to the foreground and the else part goes to the background.

3.4 Edge Detection-The edges present in the image such as line, circle, arc etc is detected using Morphological Edge Detection Method.

3.5 OCR-The Optical Character Recognization Technique is applied to the image in order to extract each and every character.

3.6 Word and Sentence Builder-It is used to build the words and sentences present in the image.

3.7 Text Translation-The text extracted from the image is translated to some another language as specified by the user.

3.8 Display Translated Text- The translated text is finally displayed to the user on the Android mobile screen.

4. CONCLUSIONS

This paper presents the framework and algorithm for extraction of text from image. Translation of the text from one language to another is already present. So we are going to present an Android phone application which will process the picture, which is given as input to the App (clicking by the App camera) and recognize the text in the picture followed by extracting the text from the image and then converting that extracted text into some other language selected by the user. It will prove very useful as it will be available as android application.

5. ACKNOWLEDGEMENT

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