

SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)  
Integrated Applications End-to-End Solutions (1)

Author: Mr. Chris Hannan  
Remote Diagnostic Technology, United Kingdom, channan@rdt ltd.com

EUROPEAN SPACE AGENCY INTEGRATED APPLICATIONS PROMOTION PROJECT AMAZON  
– THE DEVELOPMENT OF A TELEMEDICINE-ENABLED VITAL SIGNS MONITOR FOR USE IN  
PRE-HOSPITAL CARE

**Abstract**

AMAZON aims to develop a system meeting the needs of all types of first responders (from junior medical technicians to air ambulance physicians) with a portable medical monitor enabling them to carry out some truly unique actions. In addition to monitoring patients' vital signs, the system will enable users to perform a wide number of telemedicine functions. These will be based on the device's integrated communications abilities which will enable users to save, transmit and download patient record information even in the field. The system will include integrated GPS positioning which will enable a patient's location to be monitored in real-time. The unit is also expected to provide a flexible platform through which other medical devices (such as inspection cameras) can be connected.

A number of benefits were identified at the outset of the project, including:

- Enhancement of service offering in remote sites (through telemedicine) resulting in improvement in value proposition at the care site;
- Enabling improved levels of care through lower-skilled resources (e.g. nurses instead of doctors), allowing for flexibility of pricing and/or wider take-up of services.

These commercial benefits will be driven by the integration both of high-quality GPS positioning and real-time communications via satcom. These, combined with leading medical technologies and a unique feature set based on a flexible platform is expected to create a new level of service delivery in pre-hospital care.

The objective of the project is the development, integration, testing and validation of a tele-assistance service, making use of multiple space assets (Satcom, Satnav), for professional clinical users in remote locations using a highly compact device for vital sign monitoring and remote diagnosis.

Key objectives include:

- Enabling easy access and usage of multimodal space based services (satellite and terrestrial communication capabilities and location based patient information);
- Meeting needs of a wide array of users, from Emergency Medical Technicians through to Specialist emergency physicians in civilian, commercial and military spheres.

To ensure a commercially sustainable service, the system is developed with the close oversight of different potential users providing inputs at all stages of development. Furthermore, the project plans for formal user validation to be performed at a Parisian clinic (to validate the "core" medical functions of the system) followed by two trials in Algeria and Nigeria.