

USING THE INTERNET OF THINGS TO FIGHT VIRUS OUTBREAKS

Although much less fatal than the Ebola and previous SARS virus epidemics, the current coronavirus outbreak (COVID-19) has spread to more people (more than 125,000 in fewer than 50 days) in more countries (more than 120 countries) in much shorter time frame (50 days). On March 11, 2020, the WHO has formally declared COVID-19 a global pandemic.

Like many other outbreaks, COVID-19 faces serious challenges such as identifying the origin of the epidemic (or the patient zero), reducing the spread of the virus, and having enough medical resources to treat all the patients with severe symptoms.

Pain points in a virus pandemic

The accelerated spread of COVID-19 has exposed and exacerbated many structural problems in the governments' health response systems. All these problems point to an inability to scale the solution according to the expansion of the outbreak.

Tracing the origin of an outbreak, quarantining potentially infected patients, treating seriously ill patients, and preventing cross-infection between medical staff and patients all require tremendous human resources; and an accelerated epidemic will strain the system even further.

The Internet of Things, or IoT, is a scalable and automated solution that has seen explosive growth in other industries such as automated manufacturing, wearable consumer electronics, and asset management.

IoT consists of several functional components: data collection, transfer, analytics, and storage. Data is collected by sensors installed on mobile, end-user hardware like phones, robots, or health monitors. Then, the mobile data is sent to the central cloud server for analytics and decision-making, such as if a machine requires proactive maintenance to prevent unexpected breakdown or if a patient needs to come in for a check-up.

Currently, IoT is already used to manage some aspects of the COVID-19. For example, drones are already used for public surveillance to ensure quarantine and the wearing of masks. AI has also been used to predict future outbreak areas.

With the numerous and diverse datasets collected by mobile devices, IoT can have many more applications during an epidemic.