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Development of AEBS for Trucks and Buses

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Advanced Driver-Assistance Systems(ADAS) have been actively developed with the purpose of reducing traffic accidents and reducing driver's workload these days. Among the systems that have been developed, the performance required for AEBS (Advanced Emergency Braking Systems) has most increased year by year. It is recognized that the background is the necessity of further reduction of the fatalities in traffic accidents. Especially for heavy vehicles like trucks and buses, further enhancement of the AEBS performance is expected since they may cause severe damage in rear-end collisions on a highway.

Fig.1 shows the proportion of casualties together with the death toll at each perceived danger recognition velocity in rear-end collisions on highway caused by trucks and buses. From the fig.1, it can be seen that the danger recognition velocity of fatal accidents concentrates in the high velocity range of 70 km/h or above on the highway used for long travel, and the percentage of fatalities is also the same. This fact reminded us the necessity of improvement of the AEBS performance in the high velocity range in order to further reduce the number of fatalities.

In order to achieve this, in addition to improving the optical performance of the image sensor, the recognition logic that takes into consideration the unique vehicle characteristics of trucks and buses, such as large pitching, was developed. In addition, by verifying the sensor and the system by introducing FOT(Field Operation Test) shown in Fig.2 from the initial stage of development. With the FOT, it was possible to improve the interference with the driver operation area and system behavior.

With the new image sensor system and the FOT, a new AEBS for trucks and buses was developed to reduce the accidents in the high-speed range further.

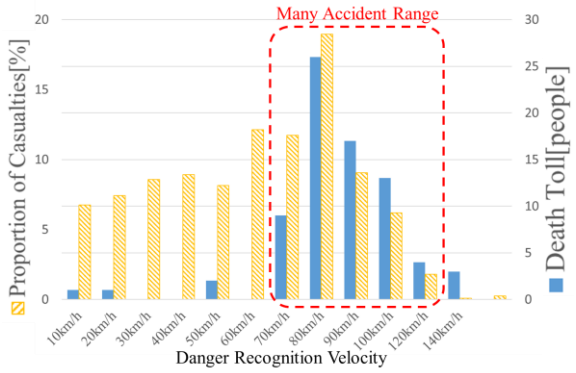

Figure 1 Danger Recognition Velocity of Trucks & Buses in Highway Fatal Accident(2018)

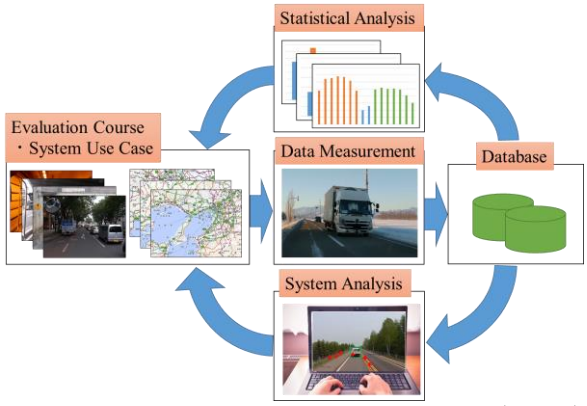

Figure 2 FOT Database Construction Outline（Image）