

Free-Flow Tolling for Thailand

Bangkok, Thailand

Open Barrier, Single-Lane Free-Flow Tolling with Intrada® Synergy Server provides excellent return of investment

Q-Free Intrada Synergy Server with Intrada ALPR and fingerprinting recognition technology pave the way for video-based multi-lane free-flow tolling system (MLFF) in Bangkok.

SOLUTION

▷ INTRADA SYNERGY SERVER

EQUIPPED TRAFFIC LANES: 4

ELECTRONIC TOLLING PASSAGES: 115,200/DAY

NON-COMPLIANT DRIVERS: 1.5% (1728/DAY)

About Free-Flow Tolling

Thailand has a 10-year infrastructure plan that includes implementing more than 3,000 km of toll-financed highway. The Q-Free solution delivers cutting-edge ALPR technology for Bangkok Expressway and Metro (BEM), a private transportation company operating metro and expressways in Bangkok and surrounding provinces.

Tolling Challenge

Track and fine non-compliant drivers.

Reduce congestions in densely populated areas.

Reduce air pollution.

Remove decentralized tolling operations.

The Solution

Implement electronic tolling using Q-Free's Intrada Synergy Server on four BEM express lanes, increasing toll-point throughput, allowing billing and fining of non-compliant drivers, dramatically reducing congestion from heavy traffic, and improving air quality.

The Q-Free solution paves the way for future multi-lane free-flow solutions which are anticipated to be rolled out in 3-4 years.

Results

Q-Free's Intrada Synergy Server is a high-performance image processing solution for video-based tolling. Its reliable automation rates and error rates reduce uncertainty in operations and significantly reduce billing errors and leakage. The solution allows the continuous flow of traffic without drivers having to stop or reduce speed while electronically collecting toll payments, thus reducing congestion and air pollution.

Single-lane free-flow tolling with Intrada Synergy Server delivered:

- 98.5% accuracy and error rates < 0.1%
- Recovered revenue and fines from 1,728 non-compliant drivers per day
- Reduce traffic congestion and air pollution

Tolling Overhaul

The Thai government decided to implement free-flow tolling on all expressways and highways over a five-year time span. Part of this process is testing various enforcement solutions for open barrier systems on the Bangkok expressways. Q-Free delivered a tuned Intrada Synergy Server installation to perform enforcement on a Single Lane Free Flow lane in the city for four new express lanes. These lanes will be enforced using Intrada Synergy central recognition system capturing all drivers passing the barrier without having a means of valid payment (e.g. on-board units/OBU).

Q-Free will issue a list of non-compliant drivers to the toll authority on a 24-hour basis. The report will indicate the license plate number and the relevant province read by Intrada Synergy Server. BEM is planning to open all barriers in the city to get free flow through the gates as a start on the MLFF roll out. Future multi-lane free-flow tolling projects will use a combination of OBUs and video-based tolling.

Unsurpassed Performance

Thai plates are notoriously difficult to read and complete with automated license plate readers (ALPR/ANPR) at high accuracy and low error rates. The information on the plates—relevant for automatic processing of passages in a back-end system—is contained in both the license plate number and province name. The license plate number consists of Thai characters and Arabic numerals, while the province name is displayed in small-font Thai characters only.

Q-Free's Intrada ALPR library, part of the Intrada Synergy Server solution, is optimized to accommodate non-Western plates. After a few months of tuning the system performed with 98.5% accuracy at 0.1% error rate for both plate number and province, surpassing anything seen before by the tolling operator and authorities.

Paving the Way

The investment in the video enforcement solution offered by Intrada Synergy Server can be earned back within a year of operation. Q-Free offered a reliable option for Bangkok Expressway and Metro toll operations to collect tolling revenue and fines that would have otherwise been lost. For Thailand and the local toll operators it shows a economically viable way forward for free-flow tolling solutions.

About Intrada Synergy Server

Intrada® Synergy Server (ISS) is a high-performance image processing solution for video-based toll passages with the lowest operational cost for automated video passages in the market. Intrada Synergy Server is camera and back office supplier agnostic providing flexibility to work with any existing or new toll system.

The Intrada Synergy Server automation engine video analytics is project tuned to optimize read accuracy or error rate delivering unparalleled performance in over 160 countries worldwide. Intrada Synergy Server deployments process millions of passages per day at unparalleled performance. Intrada Synergy Server saves millions of dollars per year over the traditional image review systems currently deployed by many toll agencies.

