

# IoT smart fridge revolutionising vaccine care

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*Although vaccines are responsible for saving millions of lives annually, there are still millions more who die from curable diseases. IoT may hold the answer.*

There are a number of causes here, including challenges surrounding transport and storage. But technology giant Microsoft believes that the latest IoT technologies can help.

One leading example is the Weka Smart Fridge, which has been developed to let clinicians better manage distribution and save lives while working in the field.

## Protection for vaccines

It helps by automating vaccine storage and dose dispensing in a bid to make treatments quicker and more effective for patients. The fridge also sports a remote monitoring feature that ensures vaccines are always stored in the right temperatures.

Another common issue for caregivers is having to find the right vaccine quickly. However, this problem is fixed thanks to an automatic inventory tracking system. As

well as this, all vaccines are stored in separate cartridges based on rules set out by the Centers for Disease Control and Prevention.

To protect vaccines from getting damaged due to temperature change, there's a small drawer where health professionals can access the fridge's contents. The idea is that vaccines are protected at all times but are easily accessible.

## Utilising Big Data

The smart fridge comes with a dedicated IoT platform, too. It collects data from a variety of sensors on each unit in real-time, helping doctors and nurses to monitor and analyse the vaccines 24/7.

BlueMetal, which is the 2016 Microsoft IoT Worldwide Partner of the year, developed the fridge with Weka. And because it has real-time functionalities, Weka can understand vaccination rates per location.

Microsoft's Azure machine learning platform is also playing a pivotal role. Combined with the IoT network, fridge operators can alert organisations if vaccines are running low in specific areas or clinics.



The Weka Smart Fridge monitors how vaccines are stored and distributed.

## Revolutionising care

Alan Lowenstein, COO of Weka Health Solutions, said: "Clinicians in areas of Africa and other regions where power is unstable or inaccessible can use our Smart Fridge to store and dispense vaccines.

“And the Fridge is small enough that you can put it in a van. So if you can’t bring the people to the vaccine, you can bring the vaccine to the people.

There’s also an emphasis on helping organisations save money and avoid financial losses. He added: “Physicians generally have \$40,000 to \$60,000 worth of vaccines in their refrigerators.

“If the clinic suffers a power outage or the traditional fridge fails, they risk losing the entire inventory of vaccines. By using automated processes to manage inventory through IoT sensors, the Fridge can deliver proactive alerts on inventory shortages or changes in temperature.”

## Rise of healthcare IoT

Roman Chernyshev, SVP for healthcare and life sciences at global technology consulting firm DataArt, said connected technologies are doing great things in the healthcare world.

“Developments in IoT and big data are allowing healthcare to be administered more remotely. It is only a matter of time before technological developments of IoT and implants will allow various medical devices to continuously collect vital data from millions of patients around the world in real-time and simultaneously compare them,” he said.

“These developments will radically change how diseases are diagnosed. Medical conditions will be predicted as a result of big data and constant monitoring of health information using IoT platforms.

“Technological advancements will result in healthcare being everywhere, although it will be almost invisible. One IoT device that is currently being developed will soon be used to autonomously treat metabolic diseases such as diabetes. An implant will constantly collect and analyse blood data from diabetes sufferers and independently inject insulin without the need for human interaction or prompting.”

Original article — <http://www.internetofbusiness.co.uk/insight/2016/08/17/iot-smart-fridge-vaccine-care/>