Efficient Solution for Vehicle Separation & Direction with reduced congestion at FASTag lanes

Introduction of the company:

KENT ITS (India) Pvt Ltd. is a leading toll management system and automatics toll management system solution provider in India. They are known for providing turnkey solutions for designing, developing, implementing & maintaining robust Toll Automation Systems, Parking Systems, Toll ERP, Advanced Traffic Management Systems. Kent ITC is currently managing 1800+ lanes across 1/3rd of the total toll plaza (250 in numbers) across India.

About BEA LZR®-FLATSCAN VS305 Scanners:

LZR®-FLATSCAN VS305 is a TOF based Laser scanner with a flat, compact, and self-transceiver design. It can be used for vehicle separation and vehicle anti-tailgating via the detection of vehicles passing through entrances and exit barriers. Highly compact in design, and act as a perfect replacement for the light curtain and loop ensuring a high degree of accuracy.

Efficient Solution for Vehicle Separation & Direction

When we spoke to Mr Sandeep Pawar, Managing Director of Kent ITS, they were looking for a system efficient enough for vehicle separation detection and direction ensuring

Challenge:

Deployment of a system with high efficiency for vehicle detection with reduced traffic congestion

Solution:

Deployed two BEA's LZR FLATSCAN VS305 on each of 10 tolled lanes of RGSL, Mumbai

Results:

1. Achieved reduced traffic congestion with expected efficiency during rush hours.

2. Proper vehicle detection with the negligible change of invalid tailgating.

3. Successful vehicle detection achieved at high speed and foul weather conditions.

with increasing the number of vehicles detected and scanned during a particular interval of time, especially during rush hours where they can reach the throughput of the vehicles per minute.

The company has earlier used the light curtain for the required purposes, but they were not able to attain the desired efficiency especially during foul weather condition like fog, rain, and dim lights during nights thus this not only bring losses to the company but also lead to high congestion and slowing down traffic which was a concerning sign while considering the FasTag services across the toll booth.

Therefore, BEA has provided the solution to use the LZR Flatscan VS305 TOF based scanner and include two scanners on each of the 10 tolled lanes which can give Kent ITS desired results. Kent ITS has used these sensors for three major applications:

- Vehicle Separation: to identify the two separate vehicles when passing through at higher speeds, to avoid tailgating which has also helped in improving the Electronic Toll Collection accuracy
- Direction Detection: Using 2 sensors they were able to understand the direction of vehicles correctly with the approximately zero invalid tagging for the reverse direction. This helps in accurately understanding the no. of vehicles that have passed through the lane.
- Trigger the RFID reader based on the type of vehicle that passes through the toll gate.

Opting out for Laser Curtain:

Mr. Sandeep Pawer spoke about why the company opted for the laser sensor over the light curtain on RGSL, Mumbai tollway. And this is what they have to say:

1. LZR enables the complete coverage of the detection field, leading to the efficient detection of all types of vehicles especially long vehicles and multi-axle trailers.
2. Ability to detect vehicles moving at speeds of around 30/40 kmph
3. Laser sensors are much smaller in size and much easier to transport and install as compared to light curtains.

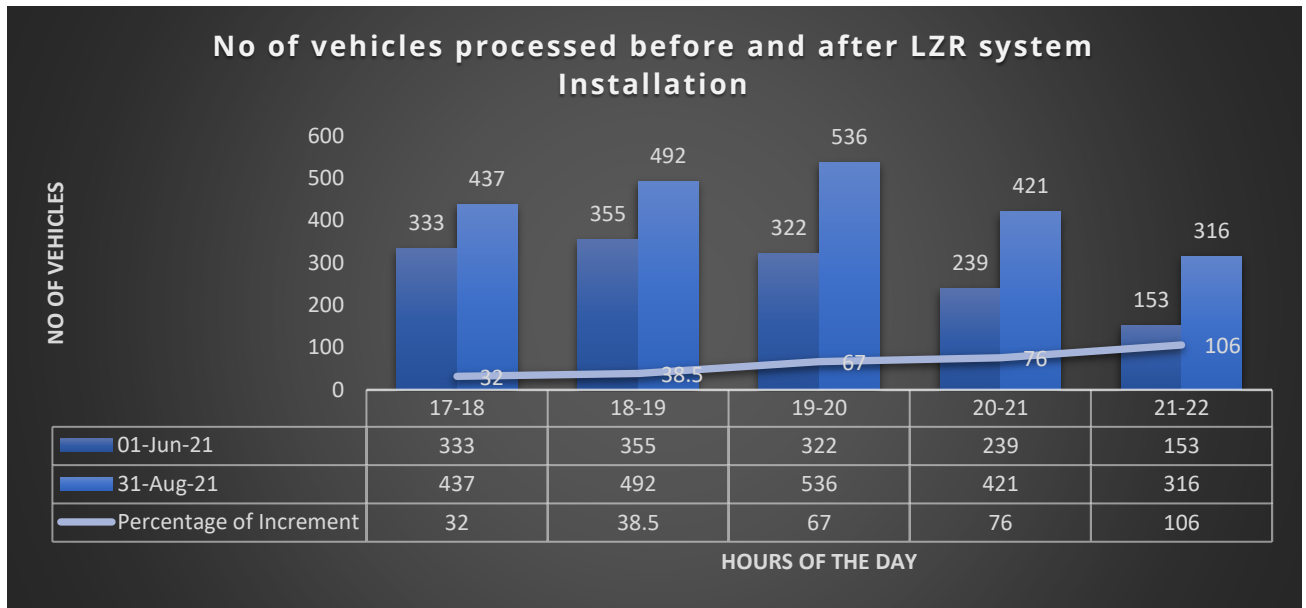## Achieved Reduced Traffic Congestion with high efficiency:

Kent ITS has recorded and compared the result before and after installation of LZR and they were able to process double the number of vehicles with the new systems. Using a Laser-based sensor system,

the number of vehicles detected during rush hours has been increased twice its earlier value. As per the statics, while with the light curtains 322 vehicles have been processed between 7 PM -8 PM, whereas

with the LZR system installed the number of vehicles processed during the same duration was 536, an increase of 67%. Similarly, the 316 vehicles crossed between 9 PM -10 PM as compared to 153 with the previous system installed, giving the enhancement of 106%.

Reducing congestion at toll plaza lanes will also be instrumental in reducing the emission of vehicles and overall reducing the carbon footprint of the project.

No of vehicles processed before and after LZR system Installation

	17-18	18-19	19-20	20-21	21-22
01-Jun-21	333	355	322	239	153
31-Aug-21	437	492	536	421	316
Percentage of Increment	32	38.5	67	76	106

HOURS OF THE DAY