



# **SYNOPSIS**

## **ON**

### **HWR Application**

#### **Submitted By:**

**Astha Chauhan, (CSED/K) 191500173**  
**Sumit Mishra, (CSED/L) 191500826**  
**Yashi Mishra, (CSED/L) 191500938**

#### **Submitted To:**

**Mohd. Amir Khan**  
**(Technical Trainer)**

# **INTRODUCTION**

In the handwriting recognition (HWR) Application the device interprets the user's handwritten characters or words into a format that the computer understands. There are many levels of HWR, starting from the recognition of simplified individual characters to the recognition of whole words and sentences of cursive handwriting.

This project uses a large data set of handwritten documents to train a Machine Learning model which in case a person dealing with a non-native language, can just take an image or a video of the document and send it to the HWR application. This Application can recognize the characters in the image and video and convert them to text using OCR identification of text.

All these applications work on the principle of offline text recognition that has limitations of text recognition rate or accuracy rate. In this work, we represent a neural network-based approach to reduce time and maintain a high accuracy rate. The main idea is to design an application that works on an already trained neural network, which recognizes text in offline mode.

# **EXISTING SYSTEM**

Most of the existing android application works on existing images in the storage.

Existing android applications like-

**Camscanner,**

**Text Fairy,**

**Text Scanner,**

**Smart Lens,**

**Google Lens, etc.**

These applications do optical character recognition on existing images stored in the storage of android devices.

# **USE OF THE PROJECT**

HWR Application using a Hand Write Algorithm helps to classify the unknown data in better ways. It is a new technology that will be useful in this 21st century. It can act as a base functionality for the birth of new requirements.

Applications of offline handwriting recognition are numerous: reading postal addresses, bank check amounts, and forms. Furthermore, OCR plays an important role for digital libraries, allowing the entry of image textual information into computers by digitization, image restoration, and recognition methods.

# **FEASIBILITY OF PROJECT**

Text can not only be found in written documents such as letters or bills but also natural scenes, e.g., road signs, billboards, storefronts, etc. Being able to localize and recognize text in a natural scene image is very useful for a range of applications, such as navigation systems, content-based image retrieval, image-based machine translation, or even as support for visually impaired people.

With the emergence of deep learning methods, the performance of scene text localization and recognition systems has been boosted significantly. Developing more accurate and robust recognition systems for scene text has been a widely researched challenge for several years.

# **FUNCTIONAL SPECIFICATION**

- Reading images and videos.
- Detects text and numbers from the image.
- Detect each character individually.
- Create Bounding boxes over each character in the image.
- Create a Bounding box over each detected text in the image.
- Detects digits and alphabets individually.
- Storing text data in google keep for future reference.

## **Software Specification:**

- Technology Implemented: Machine learning
- Language Used: Python, Java
- Database: Google Keep API

## **Hardware Requirements:**

- Processor: Any
- Operating System: Android above 6
- RAM: 3+GB
- Hardware Devices: Android device
- Hard disk: 8+GB

# **FUTURE SCOPE**

Scope of Handwriting Recognition are:

- a) Electronic form filling
- b) Alternative to hardware and software keyboards
- c) Previously handwritten records can be documented easily
- d) Extensive features can also be added to the software like,
  - 1. Translation
  - 2. Voice reading
- e) No keyboard required
- f) Real-world writing style support
- g) Optical Character Recognition (OCR) has enabled scanned documents to become more than just image files, turning into fully searchable documents with text content recognized by computers.