



Public Reporting System for Assessing Public Awareness on Vector Borne Diseases by Digital Crowdsourcing

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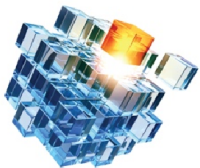
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Highlights: This project is about to assessing the awareness of public to Zika virus. For this purpose, digital crowdsourcing is the method chosen to be used. By doing this, a Public Reporting System is to be introduced since the availability of mobile devices is very commonly to everyone in nowadays. Therefore, digital crowdsourcing through the use of mobile device application is one of the most effective approach.

Key words: *Digital Crowdsourcing with Public Reporting System*

Introduction

Nowadays, the availability and use of mobile devices is too commonly to everyone. Almost everyone own a mobile device by side, some people else own two or more. Due to this phenomena, the use of technique of digital crowdsourcing through mobile device application is grow significantly. Digital crowdsourcing is a widely used method and can be applied for many different purpose, David Hasenfratz, Olga Saukh, Silvan Sturzenegger, and Lothar Thiele, 2012, had introduced the Participatory Air Pollution Monitoring Using Smartphones. Zhou, Zheng, and Li, 2014, had introduced the Predicting Bus Arrival Time with Mobile Phone based Participatory Sensing.



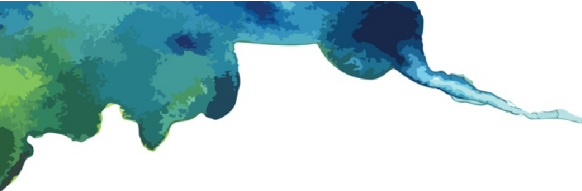
Malaysia is one of the country that highly appearance of dengue fever cases and leptospirosis. With the appearance of new threat such as Zika virus, the awareness on vector borne diseases and the environment caring activity is become more important. The two issues mentioned above is the source of the idea of this project. By implement Public Reporting System for digital crowdsourcing purpose, to assessing the awareness of public to Zika virus and the other vector borne diseases.

Content

This project is about a study to show the spontaneity and awareness of Malaysian about the environment caring activity. Malaysia is always highly occur of vector borne diseases such as dengue fever and leptospirosis, therefore environment caring activity is always the important topic in this country. This topic now has become significantly important due to the occurring of new threat such as Zika virus. On October 10, 2016, World Health Organization (WHO) has made an announcement that there have been more than 400 Zika cases detected in Singapore, while Vietnam, the Philippines and Malaysia have reported fewer than 20 each. "WHO: ZIKA LIKELY TO FURTHER SPREAD IN ASIA PACIFIC COUNTRIES, MALAYSIA INCLUDED," 2016. That's mean the Zika virus likely to further spread in Asia pacific countries and Malaysia is included. The environment caring activity is not enough if depend on government's effort only, the most effective way to protect the environment is citizen put their own action into the environment caring activity.

According to Packierisamy et al., 2015, Malaysia has spent US\$73.5 million which is 0.03% of the country's GDP





on its National Dengue Vector Control Program in year 2010. With this project, public are encouraged to taking action to control vector borne diseases spontaneously while it may reduce the government cost for it and the risk of citizen exposed to the vector borne diseases at the same time.

There are three objectives of this project. Firstly, to apply smartphone-based public reporting system for the occurring of aedes mosquito and rat. Next, to review the current practice of assessing or measuring public awareness on vector borne diseases. Lastly, to study the spontaneity and awareness of Malaysian about the environment caring activity.

There is no specific targeted user for this user, anyone with smartphone and internet accessibility also can use this system at any place and any time.

The components of the system include of a web-based program and database. The flow of using the system is very easy to be learned. First of all, register a personal account. After login to the account, users are able to report for cases and check the area status. The result of the area status will be shown in graphical map layout. Below is the simple illustration of the process:

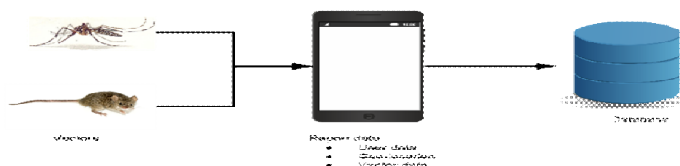
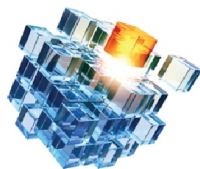


Figure 1: Public Reporting System Process Illustration



The database of the system consists of two table which is User and ReportedCases. The table User is used for store the users' personal data while the table ReportedCases is used for store the cases reported. The data of the table ReportedCases will be used for the analysis of the area status. Below is the prototype of the table ReportedCases:

Table 1: ReportedCases Table Prototype

CASE_ID	CASE_USER	CASE_DATE	CASE_LOC	CASE_VECTOR	CASE_VEC_NUM
1611250037 30ALI	ALI	25 NOV 2016	5765	RAT	3
1611241859 20ABU	ABU	24 NOV 2016	6765	AEDES	5
1611231645 29ALI	ALI	23 NOV 2016	5465	AEDES	15
1611231530 25SITI	SITI	23 NOV 2016	9809	RAT	8

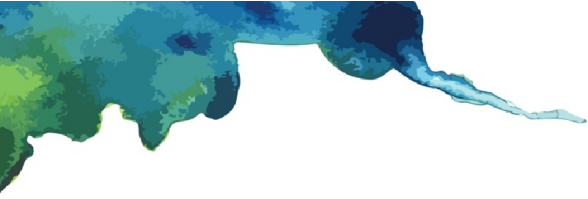
By using the system, users may able to prevent to doing any activity at the risky area. Furthermore, the result of the area status may also encourage people to taking action to control vector borne diseases.

The system is design to be freely used by anyone, but it is still own a certain level of commercial value. Since it can be used by everyone, the user scope is large, therefore tag advertisement is one of the way to gain profit. Besides, the system is related to the vector borne diseases issue, so maybe the system can get the support of government or any healthy related organization.

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