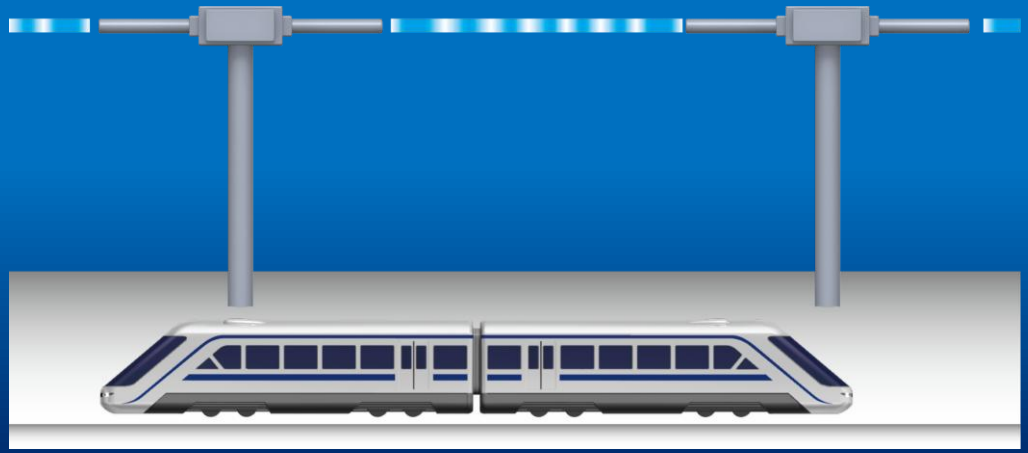
Realize Sustainable Mobility

NIPPON SIGNAL

SPARCS

Simple-structure and high-**P**erformance **A**TC by **R**adio **C**ommunication **S**ystem



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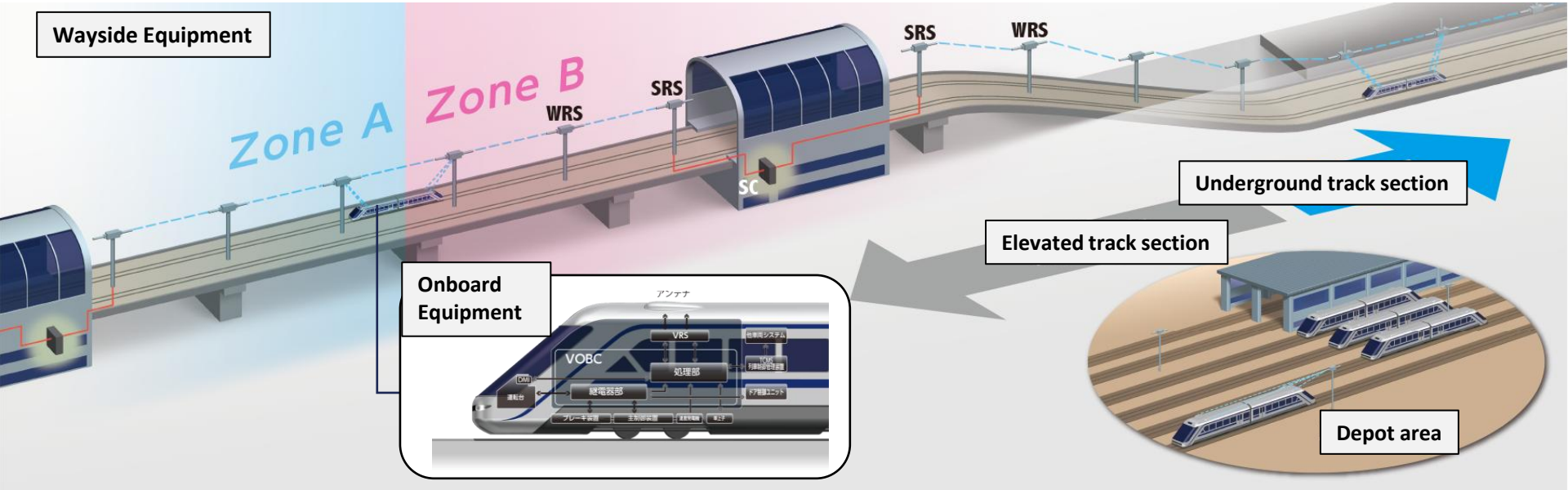
CBTC by Nippon Signal: Trusted technology with global achievements. Offering high basic performance and excellent scalability.

Continuous train position detection and control via wireless communication

System can be introduced gradually by sections within a line, not all at once.
(Mixed operation of existing vehicles and SPARCS-equipped vehicles is possible.)

Compared to fixed block systems using track circuits, moving block enables faster recovery from delays.



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Traits

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NIPPON Signal's CBTC, which is a trusted technology and has a global track record.
Provides high basic performance and scalability.

1 Wireless Network

Implements essential functions required for wireless networks

TDMA

Ensures real-time performance

FDMA

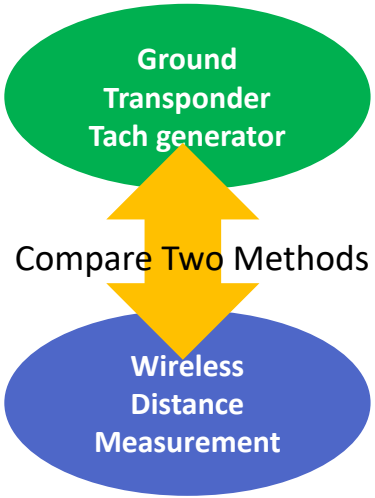
avoids frequency conflicts

CDMA

maintains confidentiality

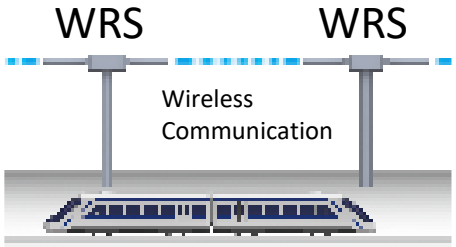
2 Wireless Detection

High reliability through dual-check train detection using wireless ranging



3 Cable-free design

No cables required for radio communications



4 Unattended Train Operation (UTO)

Control system and wireless network enabling automation level GOA4

GOA 4 Unattended Train Operation

GOA 4	Unattended Train Operation
GOA 3	Driverless Train Operation
GOA 2.5	Automatic Train Operation with Onboard Staff for Emergency Intervention
GOA 2	Semi-Automatic Train Operation
GOA 1	Non-Automatic Train Operation
GOA 0	Train Operation by Sight

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Implementation Track Record

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We have global achievements tailored to various railway companies, with different automation levels, operating distances, and train configurations.

※Under Maintenance

In less than 10 years since the Beijing Subway operation in 2011, numerous implementations worldwide.

Route	Distance	Train Sets	Automation Level
Jakarta MRT	15.7km	6 cars × 16 sets (future 8-car)	GOA2
Gimpo Urban Railway	23.6km	2 cars × 26 sets	GOA4
Ahmedabad Metro	18.52km + 20.74km	3 cars × 32 sets (future 6-car)	GOA3
Dhaka Line 6	19.89km	6 cars × 24 sets	GOA2
※Dehli Metro Mazenta Line(Extension)	28.9km	6 cars × 24 sets	GOA4
※Ahmedabad Metro (Extension)	18.52km	6 cars × 30 sets	GOA3
※Cairo Metro Line 4	18.8km	8 cars × 23 sets	GOA2
※Manilla Metro	27km	8 cars × 30 sets (Future: to increase to 10 cars)	GOA2
※Gwangju Metro Line 2	41.9km	2 cars × 36 sets	GOA4
※Tokyo Metro Oedo Line	40.7km	8 cars × 66 sets	GOA2

Please also check the video display.

Movie

Delhi Metro Magenta Line (Extension)