WALCHAND COLLEGE OF ENGINEERING SANGLI

(An Autonomous Institute)

A Mini-Project Report on
"Social Media Image Tracker System"
Submitted By

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(Project Guide) **(HOD)**
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Third Year B. Tech. 2018-2019

CERTIFICATE

This is to certify that project report entitled as

"**Social Media Image Tracker System**"

Submitted by-

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Has undergone a Mini Project work and successfully completed in the academic year 2018-2019(SEM-II).

Date:18 April 2019 Project Guide

Place: Sangli.

ACKNOWLEDGEMENT

We are rather infused by the kind guidance of Sir. Swapnil Mahadeshwar who put in the cradle of our Engineering studies and evaluated us to this end and mean of our project. We could not have been able to complete the project without his valuable guidance, experience and time to make the project a success. Without his guidance, we are sure would be orphans in the vast ocean of Digital Image Processing. In the end, we would like to express a sincere thanks to all the people who helped us in the project completion directly or indirectly and feel lucky to have got their help.

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Abstract-- In the era of Internet, Social Media is on great peak. There has been a tremendous progress in all the forms of Social Media Technology. But one of the solution, rather the problem is not properly addressed since decades. The images which are circulated in Social Media Sites are not all true. Some of the images carry a hidden agenda, which may be harmful to someone. Some of the images may provoke agitation or violence against a particular community or an individual. As there is no such mechanism which can give us the privilege to trace the creator and forwarders, we have come up with the idea of amalgamating Social Media with Image Steganography. Image Steganography is a technique used to hide the data in the image itself with the help of bits of pixels. This will give us the advantage of traceability and the culprit can be easily taken to custody.

1. Introduction

The underlying technology used in this project is Image Steganography and Perceptual Hashing. Image Steganography is the process of storing the data into images by bit manipulation in such a way that it is unknown to others. The stronger steganographic algorithm prevents the hacker from retrieving the information. The information can be retrieved only by the admin, who knows the actual decryption algorithm. In this project, the name of creator of image as well as of the users who forward the image in social media will be stored in the bits of pixel. Whenever some catastrophic event happens due to any of image circulated in social Media, the creator of the image as well as the forwarders of image can be traced out with the help of the data stored in the image. This will be the reason for the justice if something bad happens due to the image.

There may be a case that image is edited by the user by applying some filter or by re-sizing the image. In this case, the concept of Perceptual Hashing is used to check if the image received to the user is somewhat similar to the image send by the user. If the algorithm finds the images same, then the chain of information present in the image is

continued. By this way, the user cannot get away by changing the pixels bits.

2. PROBLEM STATEMENT:

Using Image Steganography, the information of user who created the image, the chain of people who forwarded it throughout the Social Media will be stored in the bits of pixels.

3. OBJECTIVES:

Real World Objective:

- To find out the main culprit for spreading false rumored image on social media.
- Enhance security over Social Media.

Technical Objective:

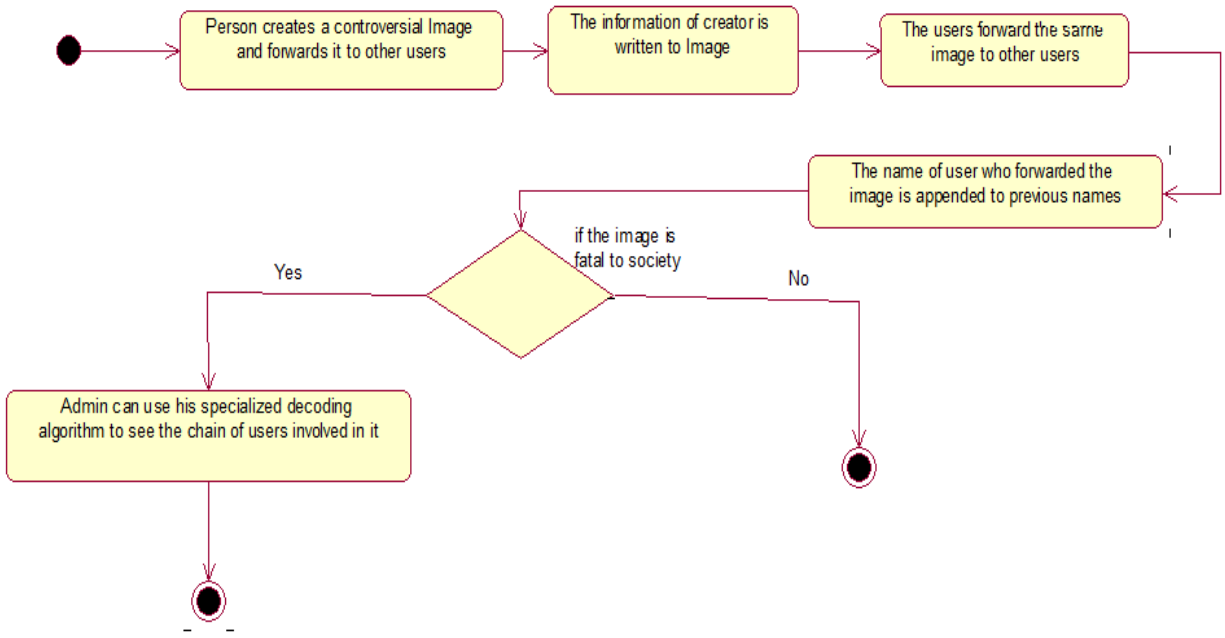
- Prevent any kind of intrusion of hacker from changing any information.
- Create a Strong Steganographic Algorithm.

4. SOFTWARE AND SPECIFICATIONS:

- The underlying principle of our project is Image Steganography and Perceptual Hashing.
- The Interface is Web App using Python Flask framework

5. IMPLEMENTATION

Flow Diagram

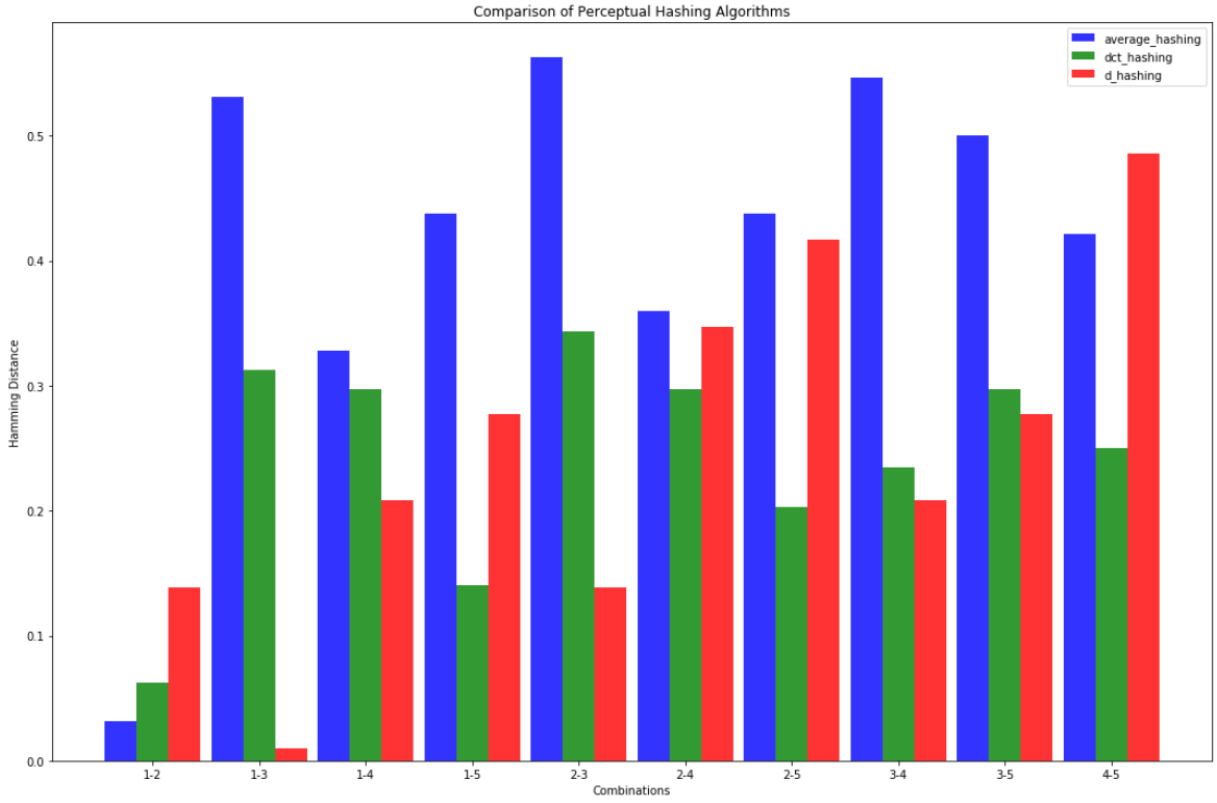


Algorithm:

```
def encode(img, msg):
    rows, columns, channels = np.shape(img)
    i_r = 0
    i_c = 0
    i_ch = 0
    for i in msg:
        num = ord(i)
        for j in range(8):
            code = num%2
            num = int(num/2)
            if code == 1:
                img[i_r,i_c,i_ch] += 1 - img[i_r,i_c,i_ch]%2
            else:
                img[i_r,i_c,i_ch] += img[i_r,i_c,i_ch]%2
            i_r += 1
            if i_r >= rows :
                i_r = 0
                i_c += 1
            if i_c >= columns:
                i_c = 0
                i_ch += 1
def decode(img):
    text = ""
    rows, columns, channels = np.shape(img)
    i_r = 0
    i_c = 0
    i_ch = 0
    max_char = int((rows * columns * channels) / 8)
    for i in range(3816):
        num = 0
        for j in range(8):
            num += (img[i_r,i_c,i_ch]%2) * (2**j)
            i_r += 1
            if i_r >= rows :
                i_r = 0
                i_c += 1
            if i_c >= columns:
                i_c = 0
                i_ch += 1
        text += chr(num)
    return text
```

For Perceptual Hashing, three hashing algorithms were conidered:

1. Average Hashing
2. DCT Hashing
3. dHashing (Difference Hashing)



dHashing is found more accurate. Hence, we have used dHashing in our project

6. SIGNIFICANCE OF PROJECT:

- Steganographic Algorithm is highly secure and less prone to error.
- Highly efficient way to keep track of users.
- Plays a great role in Cyber security.

7. FUTURE WORK:

To be implemented in WhatsApp server.

8. REFERENCES:

1. Monica Dagadita, Razvan Dobre “Data Hiding Using Image Steganography” 30 June 2013 .
2. R.C Gonzalez Fundamental of Digital Image Processing Book