

# ITS Technologies Past, Present and Future

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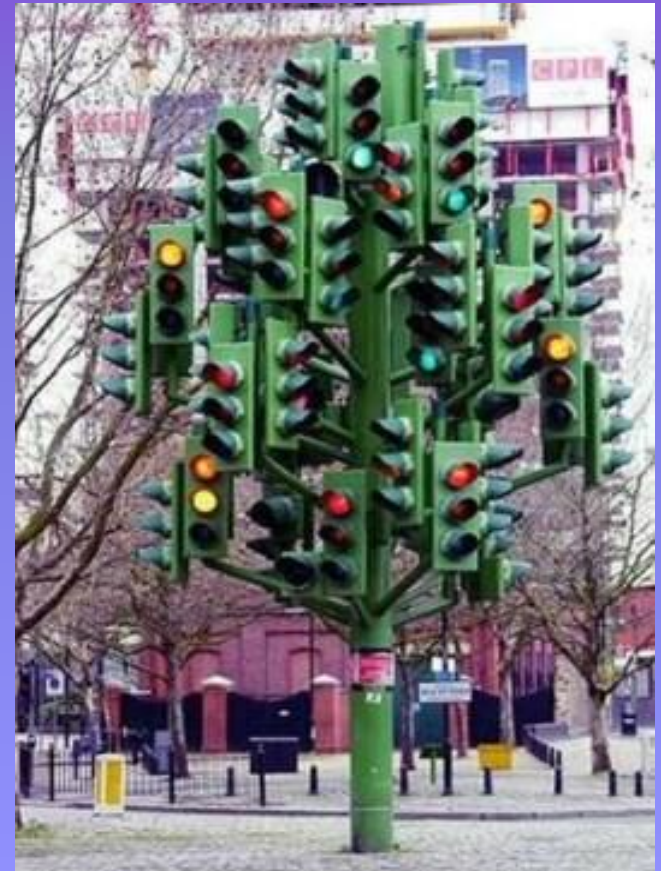
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# ITS – What and Why:

## What is ITS?

Collection of Technologies to reduce traffic congestion and provide for better transit operations, reliability and safety.



# Why deploy? - benefits:

- ✓ Real-time information for on-time performance and schedule adherence
- ✓ Better information for dispatch and radio operations
- ✓ Better route planning tools
- ✓ Real-time information for riders
- ✓ Safety and security of riders and bus operators
- ✓ Pro-active maintenance of vehicles and reduction of in-service breakdowns
- ✓ True knowledge of service demand
- ✓ Better Customer Service tools
- ✓ Real time alerts, incidents etc.

**Quality of Service Improvement**

# ITS – Past/Present:

## **Past:**

- **Street sensor based technologies (Signpost transponder)**
- **Limited data mining**
- **Fragmented on-board systems and applications**
- **Limited and proprietary interface capability**
- **Vehicle to back-office communications via Radio interface**

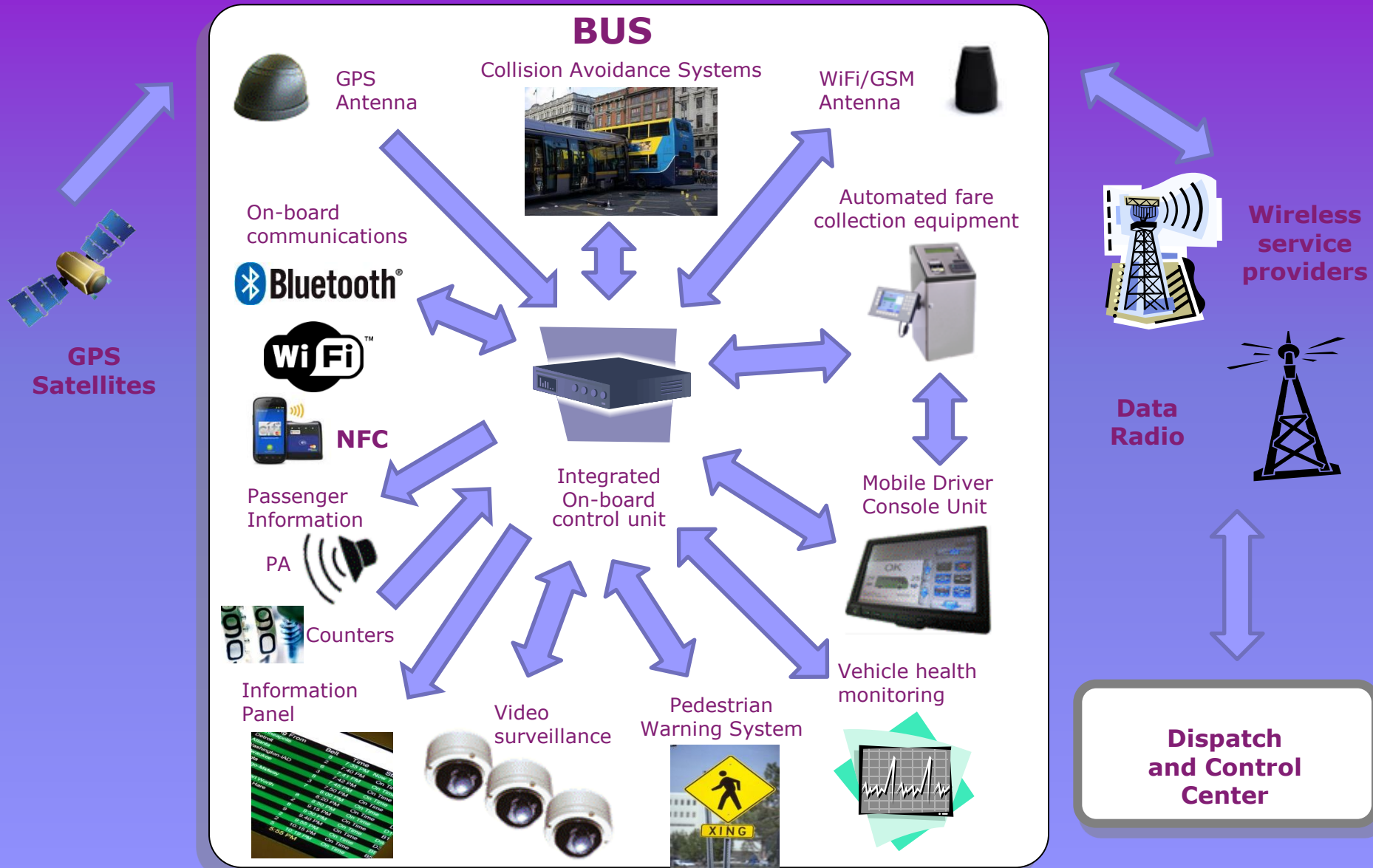
## **Present:**

- **GPS based technologies**
- **Better data mining capabilities**
- **Improved integration of on-board systems and applications**
- **Limited and proprietary interface capability at high costs**
- **Expanded availability and use of sensor technologies**
- **Better map and layering capability**
- **Increased vehicle to back-office communication options**
- **Emphasis on increased safety and security due to homeland security measures**

# Recent advents and best practices:

- ✓ Integration of on-board functions (multiple functions handled by on-board control unit)
- ✓ Integration of Driver display consoles (MDT's) thereby reducing clutter
- ✓ Increased automation of functions
- ✓ Increased communications and switching options
- ✓ Consolidation of communication needs (AVL, Farebox, Vehicle health monitoring, mobile surveillance, internet etc.)
- ✓ Increased safety (Bus collision avoidance systems, pedestrian warning/detection, lane departure etc.)
- ✓ Automated traffic routing
- ✓ Increased self-service options through internet and mobile devices for the riding public
- ✓ Integrated back-office application support

# Future Architecture Considerations:



# Back Office Considerations:

- ✓ Comprehensive customer service functions including IVR integration
- ✓ Comprehensive array of dispatch and radio functions
- ✓ .... Other operational and route planning needs, .... and ....
- ✓ Fully integrated system for all on-board applications
- ✓ Integrated on-board and back-office reporting structure for better operational planning & data mining
- ✓ Open architecture and flexible interfaces as base
- ✓ Full complement of Web Self-Service Technologies
- ✓ Comprehensive tools for Smartphone self-service
- ✓ Robust mapping/georeferencing functionality
- ✓ Vehicle ridership/capacity management
- ✓ Capable workflow management
- ✓ Remote viewing and robust integrated control center mgmt console
- ✓ Real-time data feeds for export (e.g. Google Transit, Web-site, App building, Passenger Information Systems etc.)
- ✓ Exception based filters



# Thank you!

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