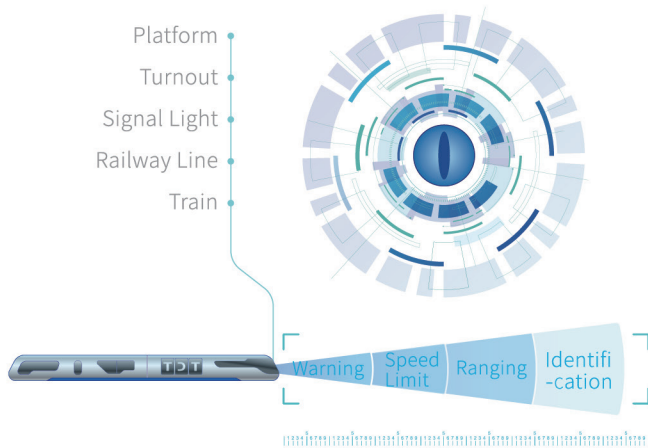


# Train Intelligent Detection System (TIDS)

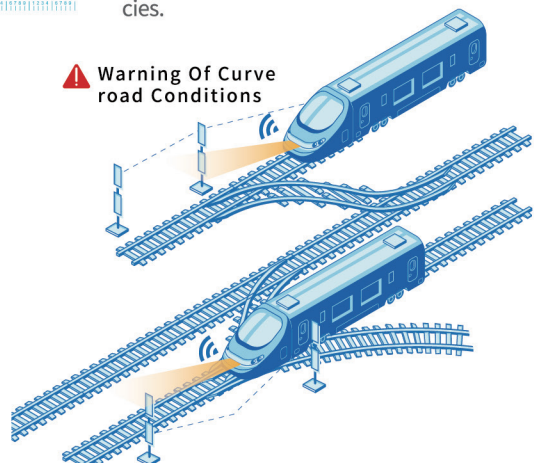
## TIDS-Tireless Sentinel

In the case of breakdown of the existing signalling system, the train will be turned under the Manual Mode. In view of the unstable working state of the Manual Mode, the identification ability will vary from person to person, etc. A system shall be needed to assist the driver to judge the distance of the train ahead and give hints, so as to avoid the collision or switch splitting caused by human errors.



In the new generation Train Intelligent Detection System (TIDS), laser radar, vision and other sensor technologies are used to detect and protect the front line of the train along with using the intelligent algorithm of deep learning. Calculate the safe travel distance according to the train running speed, and carry out overspeed protection. Ensure the safety of the train and the operation efficiency of the line under emergencies.

TIDS is added with trackside sensors on the basis of vehicle-mounted device, covering the all operation scenarios including areas of turnouts and curve roads. Operation data are transmitted among different scenarios, forming a “star chain” . This realizes the real-time interconnection with the train and further extends the train range of visibility, which provides higher-level safety protection.

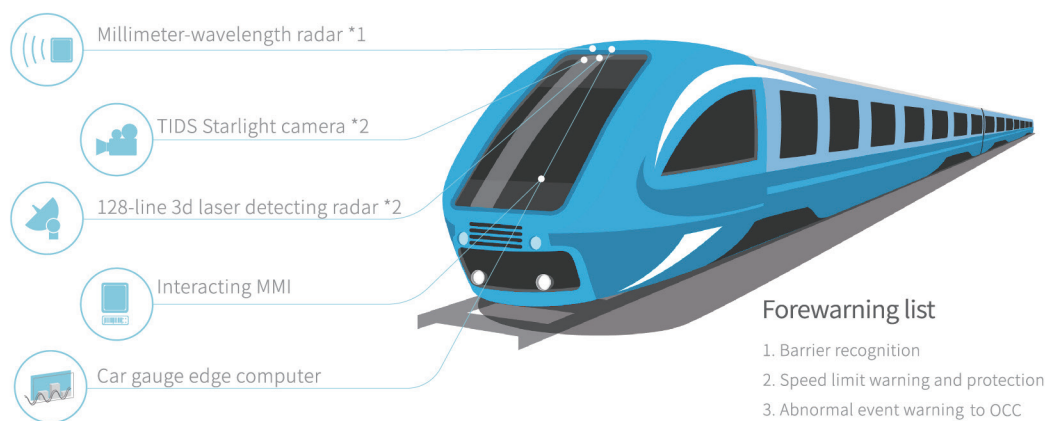


# Functions and Characteristics

- ◇ Train positioning: this system can independently obtain the real-time train speed, combine the vehicle TIMS, laser and image information, realize the real-time train positioning, and upload to OCC through LTE.
- ◇ Intelligent obstacle detection: this system is equipped with radar and visual sensors, combines with the intelligent algorithm of active identification, and realizes the detection of the train and obstacles on the operation line ahead of the train

## Cases

- ◇ Upon the requirements of the preliminary research system to determine the product design and development, indoor testing, on-site testing, trail testing and other processes, relevant tests have been conducted on the routes of Beijing, Hong Kong, Chengdu and other cities. Presently, the TIDS is being installed on the M-trains of Tsuen Wan Line, Hong Kong. Stability tests have been implemented and onboard TIDS are under installation. Meanwhile, engineering application implementation is being carried out in Metro 17, Beijing.



## Product Indicators

- ◇ SIL2 Certificate
- ◇ Error reporting ratio  $\leq 0.01\%$
- ◇ Fail-to-report ratio  $\leq 0.01\%$
- ◇ Speed detecting accuracy 1km/h
- ◇ Distance measuring accuracy 2m
- ◇ The longest detecting distance 300m (While-line monitoring can be realized upon the mounting of trackside TIDS.)