CHAPTER 1
INTRODUCTION

1.1   Background

Signature is an identity that must be owned by everyone. Signature is often used to legalize a document. The authenticity of the signature is very important for this matter. Some people deliberately forge signatures with bad intentions. Falsification of signatures often occurs in existing institutions, such as schools, banks, offices, and others. So, this research will use signature image processing techniques based on the value of entropy to find out the authenticity of the signatures. Entropy value is used to measure the uncertainty of the random variable.

At the end of the calculation, the results will be shown together (Entropy values, and time process). This project is using signatures of 15 respondents as training data, and 15 respondents as test data. All of the test data samples are using a ballpoint size 0.1, 0.3, 0.4, 0.5, 0.8 and the color is black, while the training data using size 0.5. Respondents will sign their signatures 10 times (each size 2 signatures), and some new respondents will imitate the existing sample signatures.

From the final entropy results, the entropy data training will be compared with the entropy data test. If the results are close, then it's declared as the original signature. Then we will also check how the entropy results of the fake signature's entropy.

1.2   Problem Formulation

1. How is the difference between the original and fake signature entropy values?

2. Does the variation signatures in each respondents and the thickness of the pen affect the entropy results?

3. How accurate is the system in verifying signatures?

1.3   Scope

1. Implementation of Entropy calculation to find the distribution value of the signature images.

2. Analyze the Entropy value results from the training and test data then compared them.

3. From comparing the entropy values of training and test data, whether looking at the variation in the signature and the thickness of the ballpoint pen will affect the entropy results.

1.4   Objective

Create a program for signature image processing which in the process will be converted into a binary image and then calculate the entropy value for analysis and conclusion the results.