International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075 (Online), Volume-9 Issue-6, April 2020

An Efficient Text Image Elimination App for Android

Eliaganti Ramalakshmi, Hemanth Reddy Kakarla, Kranthi Jella

Abstract*: Smartphone sales are at an all-time high with the ever increasing use of smartphones, we have access to data like never before. But with information that vast, we often get suffocated by the images that clutter our devices, making it that much harder to get to the pictures that matter to us. With the power of Machine Learning and image processing, this Text Image Elimination App will free your device from all the clutter and make your life easier. The application removes the images they may not want on their phone. Images containing text will be processed and the text extracted from the images will be compared to a list of texts given by the user and if there is any instance of the text in the image it will automatically be deleted. This paper proposes an efficient android application where the user can optimize the storage space by eliminating the images of his interest based on text matching without directly going in to the directory.

Keywords *: Android, text image.*

I. INTRODUCTION

Text Image Elimination is an Android application developed in Android Studio. This app searches the images in your phone and deletes the images containing text which is blacklisted. By using this application users can save storage in their phone and prevent spam images that are forwarded in WhatsApp groups. This paper focuses to remove the unnecessary images such as reposts in major WhatsApp groups containing unwanted text and optimize the storage space in the device.

II. PROPOSED FRAMEWORK

This journal uses double-blind review process, which means that both the reviewer (s) and author (s) identities concealed from the reviewers, and vice versa, throughout the review process. All submitted manuscripts are reviewed by three reviewer one from India and rest two from overseas. There should be proper comments of the reviewers for the purpose of acceptance/ rejection. There should be minimum 01 to 02 week time window for it.

Revised Manuscript Received on April 30, 2020.
***** Correspondence Author
Eliganti Ramalakshmi*, Assistant Professor, Department of Information Technology, CBIT, Hyderabad, India.
Hemanth Reddy Kakarla Student, BE, Information Technology, CBIT, Hyderabad. India
Kranthi Jella, Student, BE, Information Technology, CBIT, Hyderabad. India

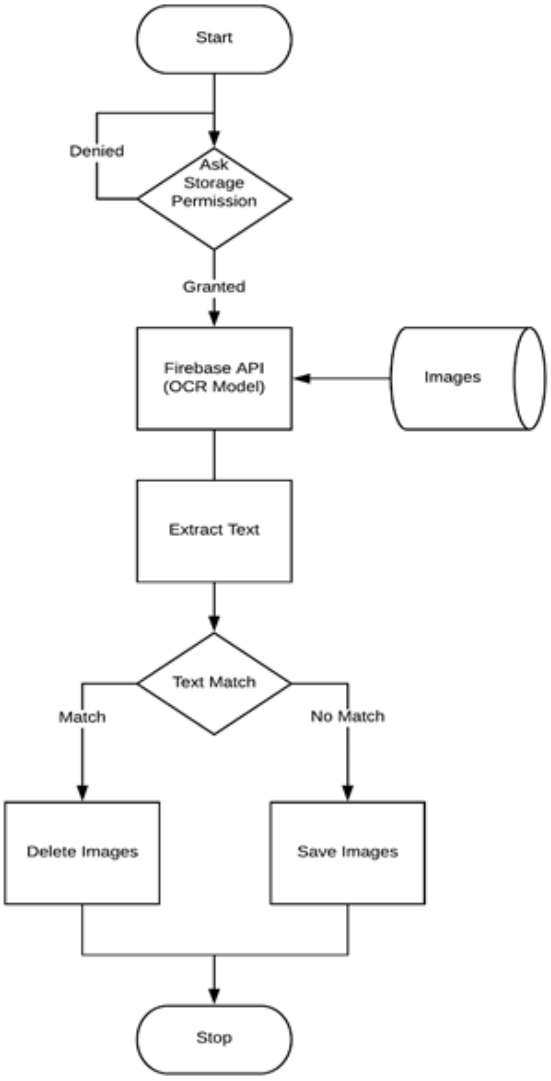

Fig. 1: Text Image Elimination working process

III. APPROACH

Optical Character Recognition or OCR is a conversion tool used to convert images containing typed text, written or printed text into computer encoded text. One of the earliest addressed computer vision tasks is optical character recognition. Matrix matching is one of the techniques of OCR that involves comparing an image to a stored glyph ,pixel-by-pixel. Once the input glyph is correctly isolated from the rest of the image, it is compared with all the stored glyphs and matched with the one that it shares most similarities with.

But the limitation with this technique is that it works best with typewritten text and does not work well when new fonts are encountered. Another method of OCR is Feature extraction technique, it decomposes glyphs into features like lines, closed loops, line intersections and line direction.

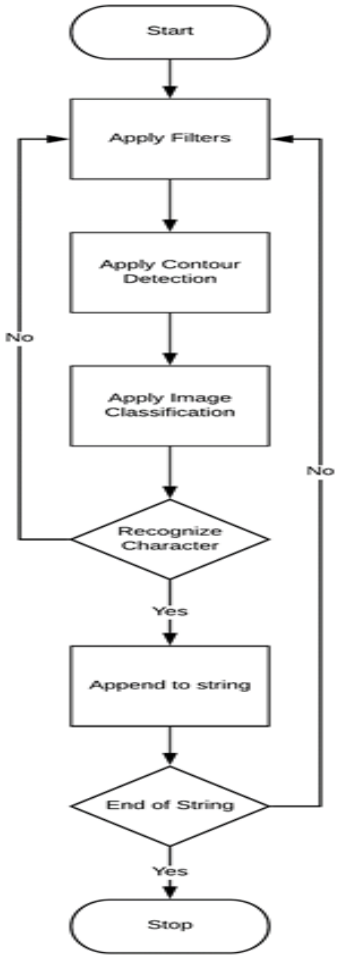

Fig. 2: OCR Model

This method of feature extraction reduces the dimensions for the representation of the glyphs and makes the recognition process computationally efficient compared to the matrix matching method. These feature set is compared with a vector like representation of each character having its own feature set, which reduces to a few glyph prototypes which are predefined. General techniques of feature detection in computer vision are are used in this type of OCR, which is also commonly found in intelligent handwriting recognition as well as in the most modern OCR software. Nearest neighbor classifiers such as the k-nearest neighbors algorithm is used to compare the extracted feature set from the image with stored glyph for each character's features that chooses the nearest match with the input text.

The string that is extracted is then matched with the given text. If the extracted text matches with any of the text given, the application creates a file with the image path. Once this file is created it deletes the image in that path.

In computing, we use a bitmap for mapping from any given domain to bits like a range of integers. It is also called a bit array. The pix-map refers to a map of pixels, where each pixel from the map can store colors and hence use more than a single bit per pixel. In such a case the pixmap stores more than one bit per pixel. While the term bitmap indicates one bit per pixel, the term pixmap is used in the cases where images can have multiple bits per pixel. The process is as shown in Fig2.

IV. RESULTS

This application is developed in Android Studio using Firebase connectivity. Firebase allows prebuilt models and features that programmers can use to implement into their application.

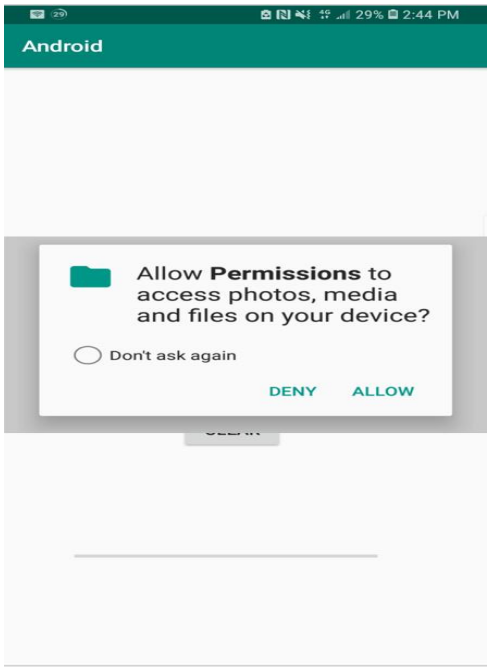

Fig. 3: Permissions

As shown in the Fig 3 when the application is launched for the first time, it prompts the user to allow the access to the device storage. If the user permits then application can access the images in the device storage.

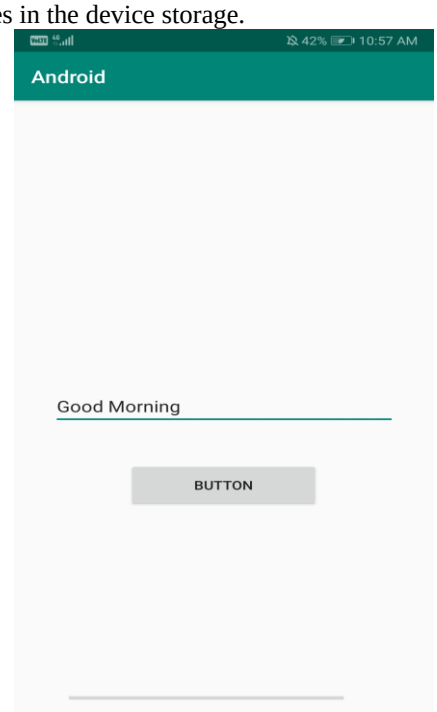

Fig. 4: Application

After giving permission, user needs to specify the text for the images, which he wants to eliminate. As referred in Fig 4, need to type the text on the images.

Then the images containing the blacklisted words are searched from the device and deleted.

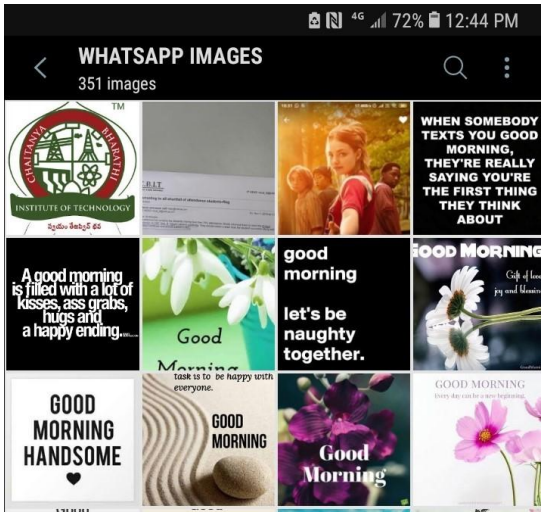

Fig 5: Phone Gallery before Running the Application

The model picks all images of specified text from the device as shown in Fig 5.

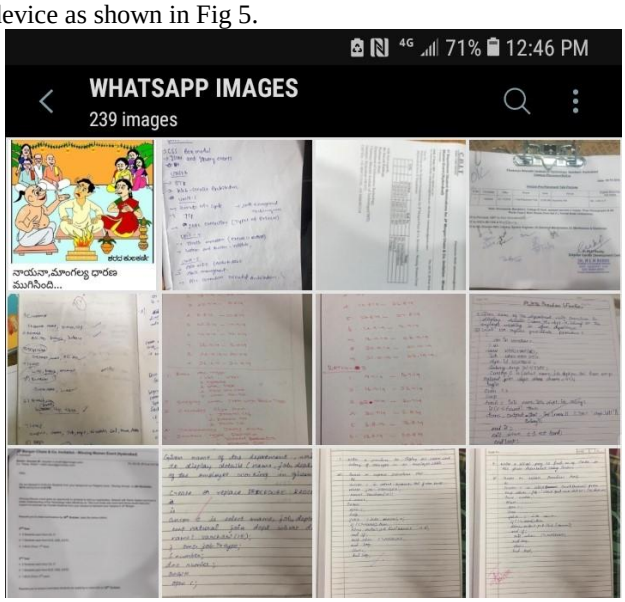

Fig. 6: Phone Gallery after Running the Application

After running the application, specified text images are eliminated and rest are retained in the gallery as shown in Fig 6.

V. CONCLUSION

The application is developed for mobile platform on Android devices. There are a few other image removal applications, but they are web application based. This Text Removal Application is the first one to be developed for Android platform. The application can be very helpful for automating everyday process of selecting images and deleting manually and can save a lot of time for the users who frequently get unnecessary images. It works locally on the device, so the application does not require any internet connection for it to work. The locality of the application also ensures that the data is secure and is not abused. The application runs very efficiently and quickly. It has no working bugs and is very efficient. There are no such existing apps on the Google Play Store.

REFERENCES

1. Jufeng Yang, Kai Wang, Jiaofeng Li, Jiao Jiao, Jing Xu, "A fast adaptive binarization method for complex scene images", 19th IEEE International Conference on Image Processing (ICIP), 2012.
2. Shrey Dutta, Naveen Sankaran, Pramod Sankar K, C.V. Jawahar, "Robust Recognition of Degraded Documents Using Character N-Grams", IEEE, 2012.
3. yang, Jufeng, Kai Wang, Jiaofeng Li, Jiao Jiao, and JingXu, “A fast adaptive binarization method for complex scene images,”19th IEEE International Conference on Image Processing (ICIP), 2012.
4. Datong Chen, Jean-Marc Odobez, Herv/e Bourlard “Text detection and recognition in images and video frames” Dalle molle Institute for Perceptual Arti cial Intelligence (IDIAP), Rue du Simplon 4, Case postale 592, CH1920 Martigny, Switzerland.
5.] Samabia Tehsin, Asif Masood and Sumaira Kausar “Survey of Region-Based Text Extraction Techniques for Efficient Indexing of Image/Video Retrieval” MECS 2014.
6. Anoop. K. Lajish, V.L: Morphology based text detection and extraction from Ma malayalam news videos. In: National Conference on Indian Language Computing. CUSAT 2014.
7. Kim, C., Kim, W.: A new approach for overlay text detection and extraction from complex video scene. IEEE Transactions On Image Processing 18(2), February 2009.
8. Ntirogiannis, Konstantinos, Basilis Gatos, and Ioannis Pratikakis. "A Performance Evaluation Methodology for Historical Document Image Binarization.," IEEE International Conference on Document Analysis andRecognition, 2013.
9. Jawahar, C.V., Chennupati, B., Paluri, B., Jammalamadaka, N.: Video retrieval based on textual queries. In: Proceedings of the Thirteenth International Conference on Advanced Computing and Communications, Coimbatore (2005).
10. Application of OCR, [online] Available: http://www.cvisiontech.comJ. Jones. (1991, May 10). Networks (2nd ed.) [Online]. Available: http://www.atm.com .

AUTHORS PROFILE

Eliganti Ramalakshmi, is currently working as an Assistant professor in the Department of Information Technology, CBIT, Hyderabad, India. She pursued her B.Tech from JNTU, Kakinada and M. Tech in C.S.E from JNTU, Anatapur. Her research interests include Internet of Things, Digital Image Processing and Computer Graphics. She has around 10 publications in various reputed journals and member of ISTE.

Hemanth Reddy Kakarla is a student of BE, Information Technology, CBIT, Hyderabad. He has done few mini projects in Digital Image Processing area previous years.

Kranthi Jella is a student of BE, Information Technology, CBIT, Hyderabad. He has done few mini projects in Digital Image Processing area previous years.