Extended Abstract

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Machine Assisted Surveillance and Alerting System to Prevent Mosquito-borne Diseases

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1. Abstract

Mosquito is the deadliest insect in the world that kills about 750000 people annually according to the so WHO. Half of the world's population is in risk on Mosquitoborne diseases and causes billions of do productivity annually. Particularly in Sri Lanka the effect of mosquito borne diseases is adverse during years. The main prevention method used to control these types of dieses is the vector control system time, the vaccine trial also has been initiated. Beyond all these prevention methods, community awarene is much suitable to control the spread of these vector borne diseases, mainly mosquito borne disease purpose, we have chosen a method which could be the best way to notify the users abou areas and be able to get rid of the direct impact of being affected by the vector carry diseases. This paper is mainly based on finding how machines can be used to prevent Mosquito-born

Machines in the sense, it is mainly focusing on Cloud and mobile technologies and how they can be use manner to be more productive in controlling Mosquito-borne diseases. Our finding is more specifically to make these technologies for being adopted by people living in remote areas. We will more deeply d to identify danger points, how to send alerts to people, who to send alerts and what are the things to be such alerts that protect them from deadly diseases. The system built would be a service to give timel and reliable information to users about the areas that are identified risky areas for mosquito related dise most people use smart phones and other handheld devices, the targeted audience will be them at the f and would be mainly a phone application.

Keywords: Health Care, Epidemiology, Machine assisted approach, Client Server architecture.

2. **Introduction and research problem/issue**

Despite their name in Spanish, which stands in English for ―little fly‖—they carry overwhelming infe worst is malaria, which destroys more than 600,000 people per

year. There are about 2500 kinds of Mosquitoes living whole over the world despite Antarctica. On reproducing seasons they outnumber almost all other animals in the world. Mosquito borne viruses cau illness and deaths specially among children.

More specifically in Malaria, which is still estimated to be responsible for 1 million deaths in vast a planet? In the host, the human malaria parasites, the causative agent of malaria infects cells of very diff hepatocytes of the liver cells and red blood cells. While in hepatocytes Plasmodium reproduces a sing infection in thousands of new parasites later in Plasmodium blood parasites but not replica 10-20 in c cycles that cause infection and disease death. We aim not only to discover the requirements of Plas establish in the host country, but also to elucidate the main virulence mechanisms used by the parasite basic needs and how these processes affect human health. For a given, almost ten precent of the world suffer from malaria every year - 500 million clinical cases - and more than 1 million die as a result; a malaria every 30 seconds. In Africa, malaria kills one child in twenty before five years of age. And things get worse, as malaria is undergoing resurgence. The main factors are the emergence of dru strains of the parasite, the emergence of mosquitoes (which transmit the parasite) that are resistant to in environmental change and population growth. Although this indicates an appropriate level of concern an the most important challenge researchers. Can they provide the knowledge and tools necessary to fight devastating disease? Insight that goes a long way to answer this question, describing the latest devel research, the likely future progress and the practical consequences that new knowledge will.

3. **Research Methodology**

This explains the algorithms and methods to develop the system in detail.

A. Setting up server

As the first step we need to build a server which connects everything and act like the base of the syste based server is more preferable as it can be used with limitless connections and highly automated. building the current system we have chosen Microsoft Azure and built our own cloud in it.

B. Getting data from user and push them to service

Our system supports data from user, data in the sense, details about Mosquito patients and other possibl related data. With a predefined interface, this has possibly supported in Web, Desktop, Smartphones an can input details about nearby places which are identified as risk areas, number of victims within a part number of help needed including medial staff, medicines and blood in a particular area and this is not r this, as user can post anything related to diseases caused by mosquitoes, still all these details are fo nearby medical authority for verification and as soon as the data is verified, that will be pushed in to cloud will push the relevant data for the relevant people

C. Haversine Formula

Haversine formula is used to calculate the great-circle distance between two give geo coordinates. This for small distances even.

D. Send alerts to user

Users should be notified when there is an incident reported, and should be notified when they enter into disease risky area. When we build the system we developed a client app along with server, that app can in any smart phone and running a background thread to check if the device is in a risk area.

E. Making a secure API for global use

We have to make a global impact with our system thus we are not restricting it to Sri lanka. To make th we open an API so anyone can develop any third party client apps that use our service as their infrastru

4. **Results and findings**

In Sri Lanka, the main prevention method followed for vector of dengue is mainly based on vector co Lanka, although initiatives have been taken to start the vaccine trials. Vector control strategies sho success in different areas of the country and thus policy makers await effective and sustainable a Community participation plays a major role in sustaining control measures. Comprehensive approache surveillance and integrated management of the *Aedes* mosquitoes through biological and chemi measures that are safe, cost effective and gained success regionally or globally must be implemented s

Environmental management, legislations and action at community levels will help to minimize the den on developing economies like Sri Lanka. Overall, various parties acting together using the pooled know determine the effectiveness of future control efforts by contributing positively to the existing deng methods in the country.

For this purpose, we have chosen a method which could be the best way to notify the users about the ris be able to defend against the direct impact of mosquito borne diseases.

5. **Conclusions, implications and significance**

We have successfully built a service to give timely, accurate and reliable information to users about th are identified risky areas for mosquito related diseases. Since most people use smart phones and othe devices we are target them as our user base in our first attempt. We use push notifications based on clo to give alerts to smartphone users and we have built a telco app to give support to ordinary phone u getting the direct distance between user's location and risk area's location we are using Haversine form giving accurate great-circle distance and even for small distance, it works perfectly. Our

aim is to make the system reach globally to help people to avoid mosquito borne diseases. 6. References (Selected)

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