A Fuzzy Based Model To Identify The Tamil Inscription Characters

R.Devi[1], G.Prabhakaran[2]
[1,2] Dept of computer science and engineering
[1,2] E.G.S. Pillay. Engineering. College, Nagapattinam,India.

Abstract- Tamil is one of the ancient languages in the world with rich in literature. The writers used various materials like stone, metal, pottery, wood, palm leaves, cloth, conch shell, mural paintings and copper plates to encrypt their writing. The information gathered from these inscriptions gives us knowledge about the astronomy, history, culture, religious, economic tax, administrative and educational conditions. The characters from the input image are recognized through clustering mechanism. Further the noise present in the image is removed by fuzzy median filters. Neural networks are employed to train the image and compare the data with the current century's character. Hence a more accurate recognition of Ancient Tamil characters from stone inscriptions is obtained. The literary works, grammar, astrology, science and technology, etc., are encrypted in palm manuscripts. Historical moments of places and dominion are also encrypted. Character recognition is one of the most difficult tasks in the pattern recognition system. There are a lot of difficulties in image processing techniques. To solve these, one should know how to i) separate the characters in the segmentation process, ii) to recognize unlimited character fonts and sculpting styles in noisy image and iii) distinguish characters that have the same shape, but have different pronunciation in characters. Many researchers have tried to apply many techniques for breaking through the complex problems of character recognition. Fuzzy logic is the logic of approximation the observed patterns of distance and intersection measurements with the help of fuzzy logic can be used to uniquely identify tamil characters. Robust feature extraction is very important to improve the performance of Ancient Tamil character recognition system.

I. INTRODUCTION

The ancient Tamil characters belonging to various periods by testing a small amount of characters referred to as examined characters in Tamil language. These examined characters are taken from the script automatically and coordinate with the characters belonging to different periods using machine intelligence. There are thousands of inscriptions in Tamil in the Southern Karnataka districts of Bangalore, Mysore, Kolar and Mandya in India. Nearly one third of these inscriptions are found in the Kolar District.

Only about 25% of the total Tamil inscriptions found in the Kolar District have been recorded.

A number of medieval inscriptions written in Tamil language and script that have been found in Southeast Asia and China, mainly in Sumatra and peninsular Thailand. These texts arose directly from trade links between south India and certain parts of Southeast Asia and China, which involved the residence in those regions of Tamil-speaking Indians. Several of these overseas Tamil inscriptions mention well-known medieval Indian merchant associations. Many of the stone inscriptions that are found across different regions of the world reveal the details of extravagance, lifestyle, economic condition, culture, and also of the administrative regulations followed by various rulers and dynasties particular to those regions. The information gained from these inscriptions can be corroborated with the information from other sources, in order to provide an insight into world's dynastic history, which otherwise lacks the completeness of contemporary historical records. Epigraphists use this information to identify the graphemes, clarify their meaning, classify their uses according to dates and cultural contexts, and to draw conclusions about the writing and its writers. Texts inscribed on stone are usually put up for public view to exhibit different cultures that prevailed during the period of inscription.

II. LITERATURE REVIEW

Century Identification and Recognition of Ancient Tamil Character Recognition:

The author presents the contour let-based methods in offline text-independent ancient Tamil handwriting are identification from the stone inscription. Compared made with the 2-D wavelet and contour let-based method attains a higher accuracy, because contour let transform has capacity to capture moderately and comparability with richer directional information and significant to represent the writing style of hand writing of ancient people. From long literature there is no existed handwriting database available any data base and researcher build up a small handwriting database their conveniences and it leads to the small capacity of the experimental database setups. To make the experiment result

more convincing and enlarge the database setup for future work [2].

Distortion Analysis of Tamil Language Characters Recognition :

Pattern recognition notion is achieved to using the normal computing techniques and neural networks for analysis of Tamil language character recognition of ancient letters. In usually, the computing conventional arithmetic algorithms are used to detect for given pattern matches. On the other hand, neural networks can tolerate noise and it will respond for the noisy patterns and it constructed with the proper architecture and trained correctly for data set and it makes as results of pattern recognition of the tamil characters letters of 'tha', 'zha' of distorted and recognized with an error [5].

III. PROPOSED SYSTEM

Fuzzy logic is the logic of approximation. The observed patterns of distance and intersection measurements with the help of fuzzy logic can be used to uniquely identify Tamil characters. A system, which makes use of these unique features, will overcome this challenge. The features which will be extracted from the image of the character will determine the efficiency and the accuracy of character recognition.

Feature extraction is the process of extracting information from test data which is most relevant for classification purpose. Feature Extraction technique extracts the basic components of Tamil Characters in Stone inscription and then it translates the components for further recognition procedures. As this concept is a basic approach to recognize the text in the given image the same can be done by different combinations of algorithms to produce better results. Either the language is ancient are modern as long as we are able to identify the features of each letter.
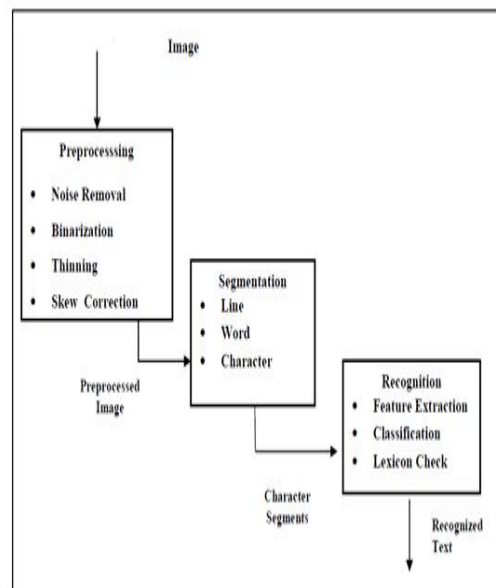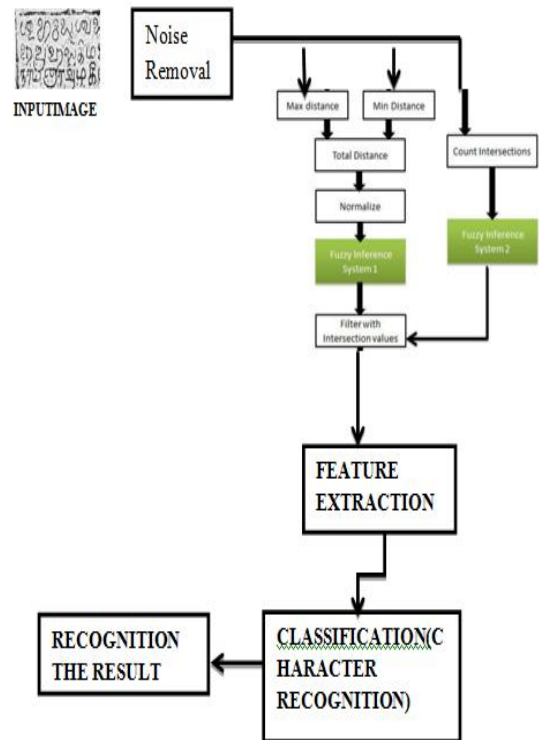
MODULES

1. Pre-processing
2. Segmentation
3. Feature extraction
4. classification
5. Recognition text

IV. METHODOLOGY

The Tamil Letters and its characters from the input image are recognized through the clustering mechanism. Moreover the noise present in the image is removed by fuzzy median filters.

STEPS

1. Fuzzy logic can be defined as a superset of conventional (Boolean) logic that has been extended to handle the concept of partial truth - truth values between "completely true" and "completely false.
2. A fuzzy logic membership function that defines the meaning or values of the input and output terms used in the rules.
3. After the membership functions are created, program everything then into the fuzzy logic system.
4. Finally, test the system, evaluate results and make the necessary adjustments until a desired result is obtain.

STAGES

- Fuzzification

Membership functions used to graphically describe a situation.

- Evaluation of Rules

Application of the fuzzy logic rules

- Diffuzzification

Obtaining the crisp results Fuzzy Median filter is a technique which is used for removing noise from the scripted image. The process is estimated using the following equation.

$$wt = 1 \; if \; i = \Omega - 12$$
$$0 \; otherwise$$

V. WORKING PROCEDURE

- Examples
- If angle is zero and angular velocity is zero, then speed is also zero
- If angle is zero and angular velocity is negative low, the speed is negative low
- If angle is positive low and angular velocity is zero, then speed is positive low
- If angle is positive low and angular velocity is negative low, then speed is zero

IV. CONCLUSION

The main goal of this research was to provide an easy, efficient to recognition tamil character recognition. The distance calculation from the center of the letter is proved to be an effective method to recognize characters after filtering the number of intersections in each direction. The recognition accuracy was improved compared to other similar systems in the literature. Even though the system performs well in recognition for basic types of characters, it could be further improved to handle complex ancient Tamil characters.

REFERENCE

[1] Rajakumar S and Subbiah Bharathi V, "Century Identification and Recognition of Ancient Tamil Character Recognition" ,International Journal of Computer Applications (0975 – 8887) Volume 26– No.4, July 2011

[2] Venkata Krishna Kumar Poornima T V , "An Efficient Period Prediction System for Tamil Epi graphical Scripts Using Transductive Support Vector Machine", International Journal of Advanced Research in Computer and Communication Engineering Vol. 3, Issue 9, September 2014.

[3] V. Karthikeyan presented ―Hilditch's Algorithm Based Tamil Character Recognition‖ International Journal of Computer Science & Engineering Technology (IJCSET) ISSN : 2229-3345 Vol. 4 No. 03 Mar 2013 268-273

[4] Raja kumar. S presented ―7th Century Ancient Tamil Character Recognition From
Temple Wall Inscriptions‖ Indian Journal Of Computer Science And Engineering (Ijcse) Issn : 0976-5166vol. 3 No.5 Oct-Nov 2012.

[5] Rajasekarm ,Celine Kavida A And Antobennet M Presented In ―Performance And Analysis Of handwritten Tamil Character Recognition Using Artificial Neural Networks‖ International Journal Of Recent Scientific Research, Vol. 7, Issue, 1, Pp. 8611-8615, January, 2016.