

# **MINI PROJECT-2** **(2020-21)**

## **Text Retrieval from Image** **Using CNN Features**

### **SYNOPSIS**



[Institute of Engineering & Technology](#)

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# **ACKNOWLEDGEMENT**

It gives us a great sense of pleasure to present the synopsis of the B. Tech MiniProject-2(TEXT RETRIEVAL FROM IMAGE USING CNN FEATURES) undertaken during B. Tech IIIrd Year. This project in itself is going to be an acknowledgement to the inspiration, drive and technical assistance will be contributed to it by many individuals.

We owe special debt of gratitude to Mr. Mandeep Singh, Technical Trainer, Department of CEA, for providing us with an encouraging platform to develop this project, which thus helped us in shaping our abilities towards a constructive goal and for his constant support and guidance to our work. His sincerity, thoroughness and perseverance are been a constant source of inspiration for us. We believe that he will shower us with all his extensively experienced ideas and insightful comments at different stages of the project & also taught us about the latest industry-oriented technologies.

We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind guidance and co-operation.

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# Contents

- Introduction
- Goal of the project
- Applications
- Implementation Methodology
- Requirements
- Conclusion of the Project
- Future Scope of the Project
- References

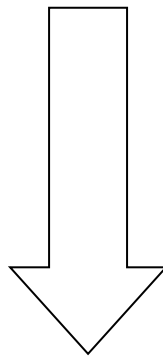
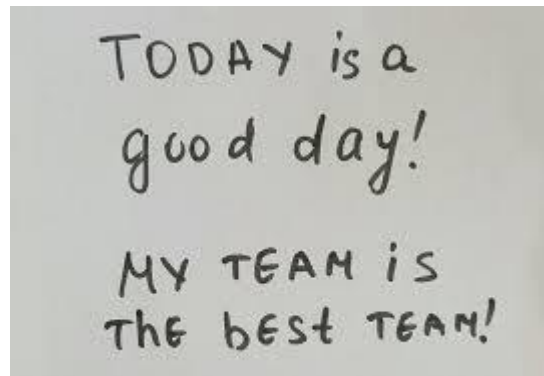
# **Introduction**

Text Extraction is a process by which we convert Scanned page or image in which text content is available to ASCII character that a computer can recognize.

Today's world is digital with the appearance of many devices that are used in image acquisition. Nowadays, it becomes easy to store huge number of images by using image processing techniques. Since the collection of images and databases is fast and is increasing day by day, there is a need for new image retrieval techniques that should be efficient and fast.

CNN specifically designed to deal with the variability of 2D shapes, are shown to outperform all other techniques. Recognition systems are composed of multiple modules including feature extraction, classification and paradigm learning. They are allowing such multimodal systems to be trained globally using gradient-based methods so as to optimize an overall performance measure.

# Goal of Project



**Today is a good day!**

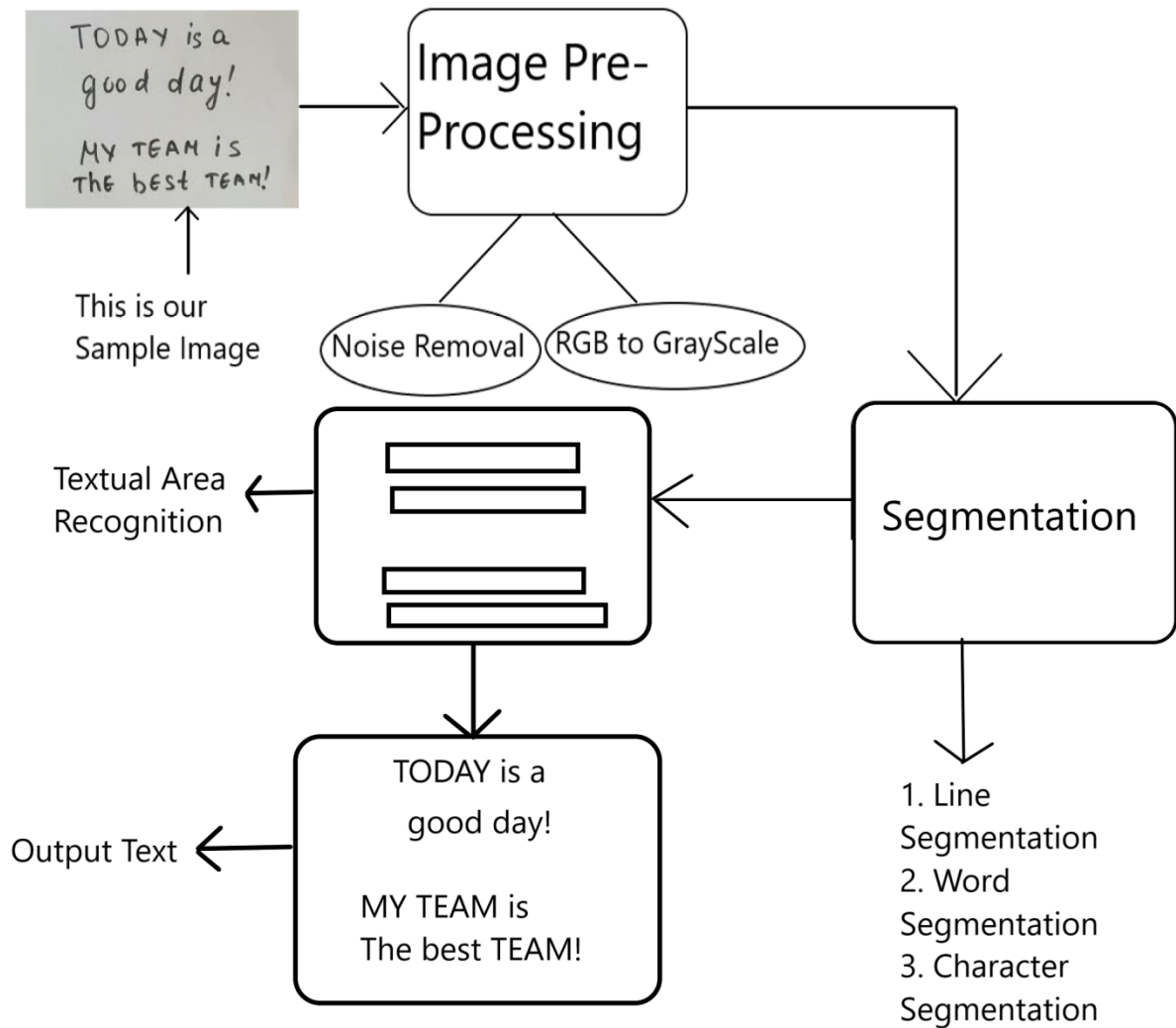
**MY TEAM is The best TEAM!**

# Applications

- Banking (To read Credit Card)
- Libraries (To convert Scanned Page to Image)
- Govt. Sector (Form Processing)
- Used in Car Number Plate Recognition System
- Undesirable Text removal from images.

# **Implementation Methodology**

- Firstly, we will take input as an image which contains some text which is to be retrieved.
- Then, we will pre-process the image to reduce the noise and convert the RGB image to grayscale.
- Then, we will perform segmentation and recognize the textual area.
- Then, we will recognize the text content from that segmented area.
- Then, finally we get the result printed on the output screen.





# **REQUIREMENTS**

## **a) Hardware:**

- External Hard Drives or DVDs for Backup
- Internet
- Minimum 2GBRAM
- i3 or above Processor
- 1024x765 Display

## **b) Software:**

- Operating System (Windows, Linux, Mac)
- Programming Language – Python and its Libraries
- Web Browser

# CONCLUSION

In this project convolutional neural network-based text detection system that learns to automatically extract its own feature set instead of using a handcrafted one. Furthermore, the network learned not only to detect text in its retina, but also to reject multiline or badly localized text. Thus, the exact text localization does not require any tedious knowledge based post-processing. Even though the network was trained with synthetic examples, experimental results demonstrated that it can compete with other methods in a real-world test set. Future work includes the inspection of the text binarization and recognition problems with Convolutional neural networks.

# **Future Scope of the Project**

1. Development of Character Recognition considering the multiple font style needs to be developed in the future.
2. Development of Character Recognition for languages other than English needs to be researched on and developed in the future.
3. There is heavy demand for an OCR system which recognizes handwritten cursive scripts. This avoids keyboard typing and font coding for the image. This method helps in detecting handwritten characters with a precision of about 90%.
4. Once we detect languages, we can develop a converter to convert sentences from one language to another through a conversion and translation scheme.

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