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USAID Higher Education Solutions Network

Helping Bright Ideas Shine Through

A Spotlight on Brian Gitta, Makerere University

Innovators Connecting to *Accelerate* Global Development

The Story

Brian Gitta wasn't in the mood to get stuck by another needle - he was already getting injections three times a day to fight off a foodborne illness. But as his fever spiked and the pain in his joints worsened, he suspected the disease he'd caught as a child more times than he could count, the child-killer of sub-Saharan Africa: malaria.

Leaning on his mother for support, he walked to the clinic, where a nurse confirmed his suspicion using the standard method for diagnosing: sticking him with a syringe to draw blood. The clinic was full of mothers with young children, many of them crying as they were pricked for malaria diagnosis. "I just kept hating the needles and thinking of a way people could be diagnosed without pain in addition to the misery they're going through already," Gitta recalled.

That puzzle was still on Gitta's mind weeks later as he began his studies in Computer Science at Makerere University in Kampala, Uganda. Brian began thinking about ways in which technology could be used to help detect malaria. If you can hold up a smartphone to the radio, and an app recognizes the song, then surely we could design a smartphone tool to help detect disease. For Brian, the goal wasn't just to alleviate the momentary pain; eliminating needles would also remove the risk of infection. Using a handheld device would let average people diagnose instead of waiting hours for a nurse and lab results. Most importantly, diagnosis could occur in areas that had no medical centers.

From left, Brian Gitta of Makerere University in Uganda joins classmates Simon Lubambo, Josiah Kavuma, and Joshua Businge presenting their malaria diagnosis invention at the Microsoft Imagine Cup finals in St. Petersburg, Russia. July 2013.

Photo courtesy of Brian Gitta.

In class, Gitta shared the idea with his old friend Joshua Businge. Together, they began their research and learned that light can penetrate skin, like the sensor clipped to a patient's fingertip that pulsates red light to measure the blood's oxygen level. Recognizing that they were out of their area of expertise, the pair recruited an upperclassman, Josiah Kavuma, who knew how to program such devices. They started with a pulse-oximeter but realized they'd have to alter it; the light had to enter the finger at an angle to detect if a blood cell was infected. They recruited Simon Lubambo, another student skilled in engineering hardware.

By coincidence, Makerere University was launching an initiative called the ResilientAfrica Network (RAN) as part of USAID's Higher Education Solutions Network, and an upcoming launch event would give local innovators an opportunity to demonstrate concepts for solving public problems. The team landed a slot and demonstrated their rough prototype to Alex Dehgan, director of USAID's Office of Science and Technology, RAN director William Bazeyo, and Deborah Elzie from RAN partner Tulane University. "I was very impressed," Elzie said. "When we talk about innovation, people are often just improving on something that's already out there...These guys had really gotten a whole new way of looking at how to determine if someone had malaria."

RAN searches for creative minds like Gitta's and helps them overcome obstacles that often keep bright ideas from making it to the marketplace. RAN gave Gitta's team a workspace, training on writing business proposals, mentoring, and the resources needed to make a better prototype.

"They have a maturity level that I don't always see in young student teams," Elzie said. "They want to make a commercially viable product." Rather than build a new distribution network, the team hopes to partner with an established organization working against malaria. They're looking further: Imagining that their device will someday detect other diseases, they named it *Matibabu, Swahili for medical center.*

Gitta draws inspiration from the young pioneers of the Internet. "You don't have to wait," he said. "As long as you put your mind and hard work to it, you can accomplish anything at any age."