

Case Study

Darveen's RTC-M81 Rugged Tablet Meets the Demand for Intelligent Mobile Tolling on Highways

In the current wave of technological advancements, mobile ticketing and mobile payments are playing increasingly important roles in the transportation sector. With the ubiquitous use of handheld mobile devices, these services are particularly prevalent in highways and parking facilities. Through mobile devices, operators and passengers can swiftly and contactlessly complete payments, eliminating the inconvenience of cash transactions and improving overall traffic flow. On-site personnel can also adapt to task requirements, moving flexibly and facilitating timely data transfer or remote monitoring.

Trawe Lex (Guangzhou) Technology Co., Ltd. is a renowned information services provider for highways in China, specializing in providing IT solutions for mobile payments and cloud-based toll collection. It utilizes IoT technology to manage and monitor the lane charging process and adopts a "Cloud-Edge-End" architecture to achieve unified access, management and operation of all lanes within toll stations, enhancing the speed, accuracy, and convenience of road toll collection.

Trawe Lex utilizes the [Darveen RTC-M81 rugged tablets](#) to handle abnormal road charges and monitor lane conditions, helping to improve vehicle throughput efficiency.

Mobile Toll Booth

At the entrance of a typical highway toll booth, ETC-equipped vehicles can pass through in just 1 second, while non-ETC vehicles can pay the toll using manual or self-service payment terminals, taking 8 to 10 seconds for both entry and exit. After a vehicle enters the lane sensing area at the exit, the monitoring system's display will show information such as the vehicle type, license plate, and payment amount. The driver only needs to show the mobile payment code on their phone to exit. In case of any operational issues, the driver can press the "Help" button to contact the backend customer service. The customer service team can arrange for on-site staff to carry a tablet computer to communicate with the driver and handle special situations, effectively turning it into a "mobile toll booth."

To implement the mobile ticketing process, Trawe Lex turned to Darveen with the following requirements for the tablet PCs:

- Sensitive P-CAP touchscreen with high brightness for sunlight readability
- Large-capacity battery capable of meeting the demands of prolonged field tasks
- Durable enough to withstand high outdoor temperatures, as well as drops or bumps while on the move

Darveen's Rugged Tablets Deliver Versatile and All-in-One Functionality

Darveen's Android rugged tablet pc, [RTC-M81](#), address the challenges faced by highway toll collectors, enabling them to identify and promptly resolve specific issues, thereby enhancing operational efficiency.

The RTC-M81 from Darveen features the Android 11 operating system and an 8-inch screen. It adopts an industrial-grade capacitive touchscreen that supports stylus, glove, and wet touch modes. Additionally, it supports a screen brightness of up to 700 nits, ensuring excellent readability even in bright outdoor sunlight. The RTC-M81 comes with a detachable 10,000 mAh battery for prolonged usage and supports NFC/UHF RFID reading and writing functions, facilitating payment applications.

For 24-hour highway toll stations that operate

continuously, the stability and reliability of mobile computers are utmost importance. The RTC-M81 is dustproof, waterproof, and drop-resistant, compliant with the US military MIL-STD-810H standard and IP67 waterproof and dustproof ratings, making it ideal for field service. It also has a wide operating temperature range of -10°C to 50°C, meeting the outdoor high-temperature requirement of 50°C.

The RTC-M81 is equipped with Wi-Fi and 4G LTE, supporting reliable and powerful wireless connections. Toll data and vehicle information can be uploaded to the toll system server in real time for central remote monitoring and management. It can also monitor each lane in real time and can be easily moved between different lanes at any time to assist vehicles in completing the toll process or handling special situations.

Efficient Operation, Fast Passage

With the implementation of mobile computers in the mobile toll booth, the on-site personnel's services have shifted from inside the booth to the exterior. One person can now manage multiple lanes, transforming the multi-person management mode into a single-person centralized control, thereby realizing the intelligent toll vision of "someone in charge, non-cash transaction, and fast passage".

About Darveen

Established in 2007, Darveen has been dedicated to developing rugged industrial computer solutions tailored to the unique needs of various vertical industries. Our product lines include in-vehicle computers, industrial panel PCs, rugged tablets, embedded box computers, and industrial monitors. Darveen's vehicle-mounted computer solutions have successfully helped hundreds of container terminals in streamlining their processes and operations. With nearly 20 years of experience in product design and manufacturing, Darveen's products have gained widespread acceptance in diverse markets, including container terminals, warehousing, manufacturing, industrial equipment, mining, and special vehicle fleets.