



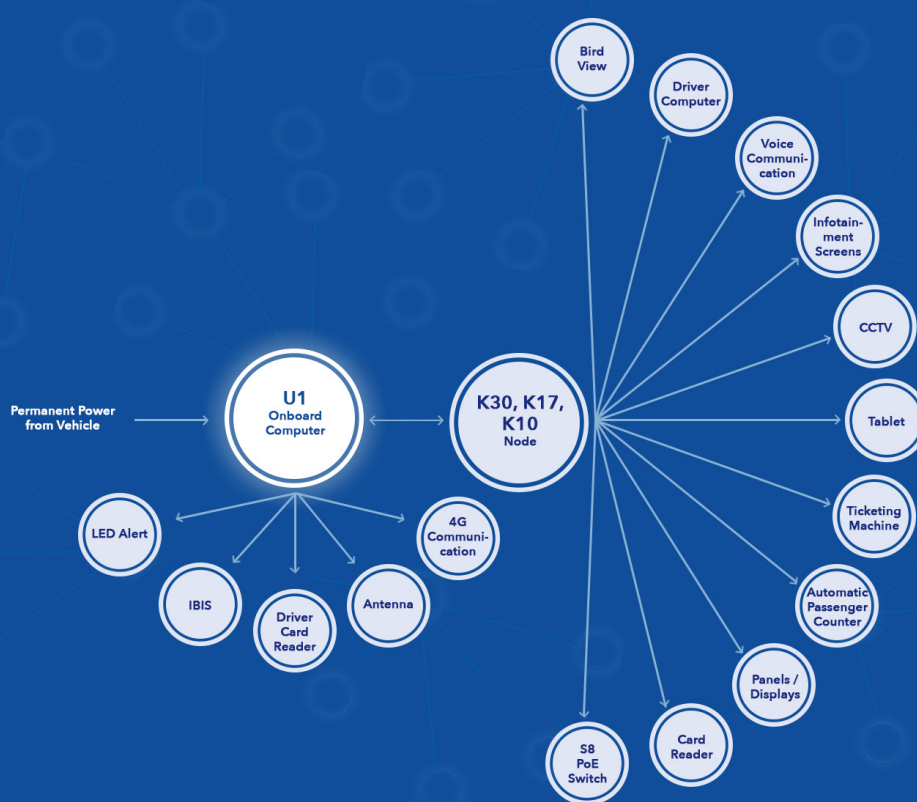
POWER MANAGEMENT SYSTEM

... control the power supply with a single device

The Power Management (PM) System handles the power supply of all devices which need to be powered independently of the MainSwitch. Therefore all THOREB units are equipped with a MiniPM.

The ST-Processor inside can provide power to all THOREB units so they have full functionality for as long as necessary after the MainSwitch has been turned off. The power to units or subcomponents can be turned off when they don't need power e.g. during idle time. Based on this logic, any other parts, components or subcomponents of the THOREB Multiplex and Infotainment System, Traffic & Fleet Management, Video Surveillance, Passenger Counting, etc. can be switched on or off when and if needed according to the Power Management policy.

THOREB



Advantages

- ✓ **Economic:** Reducing fuel consumption by starting up the bus automatically to prepare the bus environment. No valuable resources are wasted due to early startup of the vehicle.
- ✓ **Up-to-date:** Automatic download of trip information during the night
- ✓ **Alert e-mails or SMS:** Information notes to predefined persons if something unexpected happens e.g. opening of fuel tank cap in the middle of the night.
- ✓ **Maintenance:** If the central server is not able to communicate with a specific bus – parked or in traffic – within two hours, or another problem is detected it can inform the workshop for urgent services.

Minimal Requirement for a Power Management System:
 Supernode – device which handles the Power Management
 K10 Node – works as Power Switch
 Access to the Door signals of the vehicle

Examples for efficient Power Management

- Automatic Passenger Counters:** The supply with power after the MainSwitch has been turned off (for a predefined time) allows to count passengers which disembark or embark the vehicle afterwards and wouldn't be counted otherwise.
- Video Surveillance System:** Can be started when alarm triggers are activated e.g. the fuel tank cap or engine hatch are open or the motion sensor signal got activated.
- System Preparation:** At night the bus communicates every 2 hours with the central server to get updates from the Media Cloud, for updating software or downloading the info for the next trip.
- Bus Preparation:** The Supernode starts up the bus by itself several minutes before his next trip begins (info downloaded through system preparation) to prepare the bus environment in the most cost efficient way e.g. auxiliary heating system, AC, Ticketing Machine, etc.

Note: The Supernode device needs only 0.5 mA when in alert mode with fully implemented ELSY and Power Management!

Additional Equipment:

Driver Computer, Voice Communication, Infotainment Screens, Video Surveillance CCTV, Automatic Passenger Counters

