



Case Study: Smart Bus

Executive Summary

The need for intelligent public transportation system is growing rapidly as homeland security has become the most critical issue worldwide. The Philippines, the world's top 10 fast-growing economy, has attracted massive investment from the world, aiming to build the first smart city in the Southeast Asia in the coming years. Smart bus acts as the foundation for any municipality's smart city blueprint, which is to improve the passengers riding experience, reduce traffic congestion, and city safety. Billion provides M500, the industrial router designed for In-vehicle applications, which supports 4G LTE broadband connectivity enabling real-time onboard monitoring, location tracking, and emergency detection, delivering unsurpassed smart bus experience in the Philippines.

Challenge

A leading GPS system company in the Philippines required a 4G LTE communication device to be integrated into its GPS system to track the status of 180 smart buses in the city. The device also needs to support other value-added applications including Wi-Fi Hotspot, IP Cam video streaming, and alarm system to ensure passengers' safety and comfort.

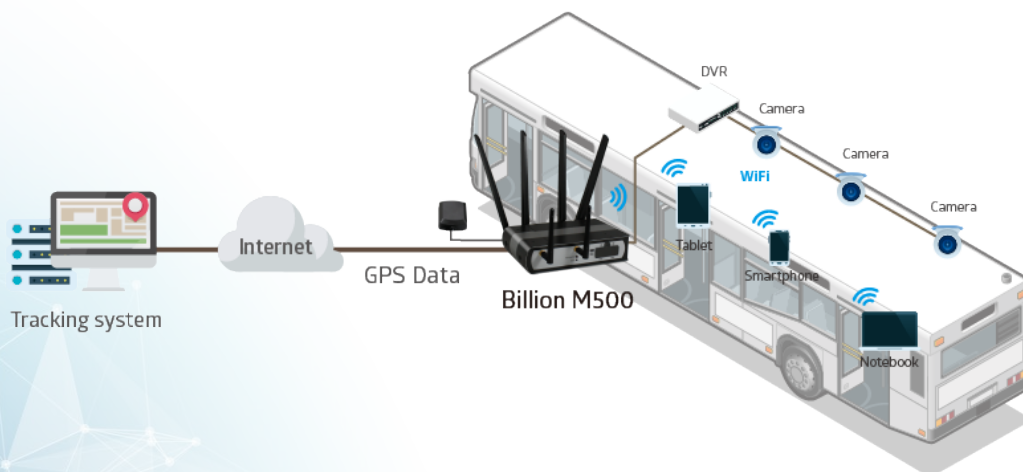
Solution

Billion provided 70 units of M500 to be installed in the smart buses at the first phase. Featuring the latest dual 4G LTE technology, auto-failover, multiple WAN ports, GPS or GLONASS receiver, M500 provides reliable and seamless Internet connectivity in the moving vehicle. Designed for In-Vehicle applications, Billion M500 passed the US Military Standard MIL-STD-810G Compliant and E-Mark (E1) certifications that can endure wide temperature range -40°C ~ 60 °C, humidity, high-level shock and vibration with compact enclosure and industrial-grade components. With flexible input range from DC 10V~56V and ignition sensing control, M500 is suitable for any type of the vehicles that can be automatically

turned on/off under the condition of vehicle's engine to avoid draining vehicle's battery.

Supporting dual 4G/LTE and dual-SIM, M500 can maximize wireless coverage and deliver an almost always-on Internet connectivity with auto failover between two 4G/LTE links, enabling live video streaming, communication, and onboard surveillance to track the real-time vehicle status. A free or pay-for-use Wi-Fi Hotspot captive portal allows passengers to enjoy cellular services along with advertisement push options.

M500 also serves as the communication device between drivers and dispatchers by tracking real-time information, such as location identification with embedded GPS or GLONASS receiver, and the vehicle operation information, including engine speed, time, driving route, oil consumption data, etc., through the On-Board-Diagnosis (OBD II) interface to further ensure comfort and safety for bus passengers. An alarm notification will be sent to dispatch center when the system detects abnormal events.



Result

By implementing M500, which provides an always-on connection for real-time video surveillance, reporting, and positioning, cities can strengthen the safety of public transportation to further improve the quality of life for citizens.