CHALLENGE:

How might we combat health threats like Zika, SARS, Ebola and Malaria in bold, imaginative ways?

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Learning about Zika by experiencing the causes and prevention in virtual reality

Prototyping an educational program about the causes and prevention of Zika with VR-based learning experiences

Written by **Jaoyi Ho**

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Summary

We created virtual reality prototypes that enable the public to experience and learn about the places that Zika-infected mosquitoes live as well as effective Zika prevention techniques. The virtual reality software generates a similar-to-real-world environment, increasing learning retention and emotional impact on the user.

Full description

Background

WHO estimated that by the end of the year, 4 million people will be infected with Zika. With Zika spreading more widely and infecting more people around the world, it is crucial for our communities to take active roles in learning about the causes and protection techniques of Zika.

I am with a team of 6 people (CDC employee, engineers, community expert, UX specialist). Over the weekend of National Day of Civic Hacking hosted by Code for San Francisco, we took on the challenge of engaging communities in order to combat the Zika virus.

The team: Steve, Susan, Jaoyi, Jeremy, Niranjan, and Leonardo (not in the picture)

Concept- helping communities learn about Zika by creating a vivid experience of the causes and prevention of Zika in virtual reality

After interviewing experts on the team and brainstorming, we settled on the idea that the most powerful way of engaging communities is to help them learn through a vivid experience. While it is difficult to create a Zika-mosquito-active environment for community members to explore and learn without exposing them to the risks, it is possible to create such environments in the virtual reality (VR) world.

The concept we prototyped is to generate VR experiences that are related to the causes and prevention of Zika, and we accomplished this with Google Cardboard. This is currently the most affordable VR platform at $15. We intend to place google cardboards at the airport, in the library, and in public spaces for people to experience in the generated VR world what it is like to be in environments where Zika mosquitoes are active, and what to do to prevent mosquito bites in Zika-active environments.

Educating the community about Zika with VR-based learning experiences

Prototyping: VR experience of being in environments where Zika-infected mosquito are active

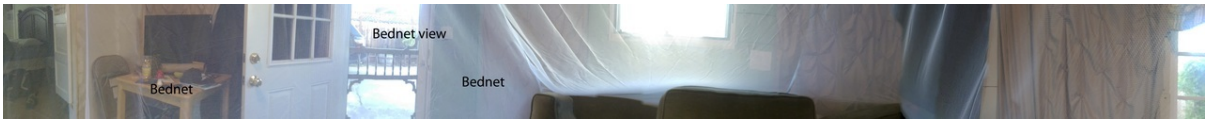
We created two sets of prototypes, focusing on 'causes' and 'prevention' separately. In our prototype focusing on 'causes', we created the VR experience of being in environments where Zika mosquitoes are active, such as construction sites, garage with old furniture

and garbage, and standing water. We also made sure the experiences occurred in the morning, which is the time that the mosquitoes that carry Zika viruses are active. We labeled the specific places in these environments where mosquitoes like to be in, and reminded people to avoid those places and to use prevention techniques.

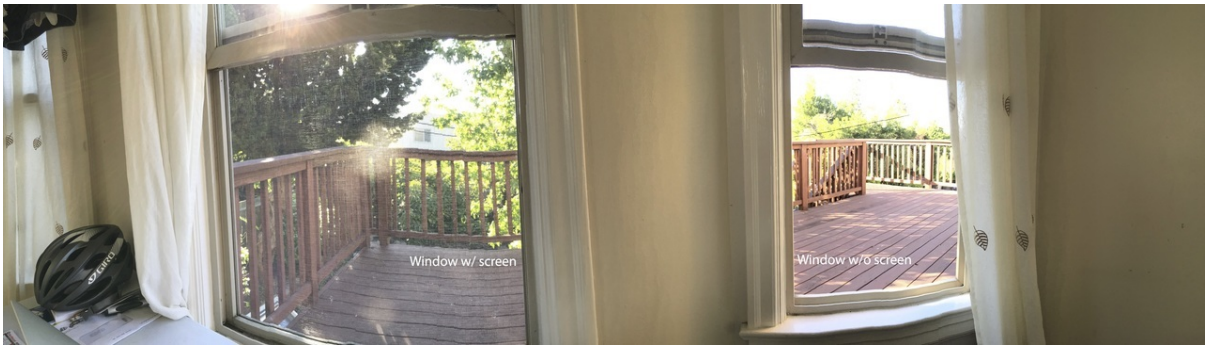
This is a VR experience of a garden with garbages and old furniture. Places that Zika mosquitoes like to live are labeled fluorescent green. The audience are advised to avoid these places and use prevention techniques.

Prototyping: VR experience of using preventive techniques

In our prototype focusing on 'prevention techniques', we created the VR experience of sleeping under a bed net, looking out to the yard with screens on, and using mosquito sprays. We wanted to enable people to experience using prevention techniques visually, get them feel comfortable to the unfamiliar techniques, and eventually implement prevention techniques.



The VR experience of looking out from under the bednet.



The VR experience of looking into the backyard through a screen (left). Compared to the view through a window without a screen (right), the view through a window screen is not distorted or blocked.

Next steps

We tested out our early prototypes at the event and received positive feedback about the idea. Our next steps include iterating on prototype development based on the feedback received, crowdsourcing images of Zika active environments, and testing our prototypes on-site

Here is a user experiencing our prototypes as part of our initial user testing. The flyer on the table explains that this prototype is about experiencing causes and prevention techniques of Zika.

Are you participating in the Partners in Health Campagin?

- No

Do you plan to apply for USAID's Grand Challenge for funding?

- No

WRITTEN BY

Jaoyi Ho