CASE STUDY

Calling All Cars

Siemens and General Dynamics Itronix Europe have partnered in a unique project to create a system to deliver scene-of-crime data and communications that can be employed in the widest range of vehicles, from cars and motorbikes to helicopters for the French Gendarmerie Nationale.

SOLUTION COMPONENTS

- General Dynamics Itronix Duo-Touch®
- Siemen's custom vehicle installation solution

APPLICATION

- Police Services requiring rugged computing solution for in-vehicle remote database access

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The Long Arm

In France today, the Gendarmerie Nationale, a body under the authority of the French Ministry of Defence, is charged with policing duties among some 33 million civilians who fall outside the remit of the French National Police, the Sûreté Nationale.

The Gendarmerie's 100,000 officers deliver broad public security and safety roles. Their tasks include the policing of countryside areas, small towns, criminal investigations under judiciary supervision, crowd control, security activities at all airports and military installations, as well as all investigations relating to the military.

They draw upon specialised research units for the conduct of complex crime scene investigation, surveillance units, counter-terrorism, and counter-narcotics, highway patrol, mountain and sea search and rescue. The Gendarmerie is responsible for naval and air transport security including naval bases, civilian airports and maritime patrol.

Flexibility in all duties is therefore a core facet of the Gendarmerie Nationale, and this necessity extends to the communications technology and data access deployed by its officers in their many and varied daily roles.

Criminal Charges

In the late 1990's it had become apparent, to the Gendarmerie Nationale, that the existing deployment of laptop PCs into vehicles was limiting the capability of its officers in the field to effectively retrieve, and then employ data and communications. The original non-rugged PCs were prone to a high level of failure due to the intense vibration and could only be used inside the vehicle. This was due to the necessity of wiring the PCs, via the docking station, to access a connection to the mission-critical private Tetrapol radio network operated by the Gendarmerie Nationale.

Of greater concern was the realisation that this fixed docking station endangered officers' lives, as it interfered with the correct deployment of airbags, which were introduced across the Gendarmerie vehicle fleet in 1999. Subsequent to 1999, an interim solution saw the computer terminal stored in a Kevlar satchel, but it could only be used when the vehicle was stationary.

Fleet Maneuvres

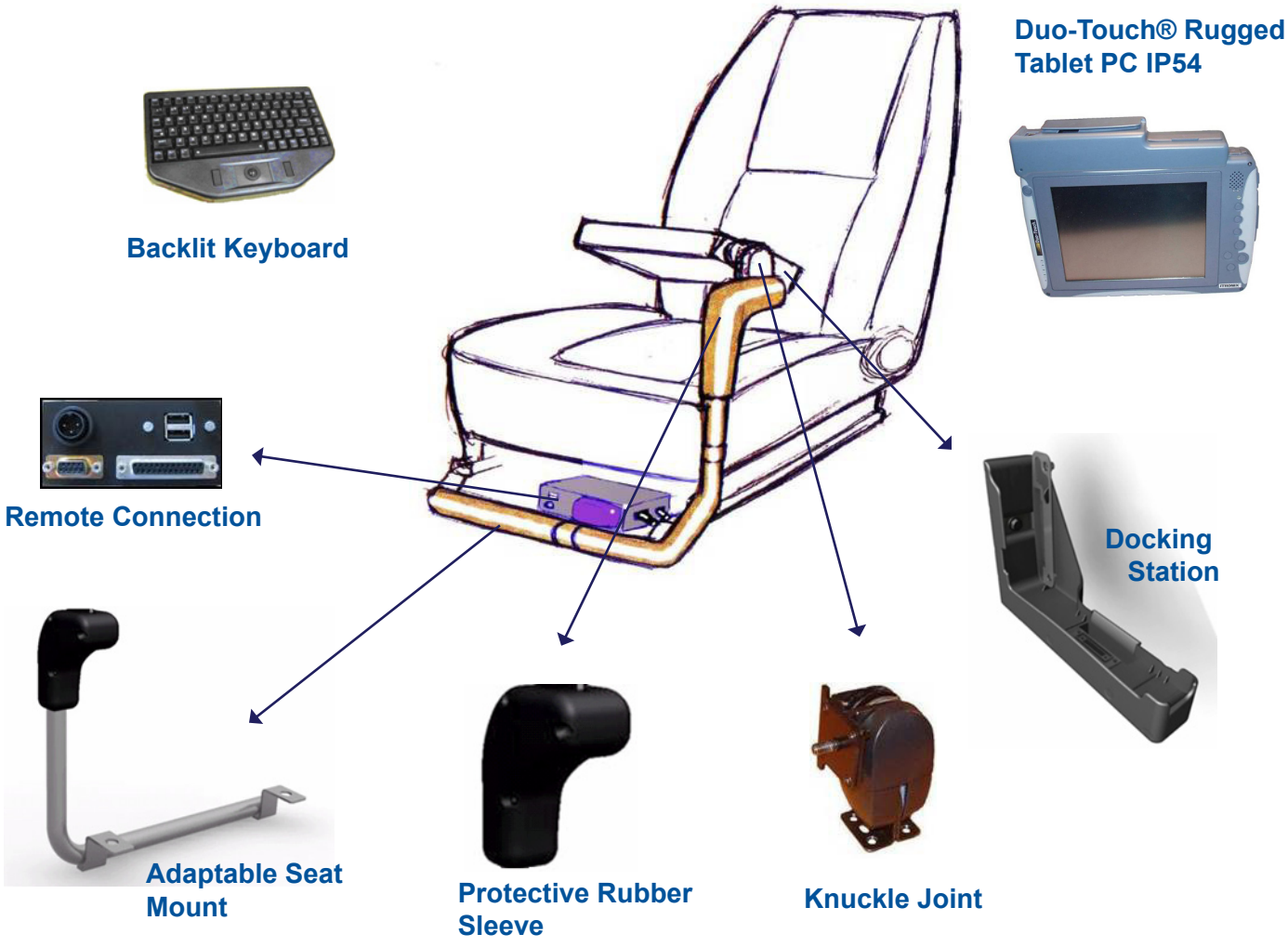
Securing the tender to resupply the Gendarmerie Nationale with a working in-vehicle system for data retrieval and communication, Siemens and General Dynamics were tasked with finding a system that could be integrated with a vehicle and which was not dangerous for the gendarmes.

The equipment would be required to be rugged, easily adaptable to all the vehicles within the fleet, and be mobile away from the vehicle yet offer wireless connectivity within a range of 25 metres providing access to the Gendarmerie Nationale's private Tetrapol radio network.

Commercial grade devices, generally laptops or tablets, as originally deployed by the Gendarmerie Nationale, are really only designed for office workers looking for 'limited' durability, only expecting to subject a PC to predicable indoor use. The demands of the gendarmes' new system would require more than a vehicle ready device able to withstand vibration. It was

Siemens patent no. 05 51

Universal installation kit adaptable to any type of vehicle



clear that General Dynamics would need to supply to Siemens a fully rugged device.

General Dynamics' fully rugged devices are constructed 'by design,' meeting all MIL STD 810F specifications and are IP54 rated for water and dust ingress protection. They boast wireless LAN/WAN connectivity, a DynaVue™ outdoor viewable touch screen, durable water sealed casing and protected electronics. Deployed by public safety officers, front-line military, and those on flight lines, its fully rugged devices are specially designed for 'no office' environments, whether used in-vehicle, cradled or outdoors.

At the heart of the Gendarmerie Nationale's in-vehicle system was General Dynamics Duo-Touch, a rugged, slate Tablet PC, which is designed to deliver computing flexibility in environmentally-challenging situations. "Mid-sized, lightweight and ergonomic, the Duo-Touch has the rugged and weatherised features we were looking for," explains Bernard Foret, Project Director, Siemens. "That is what made it perfect for us to use both inside and out of the gendarmes' vehicles."

The key application for the system is to enable the deployment of the Duo-Touch tablet PC for situational intelligence, criminal identification and real time communication with Command and Control, outside of the vehicle. Communication on the Duo-Touch is enabled over the private Tetrapol radio network via a modem installed in the vehicle. The Duo-Touch tablet PC can be connected either through the multi IO box when attached to a specially designed cradle, or by wireless link when removed from the vehicle.

Mount Up

Siemens worked in close conjunction with General Dynamics to integrate a new cradle system to carry General Dynamics' Duo-Touch rugged tablet PC. This cradle system would be incorporated into a specially designed modular vehicle mount created by Siemens for the Gendarmerie Nationale.

Designed to attach to the vehicle seat runner, the mount can be rapidly installed without requiring modification to the actual vehicle itself. Taking less than 20 minutes to equip a vehicle with the new mount system, Siemens was able to complete the roll out across the entire Gendarmerie vehicle fleet within an 18-month period. Tested to work safely with airbags, the new mount now allows the gendarmes to continually access data and communication over the Tetrapol radio network whilst on the move and in complete safety.

Paris Match

The companies' partnership proved critical in achieving the aims of the project. "General Dynamics worked very closely with Siemens to help us develop the finest robust and flexible system for the Gendarmerie Nationale," recounts Foret. "They dedicated technical resources from all departments."

Designed to keep field-deployed, mission-critical workers productive, the Duo-Touch boasts up to four integrated wireless options in the same unit, including GPS, making it the obvious work horse for Siemens' tender. To ensure the privacy of the Tetrapol network, Siemens developed a secure Bluetooth module, certified by the French Ministry of Defence, to be fitted into the Duo-Touch tablet PC. When the tablet is undocked the link between Duo-Touch and the Tetra/Tetrapol modem is automatically switched to the secured wireless link with a working range of up to 25 metres. This delivers the all important constant data feed when operating at the scene of the crime, providing gendarmes with full data access and real-time secure reporting.

The result of this partnership has been to deliver a real-world system that meets the many and varied demands of the Gendarmerie Nationale's tender. Whether deployed in a moving vehicle and under constant threat of damage from extreme vibration, or proving resilient to the roughest handling in all weather conditions when outside, the Duo-Touch from General Dynamics performs admirably for the gendarmes. The simplicity and the flexibility of integrating the system, its robust nature and ability to deliver all requirements of the project has greatly impressed the officers in the field, and continues to deliver improved response to public safety needs on a daily basis. ■