# Advanced technologies for nationwide tolling Malaysia

Malaysia covers an area of approximately 330,000 km², has a population of 34 million, and offers a road network of about 130,000 km of paved roads. Since the 1970s, the improvement of road infrastructure has been driven by privatization initiatives. Today, more than 20 concessions provide a highway network of 1,630 km, which are to a large extend toll roads.

## Severe congestions and poor air quality

**Traffic jams** at toll plazas are a serious issue

The toll roads were initially managed by manned toll plaza systems. Continuously increasing traffic and highway utilization have resulted in heavy traffic jams with long waiting times at the toll plazas, imposing significant negative impacts on both traffic flow and the environment by high carbon emissions. The introduction of electronic, fast toll lanes to improve this situation was complicated by the lack of an interoperable e-payment system of the more than 20 different concessionaires.

# EFKON’s supply of a sustainable toll solution

EFKON has specifically designed an advanced our proven infrared DSRC technologies to establish a national de facto standard for Malaysia. Our innovative concept enabled the integration of various toll concessions into one seamless and interoperable payment system. As a result, electronic toll lanes were quickly set up at the most toll plazas in Malaysia, effectively addressing the problems of heavy traffic jams and the associated environmental pollutions!

**EFKON’s** technology revolutionizes tolling in Malaysia

As one key component of the solution, EFKON developed an enhanced DSRC infrared OBU with a convenient user interface and a contactless smart card option. This allowed immediate utilisation of the widely used Touch 'n Go SmartCards for electronic toll payments! With this approach, the system was able to immediately achieve high user acceptance and market penetration. In the meantime, millions of on-board units and hundreds of electronic toll lanes with EFKON's infrared technology are widely spread in Malaysia.

## Challenges in the project

- Challenge severe pollutions by heavy congestions with long waiting times
- Offering a technical solution to upgrade to electronic toll lanes fast & easily
- Developing technical means for interoperable e-tolling payment
- Designing an attractive OBU+ solution with high acceptance potential among toll road users

## Achieved results

- Significant increase in lane throughput thereby reducing heavy traffic jams
- Sustainable improvement of air-quality and reduction of CO2 emissions on account of toll plaza decongestion
- Establishment of a nationwide interoperable electronic tolling solution with high customer acceptance