DragonTech
VISION • INNOVATION • CREATION

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# COMPANY

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# Company Introduction
## Application Space

Metro
and Train
Transportation

Defence

Bus
Transportation

Industrial

Public
Safety
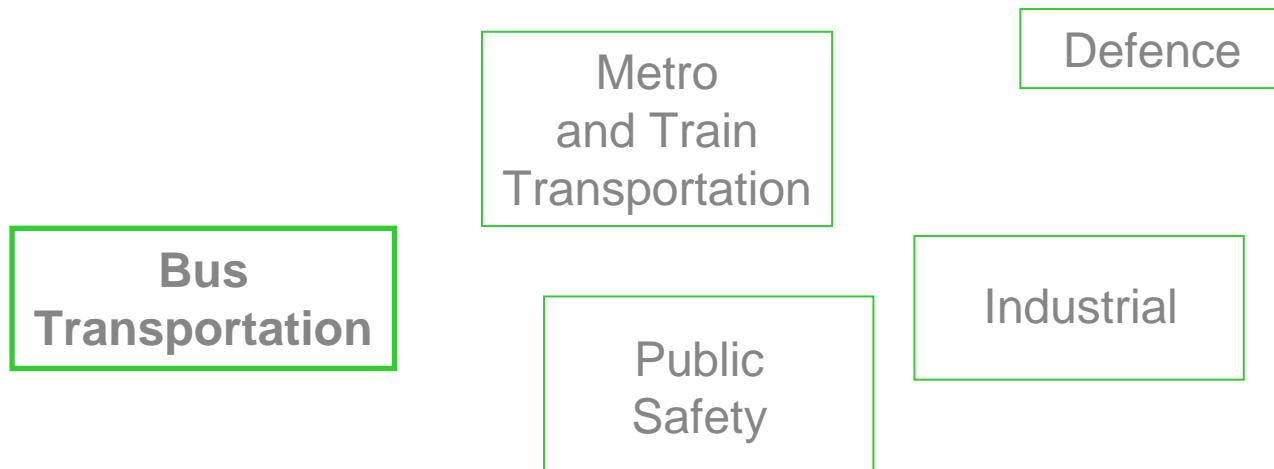
- Ruggedness
- Reliability
- Extended Temperature
- High Availability
- Scalability

# Company Introduction
## Our Global Footprint – Presence in Asia and Europe
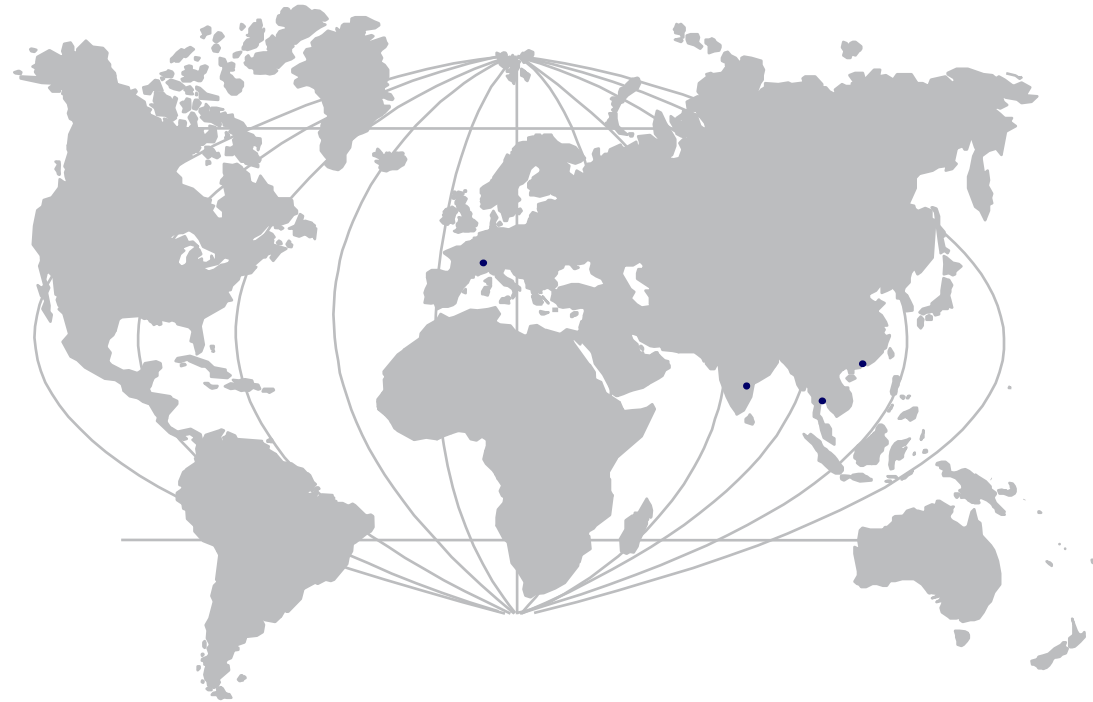
**Production**

**R &D - Engineering**

**Sales**

**Logistics**

**Administration**

**Celyss**

**Lyon -France**   **Bangalore**   **Bangkok**   **Hong Kong (HQ)**

# DRM28 BUS Dynamic Route Map System
## Intelligent Wirelessly Enabled PIS System



**DYNAMIC ROUTE MAP AND PIS SYSTEM FOR BUSES**

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# DRM28
## System Highlights

1. **Purpose Built**
   - **Rugged through design - aluminium enclosure with M12-connectors**
   - **All-in-one System - Display, Processor, PSU, I/O, Connectivity**
   - **Capable of HD Animations, video, effects combined with static images**
   - **Power Supply 9-36VDc, with automotive grade filtering and protection**
   - **Wide temperature range -25 to +55°C operating (+70°C for 15 min.)**
   - **CPU clock and backlight thermal throttling**
   - **Event, error logging**
   - **EN50155 certified for ITS installations**

2. **Integrated**
   - **Dual Core i.MX6 processor for display control and functions**
   - **Untra-Wide 16:3 aspect ratio LCD with high brightness and contrast**
   - **28" (1920 x 357 resolution), display area: 698.4 (H) x 129.86(V)**
   - **10/100/1000Mbit Ethernet, WiFi, Isolated RS-485 Serial, Service USB for maintenance**
   - **Options: GPRS/EDGE/3G modem and GPS, CAN-bus, Audio output, Isolated DIO**
   - **Embedded Linux OS, System Firmware and Display Content Libraries**

3. **Future Proof**
   - **Internal USB2.0 Expansion slot for optional peripherals**
   - **MiniPCIe expansion to include additional interfaces**
   - **Firmware and Application SW can be upgraded**
   - **DURIGO Device Cloud Platform enables new services and applications**

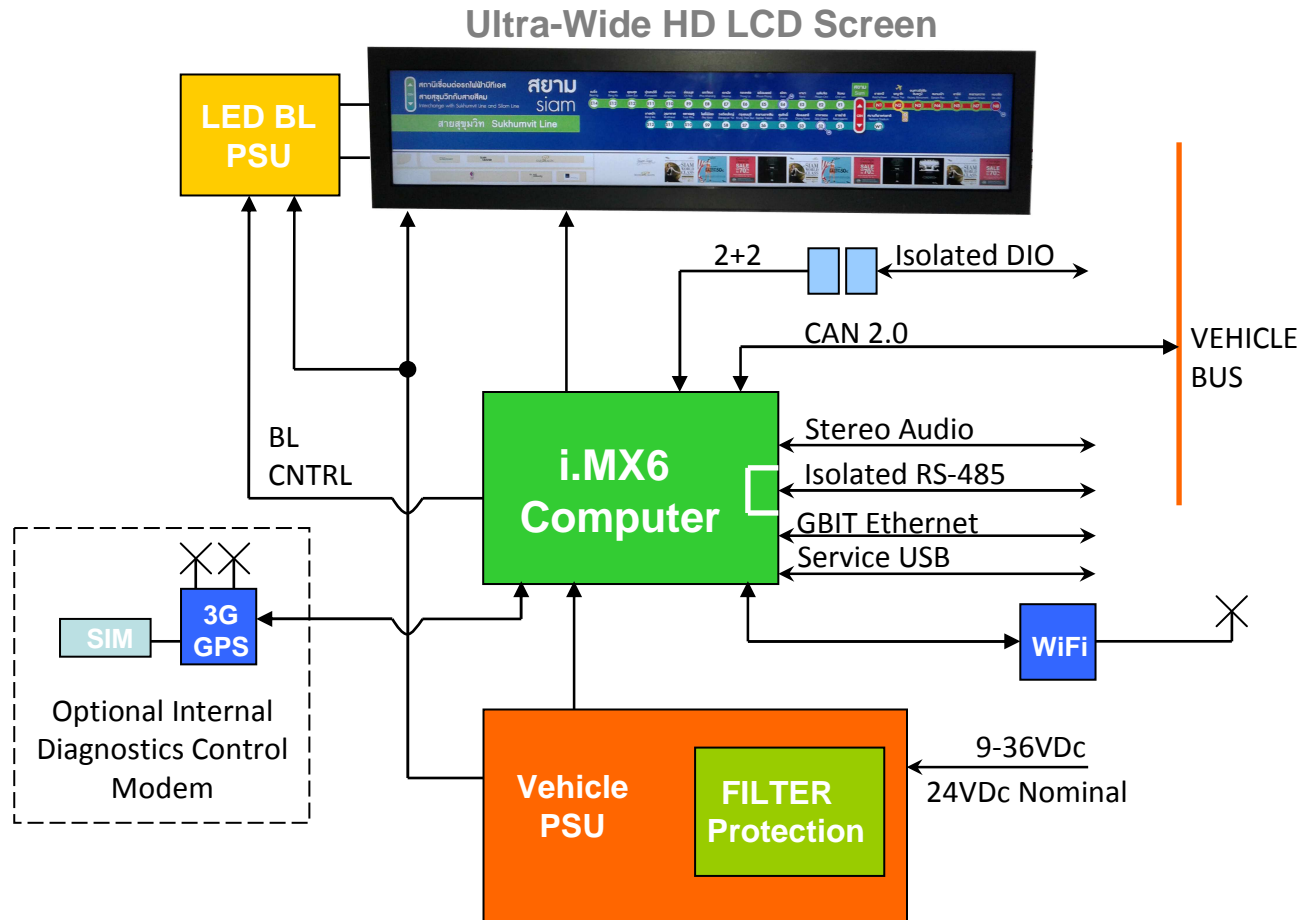# Dynamic Route Map System

## Dragontech Solution Advantages

- **Each DRMD autonomous**, different content can be shown different displays
- Improved **customer experience**
- **Gateway** Mode (Master and Slaves)
- **Versatile interfaces**: Gbit Ethernet, Isolated RS-485, WiFi for updates
- **Optional 3G modem with GPS** (Gateway Master) remote monitoring, configuration
- Powerful **CPU manages static images, animation, video and changing images**
- Full HD resolution with **no inteference from long cables**
- Control of content change managed my **internal CPU and Firmware**
- **Simplified wiring, no ground loops, easy maintenence** – fully isolated system (RS-485)
- **Internal diagnostics**, monitoring, error alert and reporting (Optional 3G modem access)
- **Reduced global cost**
- Easy integration with CAN or other vehicle systems – **ideal for modernization**
- Linux SW, support for creation of **project specific extensions, functions and controls**
- **Certified** for compliance to ITS standards
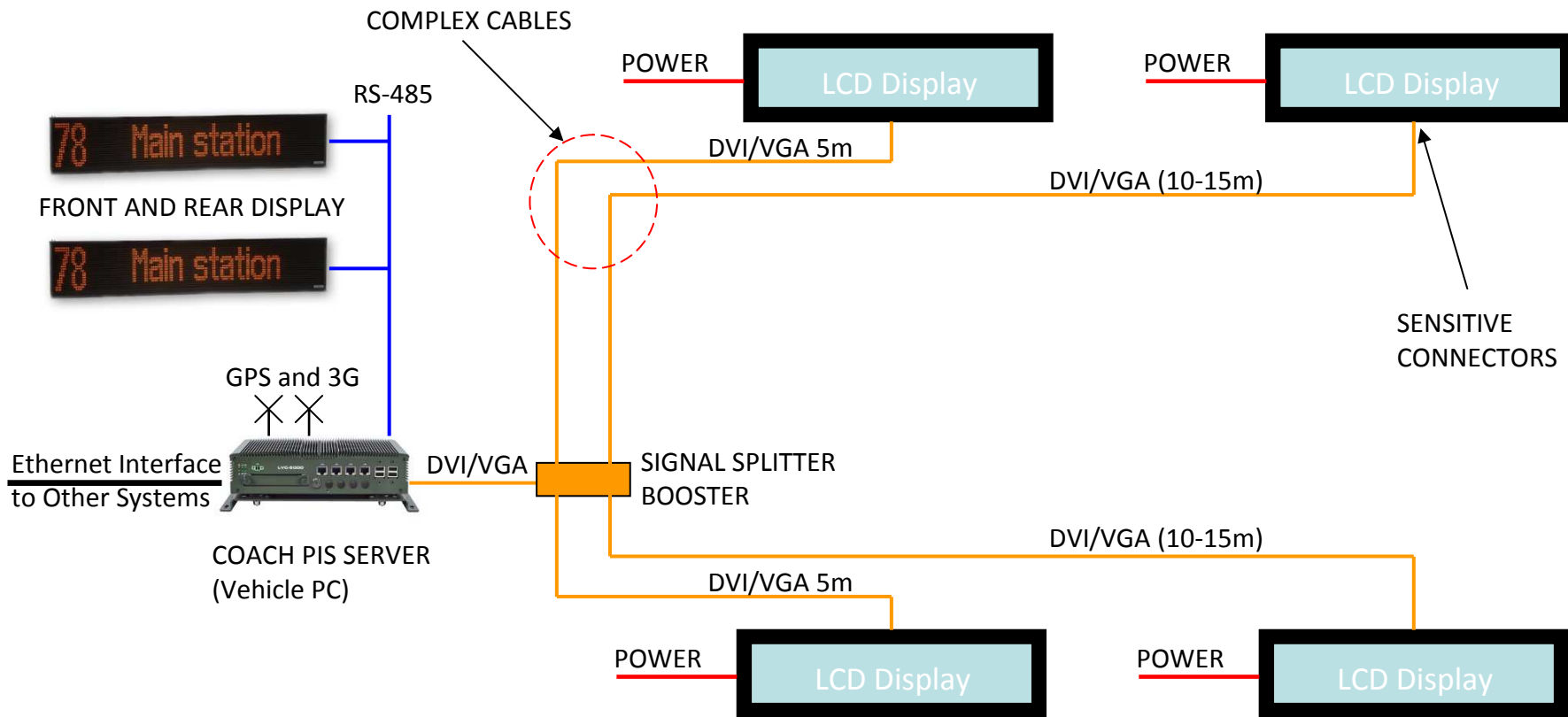
# DRM28 Dynamic Route Map System
## Block Diagram

# Dynamic Route Map Displays
## Coach PIS Solution Scenario – Legacy Approach BUS, PC and Displays

COMPLEX CABLES

RS-485

POWER — LCD Display

POWER — LCD Display

DVI/VGA 5m

DVI/VGA (10-15m)

FRONT AND REAR DISPLAY

SENSITIVE CONNECTORS

GPS and 3G

Ethernet Interface to Other Systems

DVI/VGA

SIGNAL SPLITTER BOOSTER

COACH PIS SERVER (Vehicle PC)

DVI/VGA (10-15m)

DVI/VGA 5m

POWER — LCD Display

POWER — LCD Display

# Dynamic Route Map System
## Gateway Mode – Using DRM28 (CAN + RS-485) – NO BUS-PC

**GPS/GLONASS**

**3G**

STATUS DATA

OCC

2x EXT
I/O

POWER
12/24V

DRMS **MASTER**

POWER
12/24V

DRMS SLAVE

Ethernet Interface to Other Systems

ISOLATED RS-485

DRIVER TERMINAL CAN-bus

Control Data ->
Status and Errors <-

PASSENGER COUNTER

FRONT DISPLAY

78 Main station

REAR DISPLAY

78 Main station

2-WIRE
TWISTED PAIR

PASSENGER COUNTER

ISOLATED RS-485

POWER
12/24V

DRMS SLAVE

POWER
12/24V

DRMS SLAVE
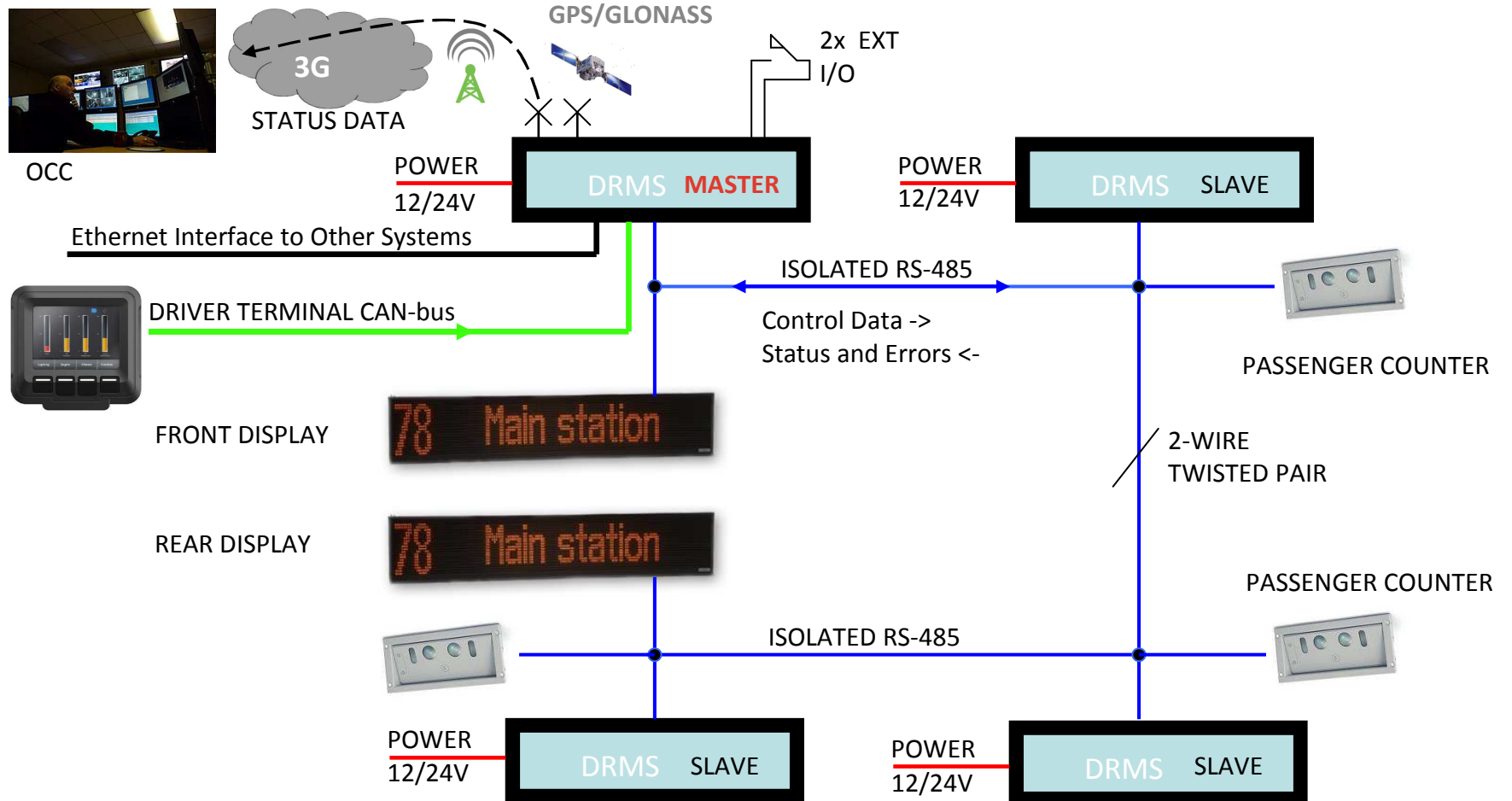
# DURIGO Systems Integration Platform
## Joining Operational Technologies with IT

DURIGO Device Cloud

Business Applications

DRMS

OPERATIONAL TECHNOLOGIES

**ESF**

INFORMATION TECHNOLOGIES

SMS
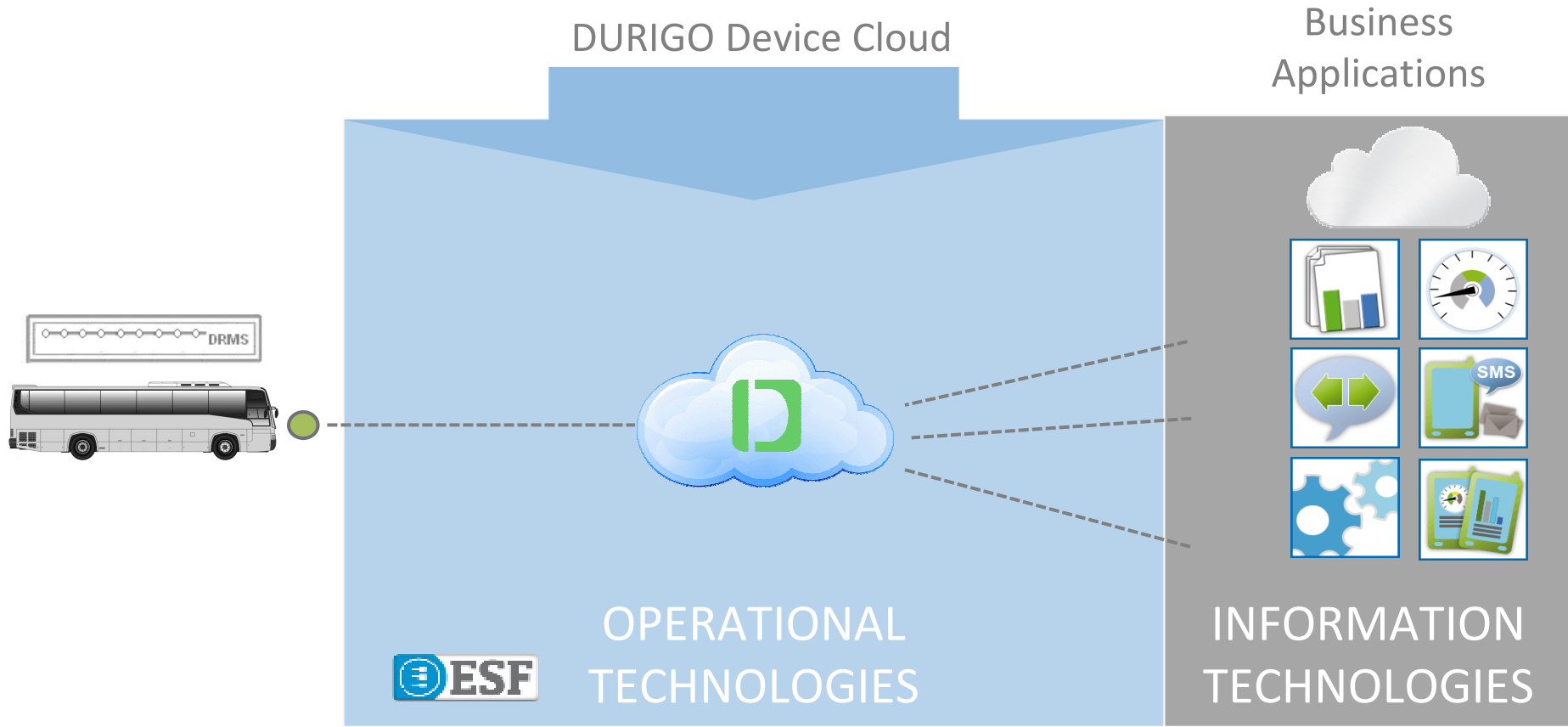
# DURIGO Systems Integration Platform

**Functional Overview**

Cellular Connectivity Management Platforms

Dashboards & Business Intelligence

Mobile & Enterprise Applications

Alerts Alarms & notifications

**Device Connectivity**

**Application Integration**

**Data Management**

**Device Management**

**Administration**

**Security**

DRMS

**Systems and Integration**
- SIM Management Platforms
- BI Platforms
- Full API Access

**Content Management**
**DRMS Device Management**
**Administration**
**Data Security**

# Dynamic Route Map Systems
## Software Solution Engineering

- **Linux Based Firmware Engine**

- **Display content control, animations development using QT toolchain**

- **Standard development platform**

- **Ready to use interface functions**

- **Functions for backlight control, LCD power ON-OFF, temperature monitoring and system status**

- **Tested interfaces to onboard signalling systems**

- **Integration, SW devlopment services available for projects**
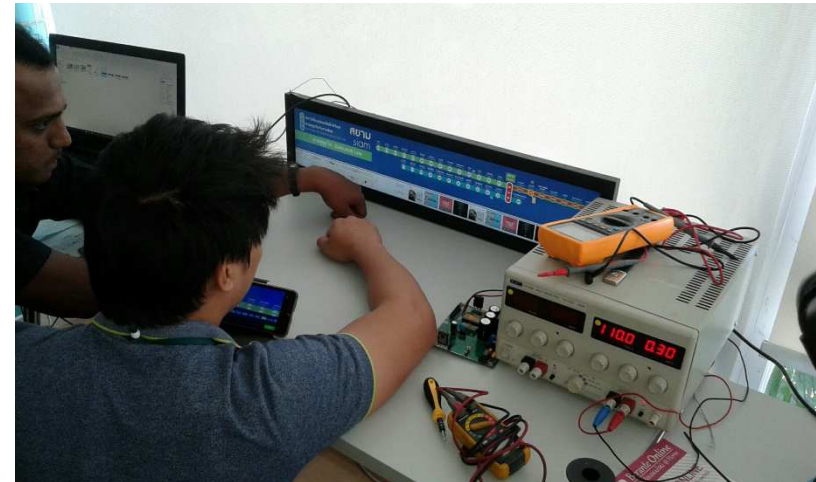
# Systems Engineering and Integration
## Successful Project Execution

- Custom display sizes and formats 16:3, 16:4.2

- Mechanical customization

- Project software engineering

  - CAN-bus and RS-485

  - Display content

- Project specific OCC and content management systems

- Dynamic Route Map (DRM) application software development services

- Data integration using DURIGO Cloud Platform

- Integration with other onboard systems

- Testing and certification for project specific system

- Maintenence and repair services

# Company
## Contact Information



# Asia Headquarters

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- Design and Integration    • Qualification    • Production

**Systems Engineering**