

HANDWRITTEN CHARACTER RECOGNITION SYSTEM

Prajwal Bajpai¹, Mohd. Shahdil Shuaib²

¹B.Tech (Final Year), Information Technology, ABES Engineering College, Uttar Pradesh, India

²B.Tech (Final Year), Information Technology, ABES Engineering College, Uttar Pradesh, India

Abstract - Handwriting recognition has been one of the most intriguing and testing research zones in field of picture preparing and design acknowledgment in the ongoing years. It contributes tremendously to the progression of mechanization process and improves the interface among man and machine in various applications. Hand Written Character acknowledgment has been one of the dynamic and testing research zones. It has various applications which incorporate, perusing help for daze, bank checks and transformation of any transcribed report into basic content structure. In this paper an endeavor is made to perceive manually written characters.

Key Words: Segmentation, Penmanship, Style, Acknowledgement, Recognition

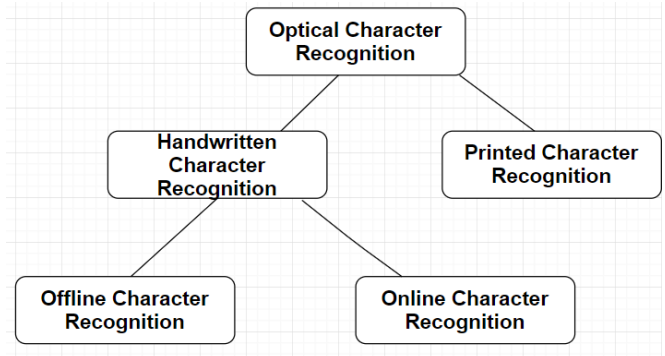
1. INTRODUCTION

In today's reality progression modern procedures are driving further the constraints of human effort in different fields of innovation. One such field is the field of character acknowledgment generally known as OCR (Optical Character Recognition).

OCR in banking field, legitimate situations, and so on and numerous other significant and touchy archives can be handled quicker without human mediation.

Further the, OCR is of two kinds, HCR (Handwritten Character Recognition) which is shrewd acknowledgment of the manually written content and PCR (Printed Character Recognition). Hand Written Character acknowledgment has been one of the dynamic and testing research territories in the field of picture preparing and design acknowledgment [1].

It has various applications which incorporate, bank checks and transformation of any manually written archive into basic content structure. Understanding the manually written characters or composed archives is easy to the people as we can learn. A similar capacity can be prompted to the Machines.



2. LITERATURE REVIEW

An early period of Neural Network was created by Warren McCulloch and Walter Pitts in 1943 which was a computational model dependent on Mathematics and calculation [2]. Research in the area of word acknowledgment, being done from Grimdsale in the year 1959 is soonest try to see the manually written character. This mid-sixty research showed the use and assessment by blend procedure being proposed by the Eden in 1968 [5]. He exhibited that each and every manually written character is constrained to number of schematic features. This theory was later used as a piece of practically all techniques for assistant systems in the locale of character acknowledgment.

The late 80s utilized various systems likes order techniques, for example, counterfeit neural system had been used famously for acknowledgment issues. In the most recent decade, AI strategies, for example, bolster vector machines (SVMs) have been applied for design acknowledgment issues. Neural systems (NNs) are another answer for resolve acknowledgment issues. In this an enormous number of written by hand letters/digits known as preparing set are taken care of into the calculation so as to deduce leads naturally for manually written character acknowledgment. A few applications including mail arranging, bank handling, archive perusing and postal location acknowledgment require disconnected penmanship acknowledgment (offline recognition) frameworks. Thus, the disconnected penmanship acknowledgment (offline recognition) keeps on being a functioning territory for look into towards investigating the more up to date procedures that would improve acknowledgment exactness [11].

3. SIGNIFICANCE OF HANDWRITTEN RECOGNITION

Penmanship acknowledgment (offline recognition) is said to be developing quickly in the present globalization. Penmanship acknowledgment is something that can portray the capacity of PC to make an interpretation of the human composition to content composition. Penmanship acknowledgment is where a PC framework can perceive characters. It likewise can perceive different images composed by hand which is normal penmanship. This penmanship acknowledgment is an innovation that is utilized to distinguish certain things and furthermore it is utilized on gadgets. For a model, it is utilized in PDA and tablet PCs. In this gadget, a pointer is utilized to handwrite on the screen of the PDA with the pointer ex. STYLUS and afterward the PC transforms the penmanship into an advanced book.

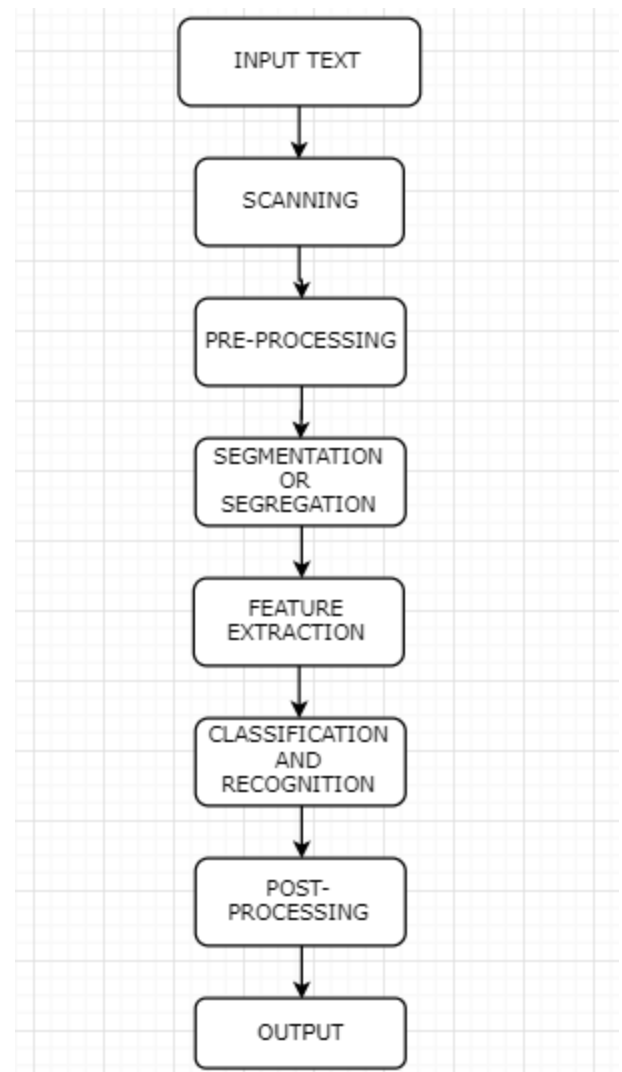
Penmanship acknowledgment (offline recognition) is an innovation that has been in this innovation world since the 1980's nevertheless just now it has been utilized quickly. Penmanship innovation's point is to chiefly let individuals to compose what they typically compose and it in the long run digitize the composing that they made. There are numerous ways that this penmanship acknowledgment works. Penmanship acknowledgment is an electronic gadget that can figure out what individual is composing. This procedure is finished by transforming the words into regular kind on a PC and other than that, it likewise should be possible by mirroring the individual's penmanship on the PC. There are sure gadgets that foresee what the individual needs to compose.

4. PROCEDURES INVOLVED ARE

- Image securing
- Pre-processing
- Segmentation
- Feature Extraction
- Classification and Recognition
- Post-processing

5. FUTURE SCOPE

This work additionally reached out to the character acknowledgment for different dialects. It very well may be utilized to change over the fax and papers into content configuration. So as to perceive words, sentences or sections we can utilize numerous ANN (ex. Perceptron) for characterization. It very well may be utilized in post office for perusing postal location.



6. CONCLUSION

Handwritten Recognition assumes a major job in the innovation world at this point. It likewise assumes a significant job in the capacity and in the recuperation of basic offline data. This penmanship acknowledgment guarantees exactness and it additionally lessens capacity costs. It guarantees that a fundamental field of research stays accessible to understudies later on. In this time of

globalization, advancements proceed to improve and improve more in a matter of seconds.

Numerous local dialects all through world have distinctive composing styles which can be perceived with HDR frameworks utilizing legitimate calculation and methodologies. Filtered picture is pre-prepared to get a cleaned picture and the characters are segregated into singular characters.

Preprocessing work is done in which standardization, filtration is performed utilizing handling steps which produce commotion free and clean yield. Dealing with our advancement calculation with legitimate preparing, assessment other advance shrewd procedure will prompt fruitful yield of framework with better effectiveness. Utilization of some measurable highlights and geometric highlights through neural system will gave better acknowledgment result.

7. REFERENCES

- [1] Amit Choudhary, Rahul Rishi and Savita Ahlawat, "Off-Line Handwritten Character Recognition using Features Extracted from Binarization Technique"
- [2] D. K. Patel, T. Som and M. K Singh, "Improving the Recognition of Handwritten Characters"
- [3] Anita Pal and Davashankar Singh, "Handwritten English Character Recognition Using Neural Network", International Journal of Computer Science and Communication
- [4] Anil.K. Jain and Torfinn Taxt, "Feature extraction methods for character recognition Survey,"
- [5] Manoj Sonkusare and Narendra Sahu "A SURVEY ON HANDWRITTEN CHARACTER RECOGNITION (HCR) TECHNIQUES FOR ENGLISH ALPHABETS"
- [6] J. Pradeep, E. Srinivasan and S. Himavathi, "DIAGONAL BASED FEATURE EXTRACTION FOR HANDWRITTEN ALPHABETS RECOGNITION SYSTEM USING NEURAL NETWORK"
- [7] U. Pal, T. Wakabayashi and F. Kimura, "Handwritten numeral recognition of six popular scripts,"
- [8] Hallale, Sumedha B., and Geeta D. Salunke. "Twelve Directional Feature Extraction for Handwritten English Character Recognition"
- [9] Nafiz Arica, and Fatos T. Yarman-Vural, "Optical Character Recognition for Cursive Handwriting"
- [10] Ayush Purohit, Shardul Singh Chauhan "A Literature Survey on Handwritten Character Recognition"
- [11] Other sources of information include Google, Study mafia.com and Wikipedia