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## HEALING RECOGNITION SYSTEM INDIGITAL IMAGE USING FUZZY ASSOCIATIVE MEMORY METHOD

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### Abstract

*Abstract-* Muslim culture introduces the tradition of calligraphy as a form of Islamic art that uses the verses of the Qur'an as the main focus of recognition in the Islamic tradition. Concludes with the development of knowledge that the Khat tradition has been developed with technology. Detection of Khat with the Fuzzy Associative Memory method to detect patterns on the Khat by detecting an image or a photograph. And in pedektisian in the picture can be implanted prior training patterns in order to recognize the Khat pattern.

**Keywords:** Islamic Calligraphy Khat, Khat Introduction, Fuzzy Associative Memory

### 1. Introduce

Calligraphy is one of the greatness of Islamic culture that has characteristics in the historical record of the development of Islamic culture from time to time. One of the artworks that was developed was a form of calligraphy. The development of Islamic calligraphy until today is due to calligraphy figures or khatat who in the past were able to develop it in various regions.

In this study, the authors developed a system that uses digital image processing by reading photos from mosque calligraphy decorations in Lhokseumawe.

To find out the rules of khat in the decoration of mosque calligraphy to facilitate the people in Lhokseumawe in studying and knowing the existing calligraphic rules. In this case the existing photos will be read by the method in the system, based on

the information above, the writer wants to take the title for the introduction of calligraphic rules through digital photos with the Fuzzy Associative Memory method.

## 2. Research Methods

### 2.1 Fuzzy Associative Memory

Fuzzy Associative Memory makes it easier to find a pattern that will be input into the application to find the shape and name of the pattern. The work process of this method is to indicate the value between the training pattern and the test value is smaller than 1 and this states that the khat principle is detected because the distance of the image pattern on the khat is between 0 to 1, if the values of  $b_1$ ,  $b_2$ ,  $b_3 > 1$  by using Fuzzy Associative Memory method indicates the value between the training pattern and the test value is greater than 1, then it shows the pattern is not meant by the rules of khat.

Converted into grayish image by point operations. gray gives the possibility of more colors than the binary image, because there are other values between the minimum value (usually = 0) and the maximum value.

## 3. Results and Discussion

### 3.1 Diagram of Research Work Flow

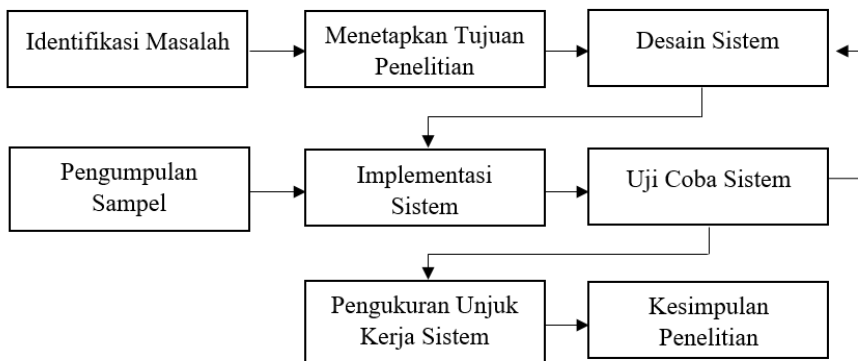


Figure 3.1 General Research Workflow Diagram.

The workflow diagram for this system begins with the identification of the problem problem, then after the problem is

formulated continued by setting the objectives of the research to be raised, then proceed with the system design process. after the system management process is complete, it will be implemented by testing the system that will be created using sample images that have been collected previously. From the results of the system test, the level of work accuracy can be known, so that conclusions can be obtained from this study.

### **3.2 System Schema**

A system scheme is a structure and mechanism to connect a set of elements or elements that are interrelated and influence each other in carrying out joint activities to achieve a goal. The system scheme is used to illustrate some information about the sound file associated with the application that will be created.

### **3.3 System Schematic for Flowcharts**

The method scheme is a flowchat design that illustrates the process of applying the Fuzzy Associative Memory formula method to find out the results of a systematic calculation based on the detection of sound input.

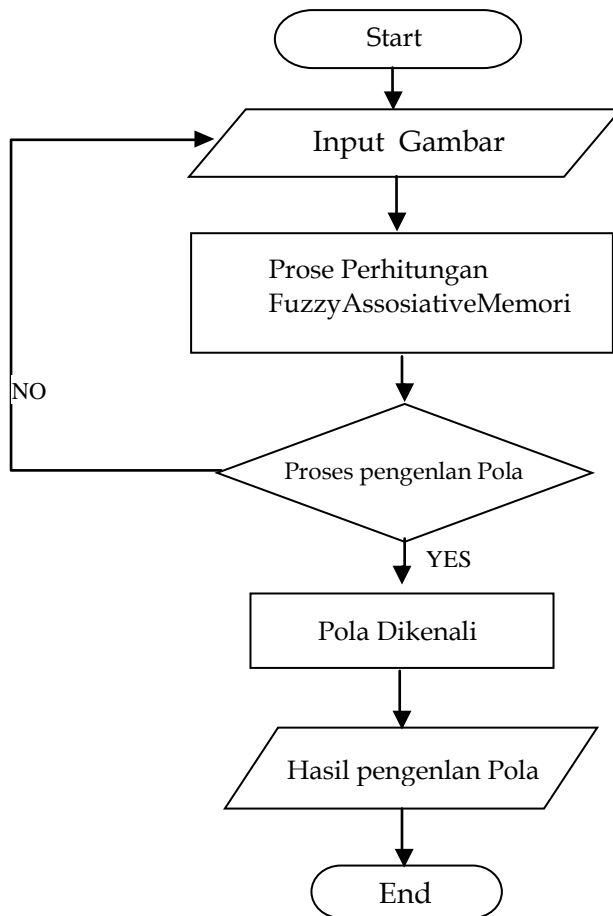


Figure 3.3 Flowchart Introduction System of Islamic Calligraphy Khat on Digital Imagery with Fuzzy Associative Memory Method.

#### 4. Conclusions

1. Fuzzy Associative Memory shows that the Calligraphy Image Detection detects the Khat Naskhi, Tsulus and Khofi pattern rules.
2. The results showed that the introduction of the Calligraphy Khat system was made to facilitate the public in understanding the decoration of the Kahidah mosque.
3. Describe the process of how the results in the detection of the Fuzzy Associative Memory method to determine the results of

the systematic calculation based on the detection of images input.

### References

- Bambang Eka Purnama. 2013. Konsep Dasar Multimedia. Yogyakarta : Penerbit Graha Ilmu.
- Fadlisyah. 2013. Sistem Pendeteksian Wajah Pada Video Menggunakan Jaringan Adaptive Linear Neuron (ADALINE). Program Magister Teknik Elektro. Universitas Sumatera Utara
- Fadlisyah, dkk. 2016. Pendekteksi Tajwid Idgham Mutajanisain pada Citra Al-Qur'an Menggunakan Fuzzy Associative Memory (FAM). Jl. Cot Tgk Nie-reulet, Aceh Utara, 141 Indonesia.
- jbptunikompp-gdl-junaedimut-32528-10-unikom\_j-i.pdf, Pengertian kaligrafi, MTQ.