INFORMATION EXTRACTION FROM IMAGES USING PYTESSERACT AND NLTK

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Abstract— Images are used in various fields such as advertisements, business purpose, and spreading awareness. Text data present in these images contain useful and helpful information like contact details, hyperlinks, QR codes. Extraction of this information involves detection, localization, tracking, extraction, enhancement, and recognition of the text from a given image. However, variations of text due to differences in size, style, orientation, and alignment, as well as low image contrast and complex background make the problem of automatic text extraction extremely challenging in the computer vision research area. But the difficulty in implementation proves to be useful and fruitful. This project aims at using computer vision (Pytesseract) to extract useful information like text, contact details and hyperlinks from images. The android based app would allow user to upload a photo and enable user in storing the contact details, set a remainder, provide summary of the content of the image, opening of hyperlinks directly from the app without needing to type the URL inside the browser. Thus, making the images a more productive and making the job of the user more easy and convenient.

Index Terms— Text classification, Machine Learning, Android, Text extraction, Pytesseract, NLTK.

I. INTRODUCTION

The world is rapidly moving towards digitization. Multimedia sources like videos, images serve the majority of the content generated and spread for communication. However, it is seen that true value of images was not recognized. Images hold information in the form of text, numbers and encrypted codes. We are extracting useful content from images that are helpful to the user. We are using Pytesseract to extract text from images and then classifying it using NLTK (Natural Language Toolkit).

II. OBJECTIVES

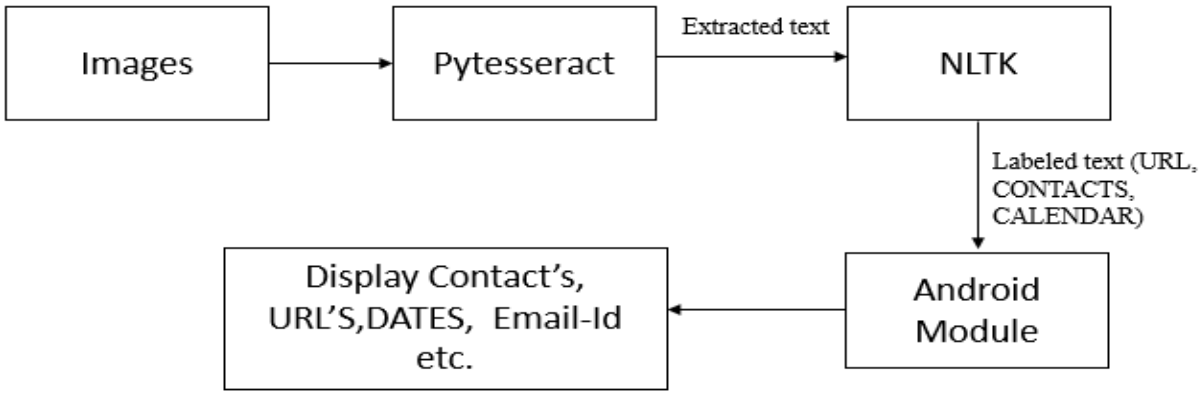
1) To extract textual data from images & automate the process of storing contact details and storing reminders.
2) Extraction of text and other form of data from images and using them for particular use. To extract URLs from the image and allow user to browse directly from the app using Android System Web View.

III. RELATED WORK

1) Google Goggles is an Image Detection System which identifies the content of an image and provides desired results to the user. It also uses Tesseract OCR to detect textual data in images and extracts the text into editable format. But, one of the limitations of Goggles is that it isn't able to classify the data present, and considers it to be in raw form.
2) Optical Character Recognition (OCR) is used in converting PDF files into editable DOC files. Another limitation is that the text present in images of PDF files aren't extracted into editable format.

IV.HIGH LEVEL DESIGN

Figure 1.1



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CONCLUSION

The information extraction from image gives the opportunity to store certain details including contact information, URLs, Date/Day in the format user requires so as to be in sync with the fast-paced world. Thereby it integrates multiple functions under single app and reduces complexity of processing and time**.**

FUTURE WORK

1. To implement an API of our service that can be used by other apps.
2. Handling low resolution images.
3. Handling Images with handwritten text.

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