Secure Image Comparison using Hashing & Digital Signature

# Introduction

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- Similarity of multimedia object is very important

- Cryptographic hash functions are adequate for this

- Why Perceptual hash functions?

- A system is developed in which two images can be compared to see if they are identical or not such that images themselves may be private and not subject to open exchange in viewing.

- Check similarity of images using perceptual hash function.

Key Features

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- Applying rotation by less than equal to 90 degree on the one image, then system recognizes them as similar image.

- Applying scaling with factor of 0.5 to 2 then system recognizes them as similar images.

- If one image is derived by adding noise on other image, then system gives some similarity percentage.

- Digital Signature of generated hash.

System Architecture

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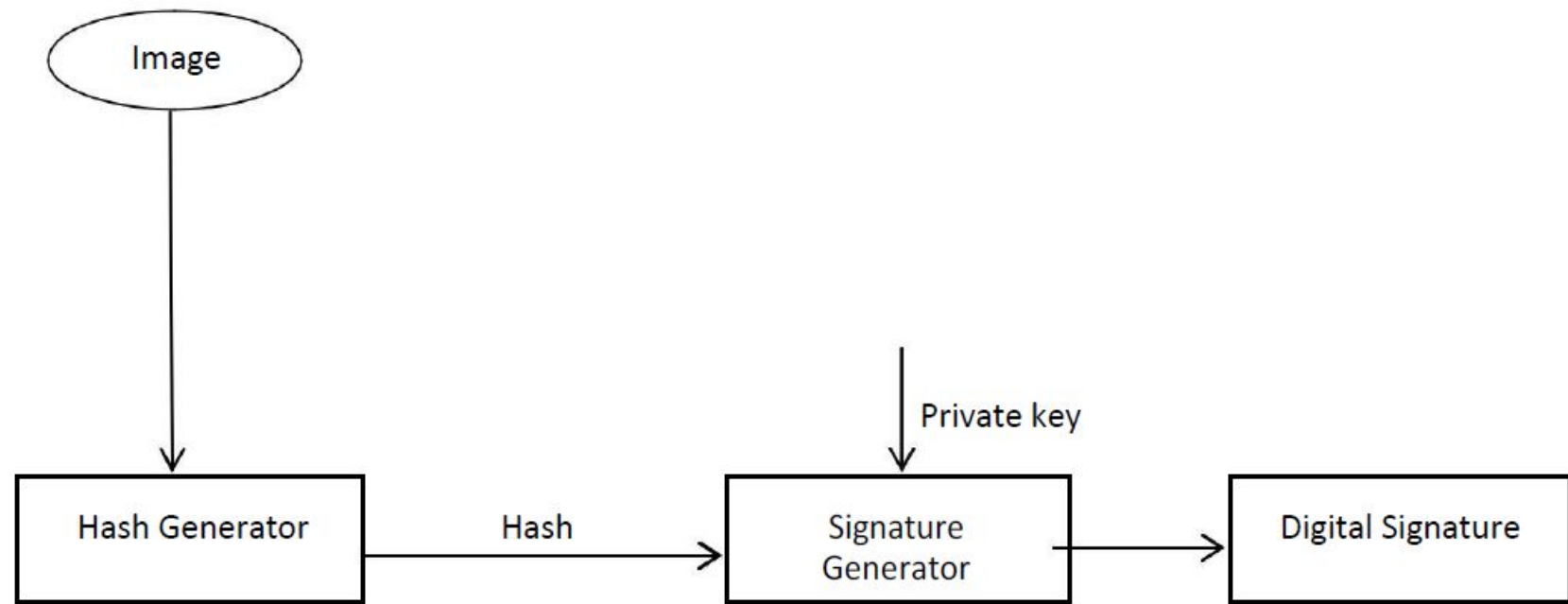
Figure 1: **Hash and Signature Generator**
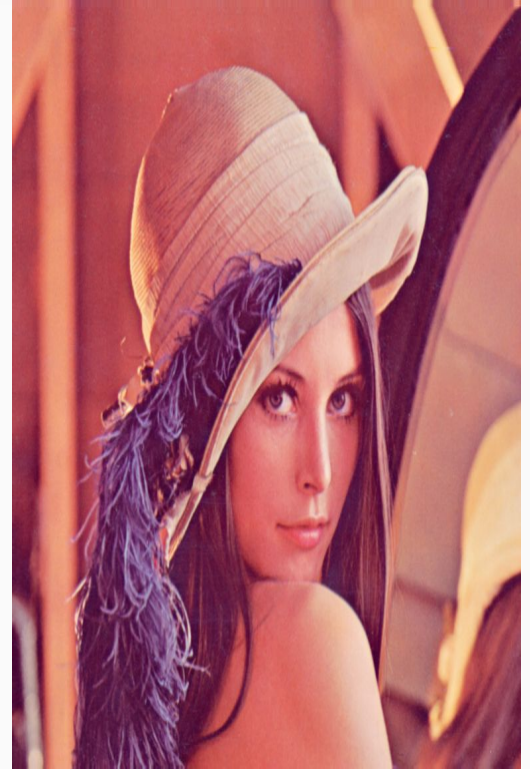
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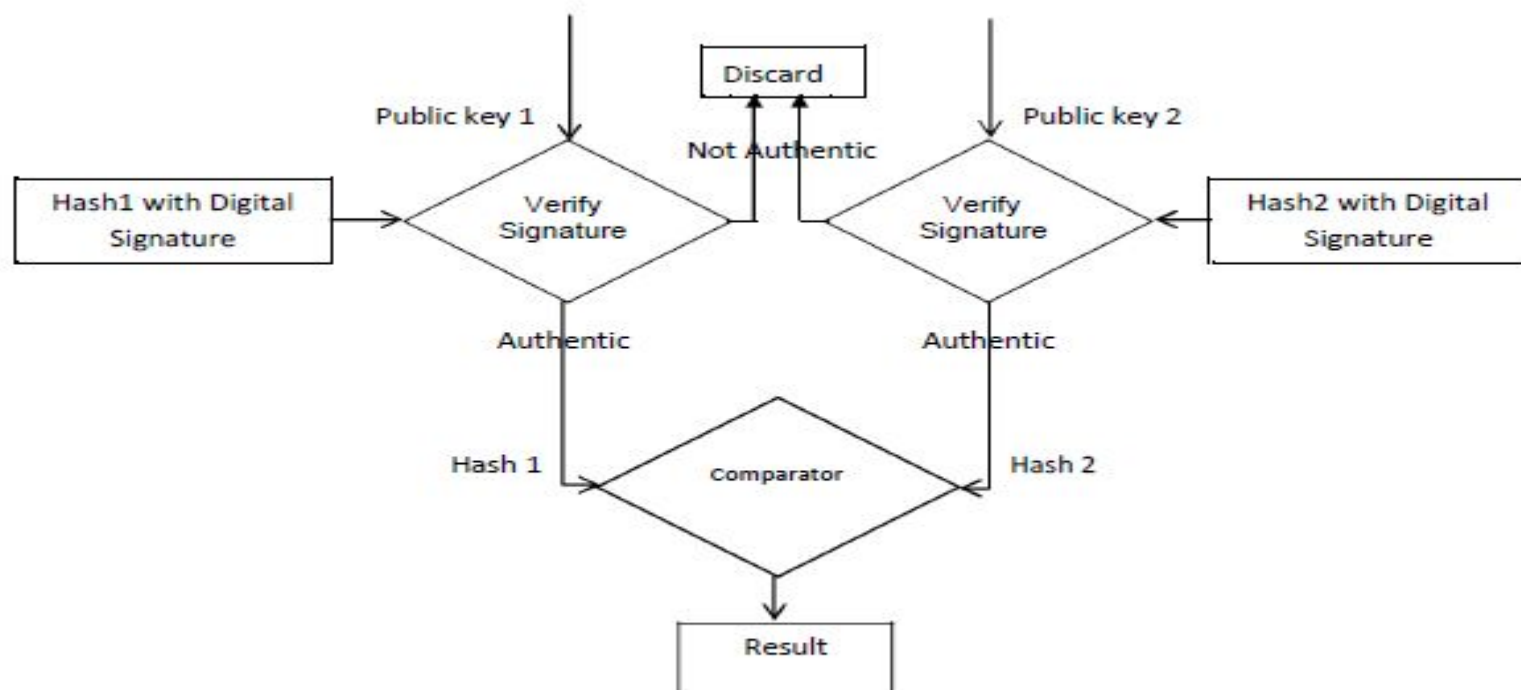
Figure 2: Comparator Module for comparison

Test Cases

For rotation of above image by 10 degree, comparison results into 100% match

For scaling above image by factor 2.00 , comparison results into 100% match

By adding manual noise on above image, comparison results into 82% match

Applications

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- Cloud based platform for image search (e.g. Cumulix)

- Websites providing image as password feature

- Similar images search using APP(e.g. Android App)

- Defense department

Future Scope

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- This system can be enhance for comparing two documents. If any modification is done in document ,system should be able to detect that.