

## Effective Marketing Video Application by Using Geotagged Twitter's Status Metadata

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**Abstract** - Recently, social networking sites with the capability of micro-blogging have earned many attentions from mobile audience as a favorite way of real-time blogging. People may update their status or even sharing photographs using their mobile phones. Micro-blogging sites, such as Twitter has the capability to add geographical location information using global positioning system. In this paper, we proposed a more effective way of marketing events or products based on user's location metadata. With the aid of software technology and information system, we proposed to develop an application that will identify the user's location and send videos that are related to the user current location. Relevant videos will be sent to the user's mobile phone so that user is aware if there is any promotion or event around them. The videos will be sent through MMS or micro-blogging's site status update from the promoters to the user's phone. In this paper, we describe of how this proposed work can be applied in the real-world environment and also future improvements of this application.

**Keywords-component:** *geotagging, video, software technology, application, information system, micro-blog, global positioning system, effective marketing*

### I. INTRODUCTION

Nowadays, micro-blogging sites, such as Twitter [1] have become a trend for all kind of people in the world. Users are able to write their 140-characters personal status and update using the feature provided. Users can access the service with their computer or even using the most recent Internet capable mobile phone in the market. Micro-blogging system in Twitter also allows users to update their current geographical location using geotagging method. Smartphones such as Blackberry and Apple's iPhone, with the capability of detecting users' current location can help to add geotagged status on a precise form of location (latitude and longitude), an abstract address, or the name of a nearby landmark [2]. This practice is popular among mostly mobile audience of social networking sites.

Geotagging is the process of marking geographical location metadata to different media such as photo, video or micro-blog. The objective of geotagging is to help people to find out information based on locations [3].

In this paper, we propose to develop an application-based system to retrieve geographical information metadata from micro-blogging site (e.g. Twitter). The metadata then will be analyzed by the system to locate where the users are using global positioning system method. Using the software technology, the application then will match users' longitude and latitude with the pre-stored and geotagged videos inside the server. Lastly, the system will send out video(s) related to where the users are. Figure 1 illustrates the proposed system using Twitter. When user updated the status that contains location metadata, the system will send video(s) related to the location to the user.

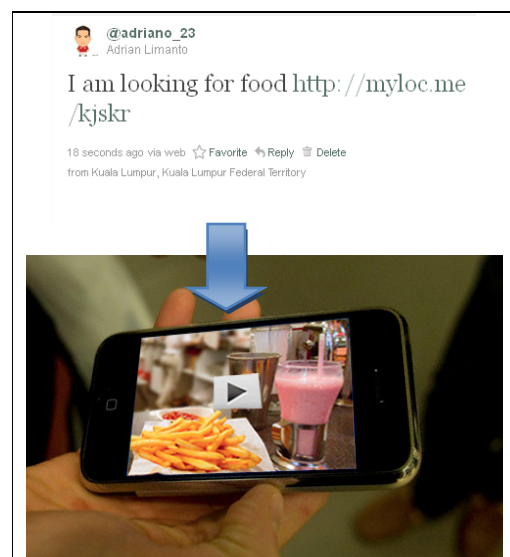


Figure 1: Twitter status that contains location metadata will trigger the system to send video related to the location

The objective of this research is to bring up effective marketing to next level, especially for targeted mobile phone users. The main idea is to send more relevant advertisement (e.g. promotional video) and informational video to users. The system will enhance the promotional strategy of a company to create awareness to the audience about their events or products. Instead of sending out thousands of SMS or notifications to users, who may not read it because they feel that it is not related to them; the system will help to filter advertisements and notify users only for information that are relevant to them. In other words, the target market for the promotion can be more focus and effective. By using this software technology, users are more aware of what happened around them, near their current location. Moreover, they will feel more comfortable because they will receive only advertisement or information that is related to them.

This paper is structure as follows. We begin with a review of related work in section II and detailed description of our proposed idea in section III. Section IV discuss on the effectiveness and limitation of proposed application. We conclude in section V and discuss the potential future research on this work.

## II. RELATED WORKS

We have done some research of related works to propose our approach and methodology. There are some papers that we found are describing about a method to detect people's location based on Twitter micro-blogging service. There also has an article is referred as a reference of how micro-blog has succeeded in raising awareness towards products.

The paper written by Ryong Lee and Kazutoshi Sumiya is discussing about detecting unusually crowded places through micro-blogging sites. The paper introduced micro-blogging site monitoring system which is able to analyze social geographic activity using Twitter. The analyst needs to identify the region for examination first, and then the system will access the micro-blogging site and obtains the data. Next, the system will detect where the Twitter's user updates their status from, in that region. Given the limitations of Twitter's open API, an approach to examining such spatial distribution of human activities would be to split the entire region of interest into 1 km grid cells, and to place a radar station in every cell [4].

Measuring geographical regularities of crowd behaviors through micro-blogging sites is the main

objective in the paper written by Tatsuya Fujisaka, Ryong Lee and Kazutoshi Sumiya. The authors developed geographical micro-blog's status gathering system that able to collect geo-tagged micro-blog metadata for limited region [5]. They partitioned the region based on grid cells. To configure the user's location, they adopt clustering-based space partition method that can distribute the metadata set. K-means clustering method is used in order to detect the specific region where users are located.

Twitter has become the new trend in marketing and e-commerce as an agent to advertise and raise awareness towards a product [9]. Twitter has also helped to build the bridge between customers and companies. The close relationship between them will surely impact the sales of the respective product. Therefore, in the future, usage of social networking and micro-blogging sites will become essential part of the marketing strategy.

## III. PROPOSED IDEA

In this section, we introduce and explain in detail about how the application system works. First, users need to be registered in the service. So, the mobile phone service provider will accept their request and register user's phone number and Twitter account in the database. The Twitter account is needed to keep track on where the users tweet their latest status update. The system will then identify the mobile phone users' location (from Twitter metadata) using the grid cells methodology.

Once the longitude and latitude metadata from the tweet has been retrieved, the system will then matches the geographical information with the video related to their location. Videos stored in the server's database need to be compressed in order to increase the download speed from the client side. The application will execute lossy compression method to make the video's size as small as possible but still viewable. Video contents are gathered from the company that would like to advertise their product. The video can be categorized of two types, promotional video and informational video. Promotional video is video that promote some products, discounts, and latest updates or events of the respective company, for example food and health products. Informational video is video that introduce the location to the users. For example, when users update their status from Sunway, then promotional video of Sunway Pyramid Mall will be sent to them. All of the videos stored in the server have been added with the

geographical information (longitude and latitude) or in other words, geotagged so that, it will match with where users' location are.

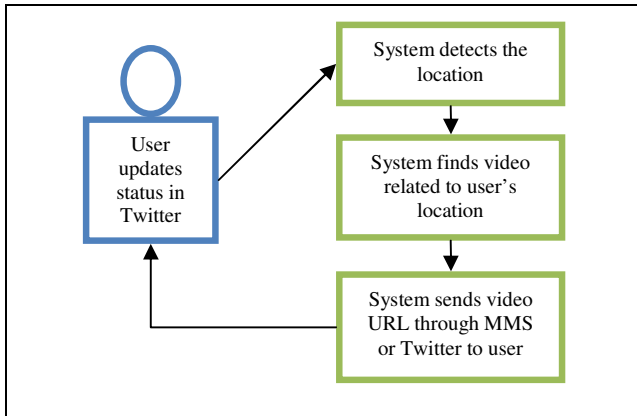


Figure 2: Application system flowchart

Figure 2 shows the proposed application system workflow. Once the location metadata is matched, the application will then be able to send the video. There are two available ways to send the video and it is up to the client side to select which method. The first one is by using MMS service. An URL of the video will be sent to the users and they are able to play the video by clicking the link. The second one is by using Twitter's service. The mobile phone service provider will send the URL of the video to user's Twitter account so that they are able to see the video through their mobile phone.

#### IV. DISCUSSION

The proposed application will be helpful for mobile phone service provider and also other company to advertise their products more effectively in the future. In the era of digital technology, using micro-blogging site to advertise some products is considered one of the best ways to create awareness in public. This software will be helpful for users as they will only get advertisements that are related to them. Users also will be more aware of events and promotions that are going on around them. The informational videos will help users by introducing them to place of interest around them.

The limitation of the research is the size of the database needed in the server, as it will hold tons of videos from different company, products and places and also user's database. The more videos and users registered, the more database needed. Hence, the cost of the application and maintenance will be high. The application also has high

dependability on the client's connection and download speed. If the mobile phone service provider is not able to provide stable and fast download speed, then the users are not able to view the video properly. Bandwidth limitation of the mobile phone service provider also becomes one of the limitations for this application.

#### V. CONCLUSION

In conclusion, we proposed a new and effective way of digital marketing by using the location metadata acquired from users' micro-blogging account. In order to develop the application, one obtained user's tweet location longitude and latitude, then processed it in the system. The system will then match the geographical information with the geotagged videos that have been prepared beforehand. Once the user's location and the video's location are matched, then the application will send the video using MMS or send the URL of the video to the user's micro-blog account.

In the future, we will make a further research and improvement on the application's usability. For example, in the future, users may be able to filter the advertisement by product types, prices and brands. We will also do deeper research on better geographical cluster generation as the method used in this application is unstable. Hence, more reliable and advance gridding method will be sufficient to partitioned user's location in more specific way.

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