



HANDWRITTEN RECOGNITION SYSTEM USING DEEP LEARNING

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Abstract : Recent advances in the fields of image processing and natural language processing have centered on constructing smart systems to improve people's quality of life. In this paper, an effective method for text detection and extraction from photographs, as well as text to audio conversion, is proposed. Handwriting detection is a computer technology or capability for receiving and interpreting comprehensible handwritten input from sources such as paper documents, touch screens, photo graphs, and so on. Handwritten One type of area pattern recognition is text recognition. Pattern recognition is used to categorize or classify data or objects into one of several classes or categories. The task of translating a language expressed in its spatial form of graphical marks into its symbolic representation is defined as handwriting recognition. Each script comprises a set of icons known as characters or letters, each of which has a fundamental shape. Handwriting's purpose is to correctly identify input characters or images, which are subsequently examined by a variety of automated process systems. This technology will be used to detect various types of writings. Handwriting has advanced to the point where numerous types of handwritten characters, such as digits, numerals, cursive script, symbols, and scripts in English and other languages, can be discovered. Automatic handwritten text recognition can be extremely useful in a variety of applications where large volumes of handwritten data must be processed, such as the recognition of addresses and postcodes on envelopes, the interpretation of amounts on bank checks, document analysis, and signature verification. As a result, a computer is required to read documents or data in order to facilitate document processing.

IndexTerms - NLP -Natural Language Processing, CNN – Convolutional Neural Network, OCR - Optical Character Recognition.

I. INTRODUCTION

The Handwritten text system is generally used in colorful operations, and it's a technology that's an obligatory need in this world as of now. Before the correct perpetration of this technology, we've been dependent on writing texts with our own hands that result in errors. It's delicate to store, access physical data and process the data in an effective manner. Manually it's demanded to modernize, and labor is needed in order to maintain proper association of the data. For a long time, we've encountered a severe loss of data because of the traditional system of storing data.

Relinquishment of the Handwritten Text Recognition software is a practical idea and it's easier to store and access data that was traditionally stored. Likewise, it provides further security to the data. One similar illustration of Handwritten text Recognition software is the Google Lens and illustration for tackling OCR scanners. The end of our design is to make a model for handwritten text recognition and convert them into speech for operation in healthcare and particular care that can fetch the handwriting using generalities of deep literacy.

II. PROPOSED SYSTEM

In this work, there are 3 main varieties:

- Optical Character Recognition System for pictures.
- Text and Image Conversion
- Speech Technology

In this half, there are 3 parts as represented within the follow:

- Template file Creation in Matlab.
- Creating the Neural Network for victimization Classification.

- Character Recognition system

Template file creation in Matlab. Letters A to Z and variety zero to nine pictures are collected in Matlab file. every image is modified into 24x45 character illustration in single vector type by victimization step one to five as represented within the character r recognition system. These knowledge are saved as a file for Matlab guiding in a neural network or Directly saved In Matlab File.

Making the neural network victimization Classification. A feed forward neural network is employed to line up for a pattern recognition system with thirty-seven hidden neurons. When making the neural network, the weights and biases of the network are initialized to be prepared for a coaching set. The goal is appointed between zero.06 and to zero.08. The created Neural Network is trained by victimization file and target file. The neural network has got to be trained by adjusting weight and bias of the network till the performance reaches to goal. After making it to Resolution Level, X –axis, Y-axis, Horizontal and Vertical Level of the photographs and Text.

The following steps are enforced for recognizing the character and pictures.

- Firstly, acquire the character totally different English text and image when text and image was browsed.
- Second step is the preprocessing step. During this step first the image and text is regenerated into a gray scale because the gray image contains zero to 255 bytes. Then this gray image is regenerated into black and white image (binary image). First the edge price is counted in gray image then consistent with that threshold it's regenerated into black and white image. • Find the Characteristics of the character image. Crop the image to the sting
- Find the Horizontal and vertical pictures.
- Characters are extracted and resized during this step. Letters are resized consistent with templates size

Text to speech conversion

The character image and text are regenerated into text and so text into speech. The algorithmic rule is followed. • Firstly, check the condition that if Win thirty-two SAPI applications are accessible within the laptop or not. If it's not offered then error can be obtained and Win32 SAPI libraries ought to be loaded within the laptop. • Gets the voice object from Win32 SAPI and .Net Assembly. • Compare the input string with Win32 SAPI string and .Net Assembly.

• Finally get the speech for the given image and text. Wherever Times is specified, Times Roman or Times New Roman may be used. If neither is available on your word processor, please use the font closest in appearance to Times. Avoid using bit-mapped fonts. TrueType or OpenType fonts are required. Please embed all fonts, in particular symbol fonts, as well, formatted.

III. SCREENSHOTS

Fig 1: Registration Page

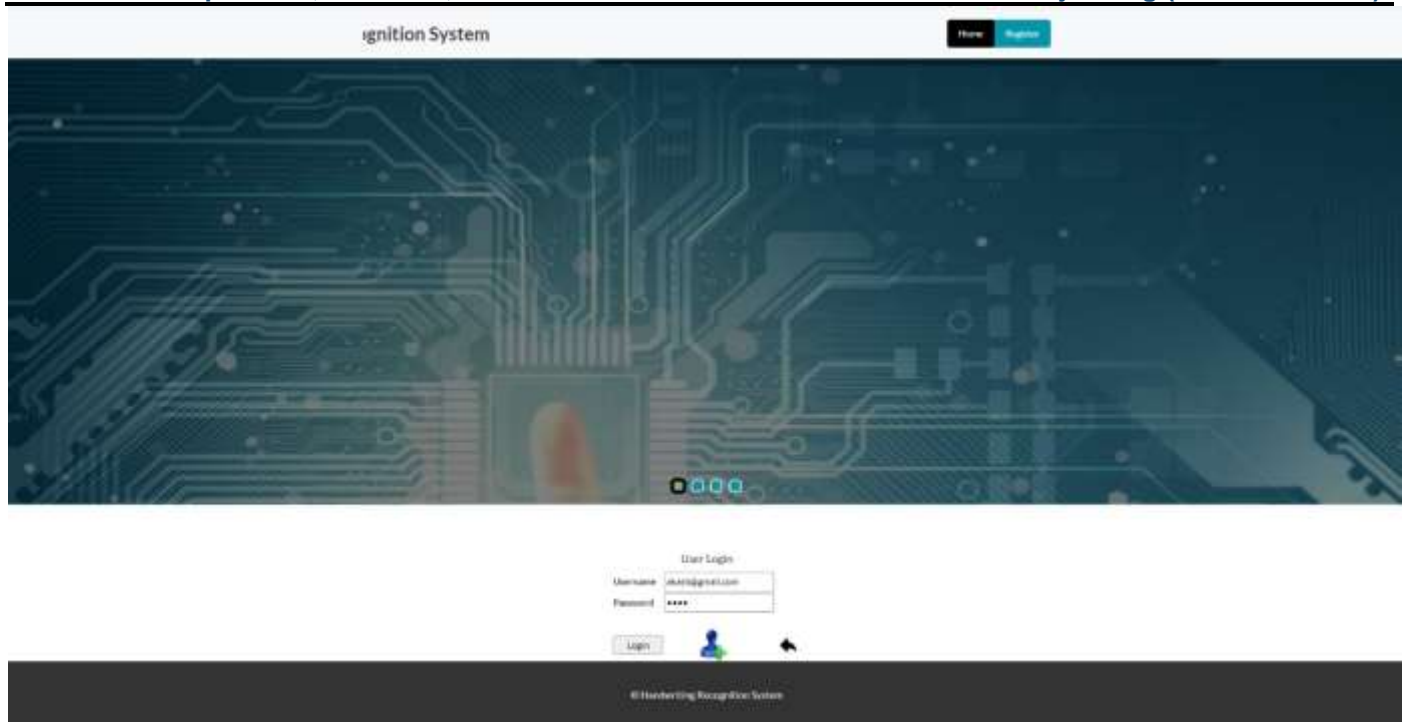


Fig 2: Login Page

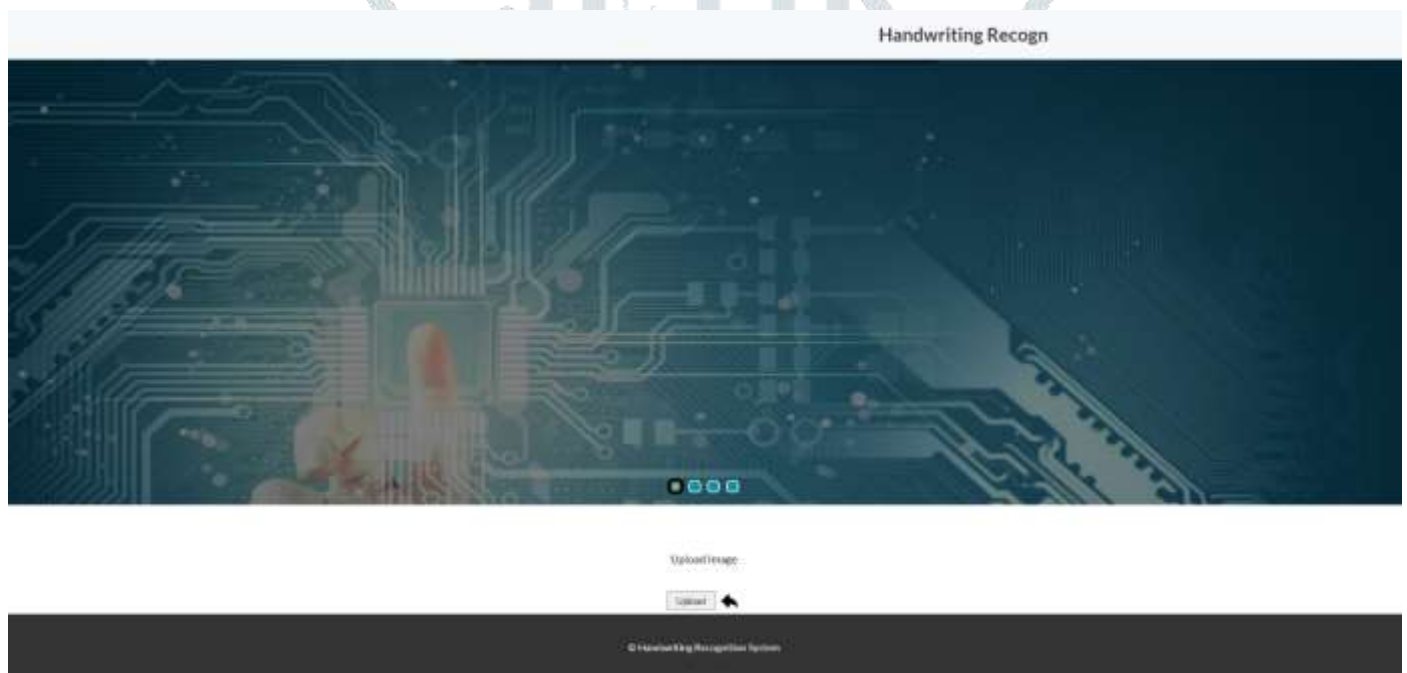


Fig 3: Upload Image

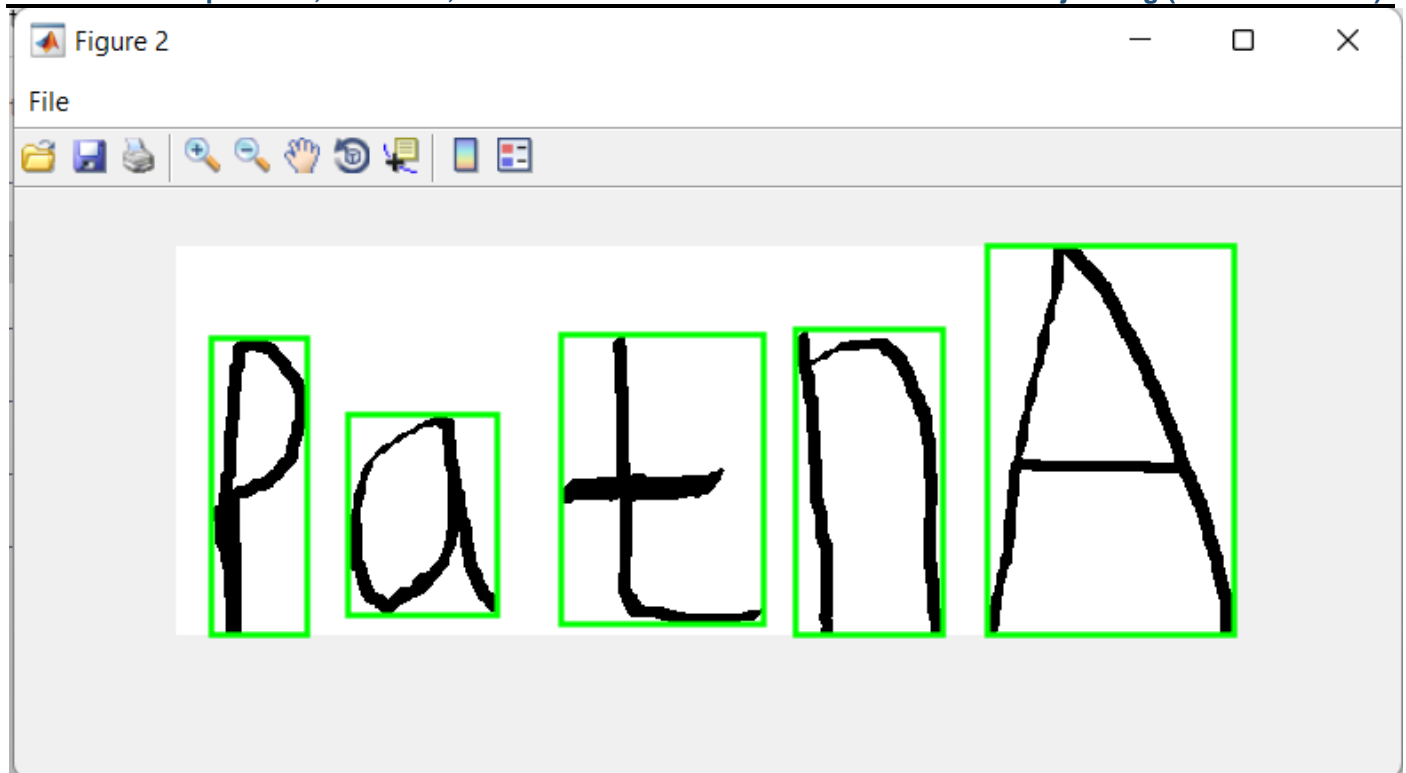


Fig 4: Recognition of Text

IV. CONCLUSIONS

In this paper we have proposed a method to extract the text from the image which extracts text more accurately. Using our method, it is possible to extract information within a short time and we are converting into Audio. Although our connected component-based approach for text extraction from color image method has several features than existing methods, it becomes less effective when the text is too small and if the text region is not clearly visible or the color of the text is not visible clearly. In future, this work can be extended to detect the text from video or real time analysis and can be automatically documented in Word Pad or any other editable format for further use.

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