DESIGN BRIEF
360 Degree Surveillance for Reconnaissance Vehicles

Pleora's video interface hardware and software, combined with unique configuration and image processing capabilities, provides a high-performance imaging solution for surveillance and reconnaissance vehicles used in military and security missions.
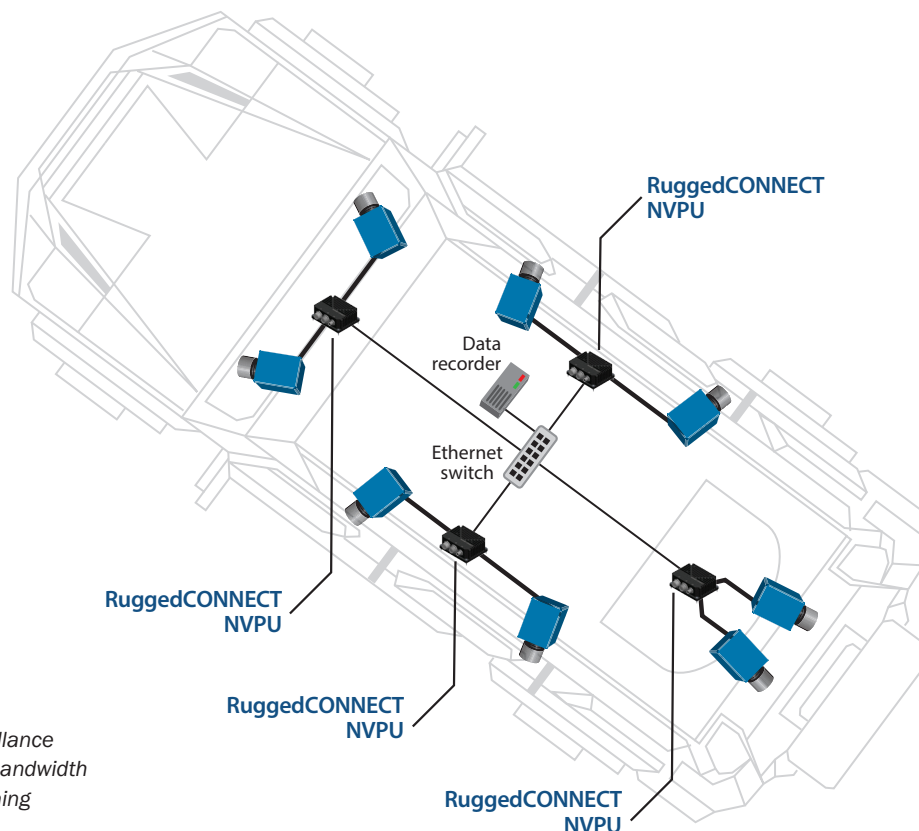
Traditionally, vehicle surveillance has relied on visual observation and mapping skills of a crew member. The 360 degree surveillance system removes the reconnaissance requirements from the driver and crew by capturing high-bandwidth video as the vehicles drives a preplanned route.

The reconnaissance ground vehicle integrates cameras spanning 360 degrees field of view (e.g. front, rear, and side cameras) to capture video. All imaging components are inside the unmarked vehicle. Pleora's **RuggedCONNECT** Networked Video Processing Unit (NVPU) and **eBUS-ISR SDK** are SWaP-optimized products that enable designers to connect a variety of imaging sensors and processing devices in an integrated, scalable Gigabit Ethernet network.

The RuggedCONNECT NVPU converts the feed from cameras into a visually lossless GigE Vision stream that is transmitted over light-weight, lower cost and flexible Ethernet cabling to a data recorder in the vehicle. Pleora's **eBUS-ISR SDK** software provides a vendor-agnostic approach to network all cameras, sensors, and video equipment.

With a modular, open approach to image networking, designers can deploy cameras or sensors from any vendor and more easily add thermal, infrared and hyperspectral capabilities. If a camera needs to be added or replaced, vehicle crew or a technician can configure and recalibrate the system in less than a minute using a touchscreen display. By using a shared SDK for all transport functions, designers can add advanced capabilities — such as radiation detection, sniper detection, and facial recognition — to help increase mission effectiveness and reduce cognitive burden.

When the vehicle returns to the base, high-bandwidth time-stamped imaging data is stitched together to create a seamless 360 degree view that analyst can use for mission planning. For example, the video can be used to measure doorways, windows, and obstructions to highlight threats, preferred routes, and paths to safety.

RuggedCONNECT
NVPU

Data
recorder

Ethernet
switch

RuggedCONNECT
NVPU

RuggedCONNECT
NVPU

RuggedCONNECT
NVPU

The 360 degree surveillance system captures high-bandwidth video for mission planning

Pleora
Technologies