INTERNATIONAL JOURNAL OF PURE AND APPLIED RESEARCH IN ENGINEERING AND TECHNOLOGY

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A FORENSIC ANALYSIS OF IMAGES AND INVESTIGATION MODELS

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Abstract: In our day to day life, the use of online social networks such as facebook, twitter & googleplus etc. increases at very fast rate. Similarly along with the increasing technology the criminals also running as fast as the technology. Sometimes it also happened that the criminals go forward than the technology by using the advanced technological machineries. Sometimes the images which are being uploaded and downloaded from online social networks are used for illegal activities. So now it is essential that to find out how the images are used for illegal purposes. This survey analyzes the characteristics of images published on OSN's. For that here we survey on various papers to focus mainly on the processes takes place during uploading the images and what changes are made to some of the characteristics, such as JPEG quantization table, pixel resolution & related metadata. Here I have also survey on some standard models for forensic investigation for online social networking. Those models are capable to automate searching, extracting, filtering & reporting important information in the network without having to search manually. It can also used to established whether an image has been downloaded from online social networking.

Keywords: Online Social Network, Pixel Resolution, Metadata.

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How to Cite This Article:

Shrikant Kale, IJPRET, 2014; Volume 2 (9): 75-82

PAPER-QR CODE

INTRODUCTION

At present the web social networking sites are most used sites on the web. Some on-line social networking sites ar designed to share info like messages and pictures, and enormous range of pictures ar being shared daily on the OSN's . This produces traffic of pictures per second on the sites. during this paper, the subsequent 3 characteristics of pictures printed on some OSNs are analyzed.

• Image format: On the web social networking pictures will be encoded exploitation completely different formats like JPEG, BMP, and PNG. JPEG is that the most used format within the gift on the web social networking whereas process the photographs.

• Metadata. : It provides info that supplements the first content of documents like file name, creation or modification date, orientation, creator, location or comments.

• Pixel resolution. Size of the image expressed in range of pixels for every row and every column.

The analysis targeted on the some on-line social networks. The experimental results show that each one the target OSNs amendment the picture element resolution and data of the uploaded pictures to fastened values and it conjointly show that however the photographs ar being born-again from one image format to the opposite format once the image is being uploded on the OSN's to prevent the used of pictures for the contraband work by the criminal I survey on some investigation models that ar a lot of helpful for investigation method of the photographs than the present system.

In this paper delineate 2 models for investigation when the survey on varied papers. Here describe however those models acting on pictures and completely different phases of it throughout process.

The organization of table is as follows

In the first section there is a materials and methods in that some topics are being covered such as images on online social networks, some image formats. After that some problems in existing forensic investigation models. After that implementation of models, then result and conclusions and then references.

MATERIALS AND METHODS

Images on on-line social networks: Here we tend to divide the revealed pictures into 3 types:

• User equipped images: the photographs uploaded with a "good" resolution and might be organized into   albums or associated to user profiles. OSNs offer a service that lets the user transfer their own pictures. This method defines some constraints for the photographs to be accepted ,such as image format and size. Some OSNs, throughout the transfer method, let the user choose between totally different resolutions.

• Thumbnails: they square measure the reduced-size version of the uploaded pictures wont to facilitate organize them. they're created victimisation scaling/cropping operations on the user equipped pictures. These square measure largely used as placeholders within the "walls" to spot the user or machine-readable text links to alternative contents.

• Promotional material images:Those square measure equipped by the OSN's promoting services, on that the user has no management. this type of pictures weren't thought of within the analysis [3,4,5].

Following square measure the image sorts that square measure being thought of on totally different OSN'S

1)FBhi User equipped pictures with high resolution.

2)FBst User equipped pictures with customary resolution.

3)FBpr Profile photos, i.e., the photographs related to the user and customarily displayed on its home page.

From a standard forensics framework and scrutiny totally different investigation models, we tend to strive finding a broad framework that lends itself to automatic procedures. whereas listing participants' arguments for and against automatic investigations, we tend to note divided interest in making automatic procedures.

• Some image formats:

All {the pictures|the pictures|the photographs} revealed stores uploaded images in several formats like JPEG, PNG, GIF and BMP, betting on the input image. Picasa doesn't convert the input pictures. The OSNs settle for conjointly pictures in alternative formats like PNG, BMP and GIF. The take a look at results show that there also are unacceptable formats like spat. If the input image satisfies size constraints of the OSN, then the image is either revealed while not modifying its cryptography or is born-again into another format conserving the component resolution [7].

Otherwise, the OSN reduces the scale of the image in keeping with its policies and user equipped choices victimisation scaling operations. A series of experiments were run on input pictures that weren't scaled by the OSN. so as to possess a additional careful understanding of the conversion method adopted by the OSNs, a similar input pictures were born-again victimisation GIMP2 and IrfanView. These pictures are compared to those downloaded from the OSN

PROBLEMs IN FORENSIC INVESTIGATIONS FOR OSN

Although the increasing range of users of OSN has generated improved practicality and utility, it's conjointly contributed to a growth in OSN-related cyber crime. OSN has created a massive resource of knowledge that may be manipulated by criminals. Similarly, within the course of OSN digital rhetorical investigations, numerous items of knowledge concerning victims, suspects, witnesses and potential co-schemers are often nonheritable, and most significantly proof of various criminal activities are often discovered. so as to effectively investigate cyber crimes in OSN we want to handle the problems and challenges during this matter. a number of the vital challenges are mentioned within the following planned models [5].

Here I discuss 2 investigation models for the web social networking.

Model 1:

Here develop a selected model for investigation in on-line social networks so develop a paradigm that reflects the rhetorical investigation method in on-line social networks supported the model that has been developed before. Fig. shows the model of digital rhetorical investigation for on-line social networks.

The model includes the full method of on-line social network investigation. Here divided the full method of investigation into 2 environments. The physical atmosphere consists of activities that square measure allotted before the investigation. These square measure preliminary activities together with notification from the social control body, designing of a way to conduct the investigation and surveying of any physical crime scene and proof gift. when these activities are completed, investigators can proceed to the digital atmosphere wherever they're going to do investigation and analysis of on-line social n/w. networks employing a paradigm that may be developed. consecutive activity can shift back to the physical atmosphere wherever all the analysis method occur. the subsequent list describes all activities well.
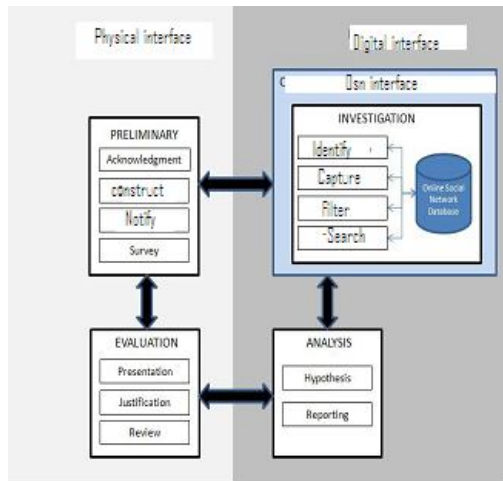
Fig2: Model 1

WORKING OF THE MODEL 1

1) automobile generating: The paradigm ought to be ready to generate knowledge supported queries given by examiners, then paradigm can do the remainder of the method in looking, analysis and reportage of a specific examination. Hence, there'll be less human involvement in application of the paradigm.

2) Ability to look and filter knowledge: a way to look data mechanically are going to be developed according to specific conditions demanded by associate degree examiner. later the searched knowledge are going to be filtered so as to find relevant knowledge from the looking method .

3) Ability to report comprehensively: The paradigm that may be developed ought to be read to produce a report supported the previous method and can give important info from the investigation.

4) Ability to produce a time-efficient paradigm : consider techniques ready to fulfil steps inside the rhetorical investigation in on-line social networks that have appropriate quality. The aim is to used on real time slices.

5) Ability to run associate degreed perform: analysis of multiple searches of a private's on-line social network accounts: The paradigm are going to be ready to search and analyse totally different networks of an individual to extend the number of any supporting info which will be gathered [15].

Model 2:Here now I explain another model for online social networking.which implement are as follows:
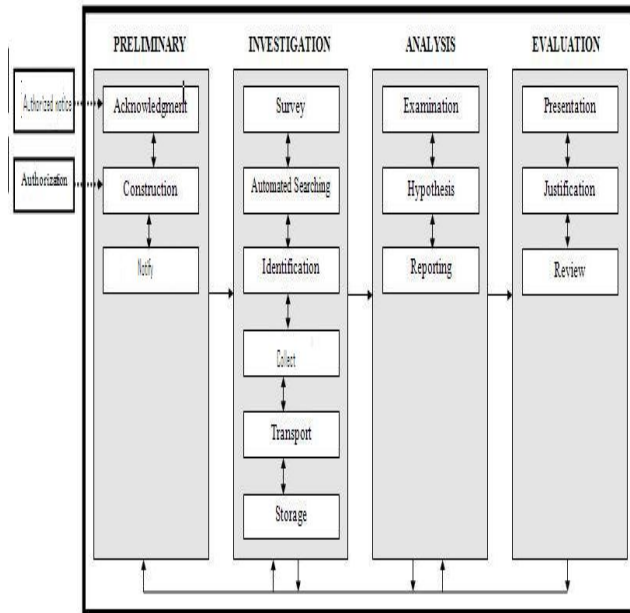

Fig2: Model 2

WORKING OF MODEL 2

A. Preliminary: The purpose of this process is to validate, measure, and plan the strategy that will be applied in the proceeding processes. The regular method used by traditional digital forensic investigations involves validation of the incident and assessment of the situation before developing an appropriate strategy.

B. Investigation: The aim of this process is to link between targets that can contribute to useful information related to the incident being investigated, and any potential evidence and information from the profile. Any potential evidence found will be collected in a forensic manner to make sure that the evidence is valid. These steps will be repeated if it becomes necessary to collect information and evidence from more than one profile. Once the potential evidence has been found, it must be stored and the evidence transported for analysis .

C. Analysis: The traditional activity during the analysis process usually involves the examination and analysis of evidence to determine its value and impact. In OSN digital forensic investigations.

D. Evaluation: The Evaluation Process of the OSN digital forensic investigation does not differ significantly from the evaluation process of previous models. In this process the investigator will present the evidence through documentation and report [9].

RESULT AND DISCUSSION

The paper has analyzed the characteristics of images published on some OSNs. The analysis has mainly focused on how the OSN processes the uploaded images and what changes are made to some characteristics, such as JPEG quantization table, pixel resolution and related metadata and try to develop the model further in a number of directions.. Such a tool would be useful in OSN digital forensic investigations since it can help the investigator to find connections among people which can indicate the discovery of important evidence.

CONCLUSION

In this paper we have reviewed the existing literature in the area of digital forensic investigation models and frameworks, with a particular focus on OSN. I had reviewed a comprehensive digital forensic investigation models specifically for OSN that will fulfil the essential requirements of OSN digital forensic investigations. Due to the rapidly approaching changes, the experimental analysis presented in this paper should be updated following the OSN changes in the publication process. There is a need to establish a standardized forensic investigation process for these networks.

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