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TRACK 2: MEDICAL APPLICATIONS OF MULTIMEDIA

Development and user testing study of MozzHub: a bipartite network-based dengue hotspot detector

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Abstract
Traditionally, dengue is controlled by fogging, and the prime location for the control measure is at the patient's residence. However, when Malaysia was hit by the first wave of the Coronavirus disease (COVID-19), and the government-imposed movement control order, dengue cases have decreased by more than 30% from the previous year. This implies that residential areas may not be the prime locations for dengue-infected mosquitoes. The existing early warning system was focused on temporal prediction wherein the lack of consideration for spatial component at the microlevel and human mobility were not considered. Thus, we developed MozzHub, which is a web-based application system based on the bipartite network-based dengue model that is focused on identifying the source of dengue infection at a small spatial level (400 m) by integrating human mobility and environmental predictors. The model was earlier developed and validated; therefore, this study presents the design and implementation of the MozzHub system and the results of a preliminary pilot test and user acceptance of MozzHub in six district health offices in Malaysia. It was found that the MozzHub system is well received by the sample of end-users as it was demonstrated as a useful (77.4%), easy-to-operate system (80.6%), and has achieved adequate client satisfaction for its use (74.2%).

Keywords Vector control · Source of infection · Fogging · Malaysia · Model implementation

1 Introduction

Over the last five decades, dengue has evolved and become the world's fastest-growing mosquito-borne disease. With approximately half of the world's population residing in

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