Intelligent Transport Systems

ITS

Solutions,Technologies and Products

ETC

ITS Solutions
for Smart Community

Intelligent Transport
Systems GNSS/CN

ERP RFID

E|R|P

**MITSUBISHI HEAVY INDUSTRIES
MACHINERY SYSTEMS**

Electronic Road Pricing (ERP) System in Singapore

Features
- Highly Reliable RF Communication
- World's First ERP System
- High Vehicle Detection
- Excellent OCR
- IC Card in On-Board Unit
- High-Speed Violation Vehicle Detection

Electronic Parking System（EPS）

MHI has applied its highly touted ERP technology to automatic parking facilities, known as Electronic Parking Systems (EPS). More and more car park operators are opting for the EPS as it eliminates the need for auto-pay tickets or parking coupons. With a growing number of parking facilities switching to fees charged by the minute, the EPS has continued to gain a wide user base throughout Singapore since 2002.

Autonomous (GNSS/CN) Solutions

Global Navigation Satellite System and Cellular Network System

GNSS Satellite

OBU for Smart Client

License Plate Recognition Camera

Central Computer System

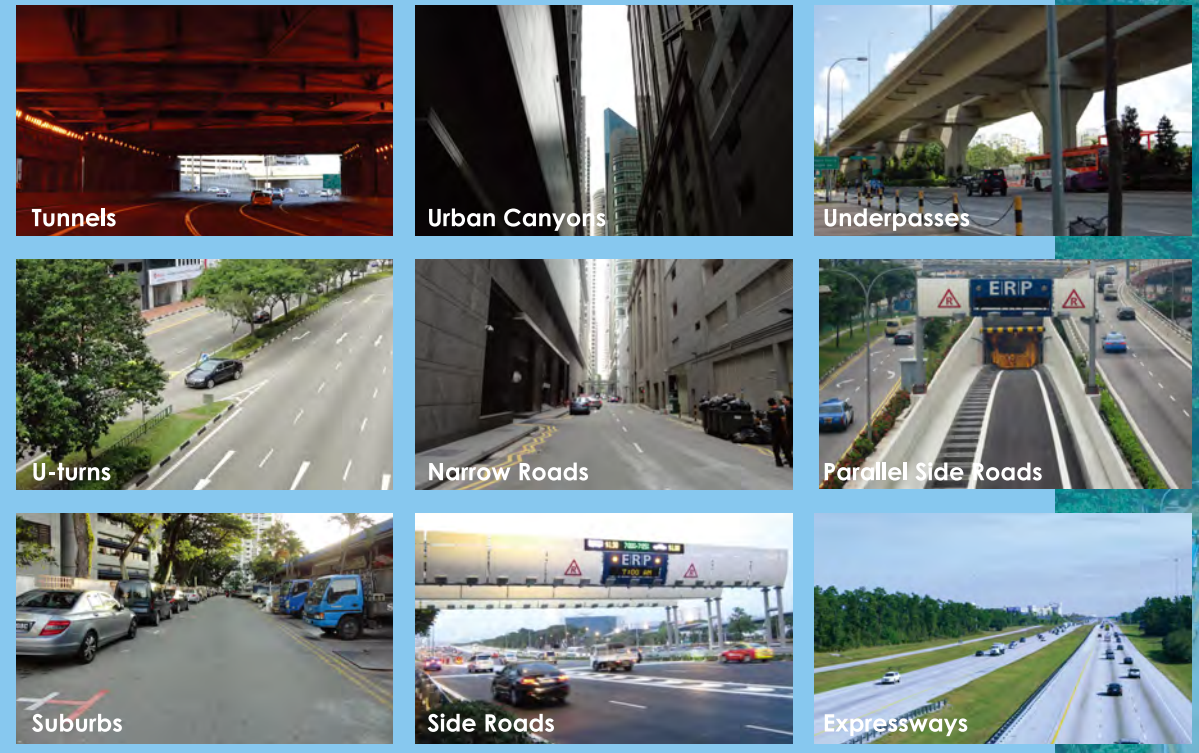Wide Area Communication Network

Features
- Maintains Positioning through Multi-Paths of Urban Canyons
- Utilizes Dead-Reckoning Technology
- Real-Time Calculations by On-Board Unit CPU
- Private Data Not Sent to Central System (Protection of Privacy)
- IC Card in On-Board Unit (Central Account Available)
- Maximizes Utilization of Existing IC Card System
- Complies with ISO/DTS17575

High Reliability of ERP Charging Performance
-Various kinds of scenarios

Tunnels

Urban Canyons

Underpasses

U-turns

Narrow Roads

Parallel Side Roads

Suburbs

Side Roads

Expressways

Enforcement Systems
-High Detection Rate
-Excellent OCR

Roadside Enforcement Systems

Parallel Passing

Motorcycle-Bus

Platoons

Mobile Enforcement Systems

Perpendicular

Parallel

45 degrees

♨ Mitsubishi's RFID Solutions

High Performance, High Speed, Low Cost Tag System
with Unlimited Possibilities

Features

- Tags, Antennae, and Readers Developed Specifically for Electronic Toll Collection
- Complies with ISO 18000-6C, EPC Class 1GEN 2
- Read and Write Capabilities
- Simple Structure and Basic Low-Priced Non-Battery Tag Provides Reliable Communication Accuracy
- Tamper-Proof Tags
- Customized Printing of Tags Available
- One Gantry Structure for Free-Flow Operation
- Applicable for Electronic Toll Collection Systems, Electronic Road Pricing Systems, Traffic Management Systems, Electronic Vehicle Registration, and others

Single Lane Barrier

Multi-Lane Free-Flow

♩ Global ETC

Active 5.8GHz DSRC
Electronic Toll Collection (ETC) System

Features
- Two-Piece Type On-Board Unit Accepting Contactless IC Cards
- Complies with ISO 15628 and ITU-R M.1453
- High Speed and Reliable Communications Proven in Japan for More than 10 Years
- Real Time Payment at Each Transaction, Highly Recommended for Prepaid System
- One Gantry Structure for Free-Flow Operation
- Applicable for Electronic Toll Collection Systems, Electronic Road Pricing Systems, and Traffic Management Systems
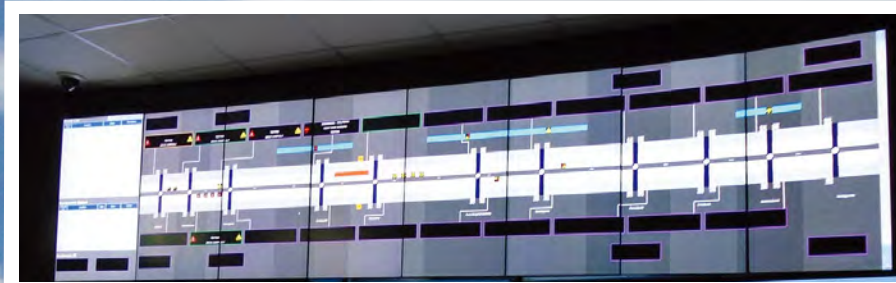
Global ETC On-Board Unit

Traffic Management System

Features
- Integrated System Composed of Traffic Management System and Roadside Equipment
- Management for Traffic Congestions, Incidents and Emergency Situations
- Typical Roadside Equipment: CCTV Monitoring System, Vehicle Detection System, Event Detection System, Meteorological Monitoring System, Wireless Radio System, Telephone System
- Gather and Analyze Information from Roadside Equipment and Operators
- Automatically Generate Messages for VMS Display
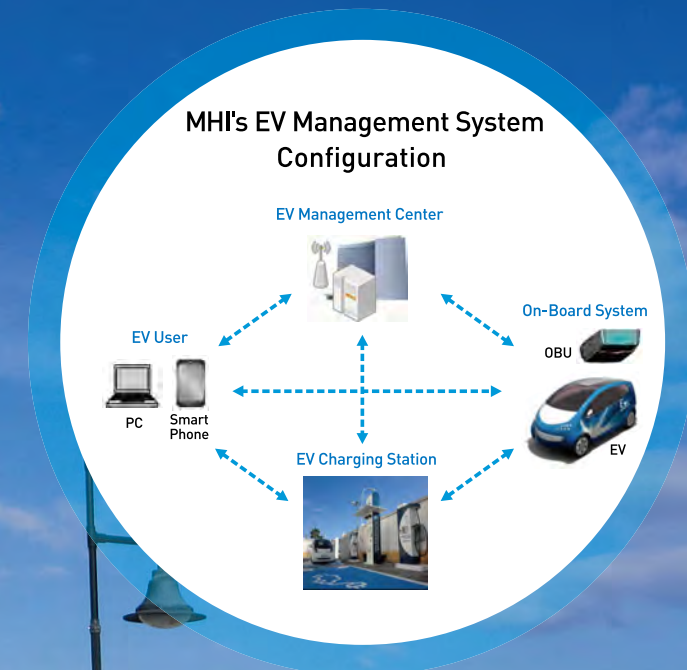

Central Control Center

Mitsubishi's ITS Solutions for Smart Community

Power Demand Forecasting System for EV and Power Charging Service to Fully Support EV Users

Features
- Monitoring EV Status
- Management of Charging Station Equipment
- Energy Demand Management for EV Recharge
- Management of Charging Station Reservation
- Analysis of Probe Information
- Expansion into EV Bus and New Future Business

MHI's EV Management System Configuration

EV Management Center
EV User
PC   Smart Phone
On-Board System
OBU
EV
EV Charging Station

MHI is participating in a recently launched Smart Community System Demonstration Project in Malaga, Spain. The demonstration project targets the establishment of a next-generation transportation and power infrastructure that is expected to enable significant reductions in CO_2 emissions.