

## Combating the Spread of Coronavirus using Medical Sensors and Cassia's Bluetooth Gateways

### BACKGROUND:

The 2019 outbreak of the Novel Coronavirus (COVID-19) is a highly infectious virus that causes respiratory illness in people and is easily spread from person to person. The virus was first identified during an investigation into an outbreak in Central China. As experts worldwide fight to contain the spread of the virus, the health of thousands of people continue to be at risk. As of March 4, 2020 there are approximately 93,090 cases of COVID-19 worldwide and 2,984 deaths reported in China alone.

### CHALLENGES:

To date, there is no vaccine or antiviral medicine to prevent or treat the virus. Furthermore, patients infected with COVID-19 pose the risk of cross-infection to other patients as well as the medical staff. People infected with Coronavirus have symptoms of fever, cough and shortness of breath. These individuals require continuous health monitoring of their vitals, especially body temperature, heart rate and respiratory rate. The traditional method of monitoring one's body temperature involves the use of an oral thermometer, but in situations where widespread infections are present, this method increases the risk of spreading the virus. Furthermore, clinical centers in China are overwhelmed with a growing number of patients. This intensifies the situation because there is a shortage of medical staff to effectively monitor these individuals. Also, the outbreak and cross-infection of this virus pose additional challenges for nurses and physicians who are at an increased risk of becoming infected. Consequently, not only are patients suffering from the lack of medical attention, but clinical centers are being negatively affected by the shortage of medical staff and equipment.

### SOLUTION:

VivaLNK, a leading provider of connected healthcare solutions for in-patient and remote patient monitoring has developed a wearable sensor to continuously monitor body temperature. The easy to use sensor is placed under the patient's armpit to measure axillary temperature and continuously monitor their temperature in real-time. The data is sent from the patient to a centralized dashboard where medical staff and physicians can monitor and analyze their vitals. Recently, the Shanghai Public Health Clinical Center (SPHCC) is using VivaLNK's continuous body temperature sensor to help fight the spread of Coronavirus in China. The SPHCC has designated rooms in the center to limit the possibility of cross-infection between patients and medical staff. The SPHCC is also the primary treatment center in Shanghai and is currently treating patients from other hospitals in the area.

VivaLNK, in conjunction with Yijin Health, has selectively chosen Cassia Networks' Bluetooth gateways to provide a complete health monitoring solution for the SPHCC. Cassia's Bluetooth gateways are being used to wirelessly transmit patient vitals from the temperature sensor to a nurse's station for continuous body temperature monitoring. Not only does this reduce the need for physical routine patient checks, but it reduces the possibility of cross-infection and alleviates some of the burden facing medical staff.

#### Long Range, Multiple Device Connectivity

VivaLNK is using Cassia Networks' Bluetooth gateways to provide seamless long-range, multiple device connectivity needed to cover multiple rooms in the clinical center. Cassia's Bluetooth gateways allow up to 40 Bluetooth Low Energy (BLE) devices to be paired and connected

simultaneously and provide a range of up to 1000 feet. In this case, Cassia's Bluetooth gateways are capable of covering 2-6 rooms and can simultaneously receive data from up to 200 VivaLNK temperature sensors using a single gateway.

## Highly Scalable, Flexible and Easy to Use

The powerful capabilities of Cassia's Bluetooth gateways allow VivaLNK to deliver a modern and scalable health solution for the SPHCC. In conjunction with Cassia's IoT Access Controller (AC), a powerful network management solution with edge computing capabilities, medical staff can easily deploy and manage multiple gateways from one centralized dashboard. This provides the flexibility for medical staff to monitor multiple patients without having to perform physical routine checks. VivaLNK is working closely with Cassia Networks to provide future capabilities of tracking patients and staff as well as providing real-time location monitoring in clinical centers.

## RESULTS

Since partnering with Cassia Networks, VivaLNK can provide the SPHCC with a scalable health monitoring solution that aims to prevent the spread of Coronavirus by offering a cost-effective approach to patient care as well as reducing the risk of cross-infection.

### Reducing the risk of cross-infection and minimizing the spread of the virus

In conjunction with Yijin Health, Cassia's Bluetooth gateways and IoT AC, VivaLNK's continuous health monitoring solution now provides nurses and physicians the ability to continuously and accurately monitor patients allowing healthcare staff to remain responsive to patient needs even when resources and staff are limited. Also, by eliminating the need for medical staff to physically check on patients, cross-infection and spread of the virus is drastically reduced.

### Improving efficiency while reducing costs

By combining wireless technology, data and analytics into a fully integrated health monitoring solution, VivaLNK and Cassia Networks are working together to improve the quality of patient care in the SPHCC. Nurses and physicians now have access to real-time body temperature data via a dedicated platform. Medical staff will receive automatic alerts in the event a patient's body temperature deviates from the norm allowing them to respond when needed. Not only does this improve worker

efficiency, but it also reduces medical costs by minimizing the number of staff needed for routine patient checks. As a result, healthcare professionals are better equipped to deal with these patients and provide the quality and specialized care they need.

VivaLNK, Yijin Health and Cassia Networks are working together to deliver a scalable and cost-effective health monitoring solution to help fight the spread of COVID-19 and other communicable diseases. Currently, VivaLNK's health solution and Cassia's Bluetooth gateways are being used in four other clinical centers in China with additional deployments underway.

*"Flexible and scalable technology solutions are cornerstones of responding quickly to an outbreak of infectious disease. The ability to collect real-time patient data via a single Cassia gateway from multiple VivaLNK sensors in multiple rooms provides tremendous value for these clinical centers."*

**Jiang Li**  
CEO of VivaLNK

*"Cassia is excited to be working with VivaLNK to help fight the spread of infectious diseases such as the COVID-19 as well as helping save lives. With the combination of VivaLNK's continuous health monitoring solutions and Cassia's Bluetooth gateways, we can better equip clinical centers and medical staff with the critical tools they need to address this, and future public health threats."*

**Felix Zhao**  
CEO of Cassia Networks

## ABOUT CASSIA

Cassia Networks is the leading provider for enterprise Bluetooth IoT products and solutions. Our patented technology provides the most reliable and easy to manage long-range, multiple device connectivity, edge-processing and locationing for Bluetooth IoT networks.

Our mission is to solve the IoT connectivity, locationing and management challenges faced by today's enterprises and make IoT easy.