

Telemedicine via Terrestrial and Satellite profiled for Covid-19 and Lockdown Phase 2 Monitoring of Military Mission Critical



Telemedicine

Telemedicine makes use of the integration of 3 scientific-technological sectors: Telecommunications, Information Technology, Medicine-Healthcare.

The main growth Key Factors of Telemedicine are :

- Irreversible increase in the population in the > 65 age group
- The increase in people living alone
- Better utilization of healthcare system resources
- Improvement reach of healthcare services
- Reduction of indirect costs for patients
- The ever increasing digitization involving advanced technologies focusing the digital patient as the center of the process
- The spread of Broadband IP Services
- Evolution of electro-medical devices with built-in Wireless/Mobile data transmission increasingly reliable, compact, wearable
- The evolution of audio video communication with ever better quality
- Better Patient psychological comfort in family environment during audio video and live parameters measurements compared to the physical consultation.

The factors that have accelerated the use of Telemedicine (or decelerated if the following criteria are not respected), are :

- Simplicity of use
- Data-Audio-Video Quality
- Bluetooth-WiFi Ecosystem compatible with any LAN/WAN
- Networks (Fixed-Mobile-Satellite)
- Ergonomics, Non Invasiveness
- Reliability, 24H/365D Services
- Efficiency and Costs

Examples of barriers are:

- Lack of awareness, Telemedicine is largely untapped
- Resistance to changes in healthcare organization
- Lack of efforts in providing evidence of Telemedicine benefits
- Lack of integration in IT healthcare systems

Telemedicine opens up new scenarios of assistance with the improvement of the quality of life of the patient, continuous monitoring decreasing the risks of clinical emergencies, a net decrease in travel for visits and clinical examinations, a sharp decrease in travel for healthcare staff distributed throughout the territory, decreases Opex of Hospitals and Healthcare Centers, allowing saving of up to 40% in the National Health Service.



Telemedicine via Terrestrial and Satellite

On-Premises/Cloud Telemedicine Platforms/Apps, managed directly or through TSP Telemedicine Service Providers, can use any optimized broadband network that is transparent on data contents, therefore Fixed xDSL-FO, Mobile 3/4G, Satellite.

Considering an agile aggregation of electro-medical devices via bluetooth by mobile healthcare professionals, iOS - Android Smartphones and Tablets are particularly suitable, with WAN link via WiFi over xDSL-FO or Mobile.

It must be considered that the low data rate of electro-medical devices that represent a network of human medical IoT sensors, must also be accompanied by point-to-point/multipoint Video Communication (i.e. Teleconsultation, Medical eLearning) and the possible sending of diagnostic images, that require broadband capacity for advanced Telemedicine Platforms.

Mobile Networks with shared bandwidth depending on users in the coverage cell, may be limited in the full operation of Telemedicine services.

In the case of rural or suburban areas, or in all emergency situations that require rapid local intervention able to ensure distribution of materials, Internet connectivity, connectivity to the Telemedicine Platform including Video Communication, the solution of Mobile Telemedicine Units via Satellite Broadband remain essential.

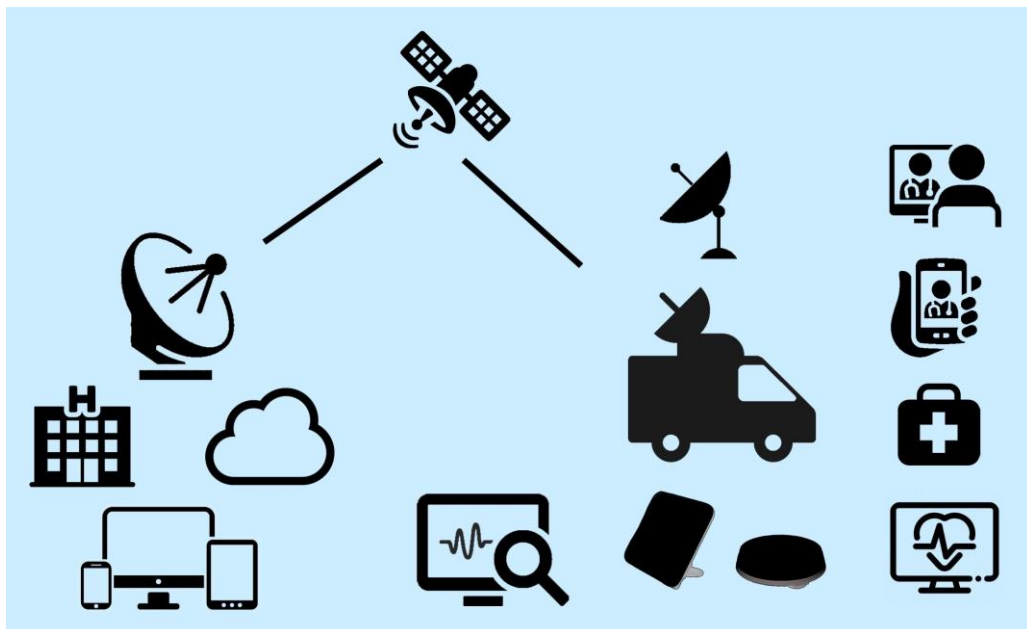
Satellite networks apart from the historical-traditional advantages (wide national – continental -intercontinental areas, complex territorial orographies, isolated-rural areas), are the most promising technological instruments to enable mandatory broadband communication in case of telemedicine, medical traumas, emergencies, territorial impacts of natural disasters and epidemics.

Satellites offer the unique opportunity to incorporate homes-villages in isolated-rural or urban areas, into the development of healthcare for a new integrated care approach for the whole population.

Improvement capabilities of first-aid services responders, are possible by the live interaction among remotely-based doctors and equipment and the team in the field, using remote diagnosis to provide the correct treatment of patients immediately locally or on board ambulances.

A comprehensive health network gaining 100% coverage by bridging gaps of the terrestrial networks, can prevent the exclusion of parts of the population from Telemedicine healthcare.

Satellite Communications connecting rural areas - remote villages - homes and Hospital - Medical Centers, allow a rapid intervention in case of emergency, medical second opinion, audio-video-data, coordination of urgencies and transport of injured or seriously ill people.



Telemedicine Platform ADiLife by ADiTech

ADiTech S.r.l Advanced Digital Technologies founded in 2006, has become a worldwide reference for the development and integration of innovative systems and solutions addressing Telemedicine and Wellness.

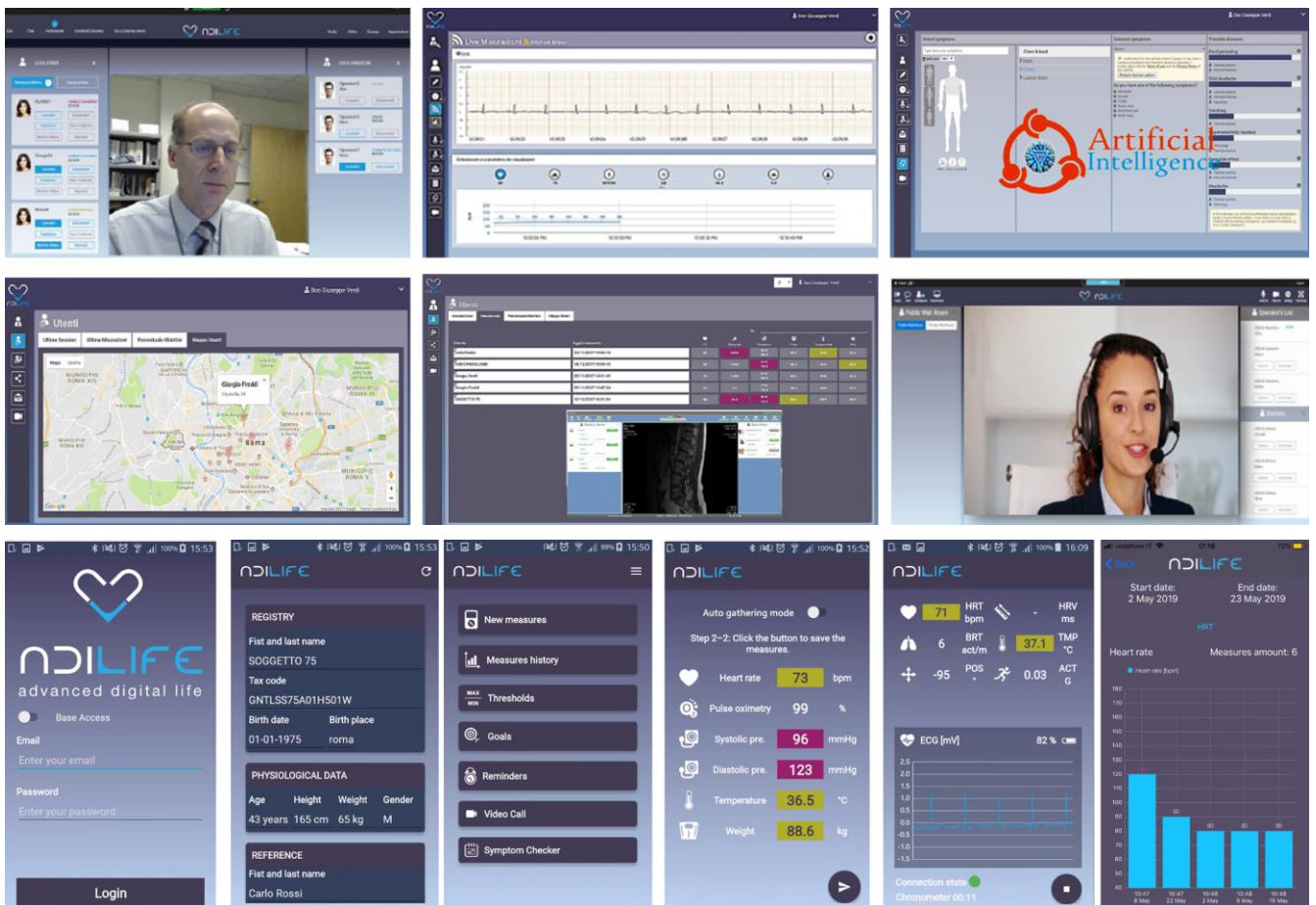
ADiTech is one of the stakeholders of ADiLife, a Telemedicine and Connected Health Multi-Utility Platform that puts the patient at the center of the cure process, with the following scenario :

- Enhances and makes the healthcare process more effective, regardless of where the patient resides (hospital, clinic, residence, home, traveling, etc.)
- Provides clinician with the tools he needs to manage the medical process (measurement of vital parameters, medical history, treatment plan, statistics and trends)
- Gives to the patient the necessary tools to become protagonist of his therapy, conscious of his healthcare process and the information he needs
- Eliminates the distance reducing the response times, bringing the doctor face to face with the patient

ADiLife more specifically meets the following needs:

- Functional and technological support for remote medical services management and healthcare assistance

- Remote and continuous monitoring of vital parameters with reference thresholds and PHR/HER Personal / Electronic Health Record
- Links to centers of excellence for Teleconsultation and Second Opinion
- Uses advanced medical wireless devices, suitable for every age and every need of assistance, wearable, non-invasive and easy to use
- Wide range of scenarios from the simple self-measurements of aerobic parameters, prevention and lifestyle, monitoring of chronic patients, to remote assistance of active ageing elderly or long-term patients and weak persons
- Allows medical opinions exchange between professionals or video collaboration including medical images sharing
- Provides a new way of interaction and communication with the user through CELESTE, a virtual assistant AI NPL-based able to fulfill the requests and needs of the user, through a broad base of medical knowledge including symptoms on tens of thousands of diagnoses



ADiLife profiled for Covid-19 and Management of Lockdown Phase 2 for public and private companies

ADiLife Cloud Platform profiled for Covid-19 as Add-on, connects patients in active surveillance and voluntary/forced isolation with doctors and nurses to manage care during their stay at home in full compliance with the any privacy requirement (i.e. GDPR), and with National Healthcare Service recommendations.

The Platform allows to immediately create user groups, differentiated by pathology, hospital departments or belonging geographical area, and to associate doctors and nurses to each patient, with tools to provide constant surveillance remote management during their home stay.

ADiLife Covid-19 App has been developed for the main operating systems (Android, iOS, Windows).

Patients can keep track of their health trends using the ADiLife Mobile App while doctors and health professionals can have both ways of accessing with PC via the medical Web portal and with Smartphone via the Mobile App.

ADiLife Covid-19 main functionalities :

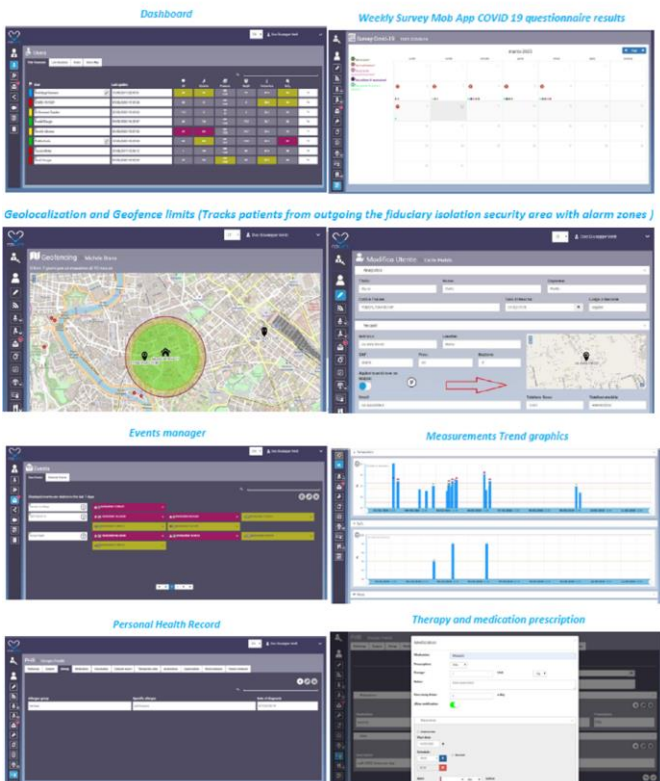
- Non-touch IR thermometers compliant to the Platform
- Live measurements with IoT wireless medical devices such as thermometers, SpO2, blood pressure, ECG, heart rate, breath rate
- Access the list and status of the assigned users/patients from dashboard

- User history, measurements trends and medical data (PHR/EHR)
- Notifications and alerts for medications or alarms for emergencies / urgencies
- Management and setting of thresholds, anamnesis, medication doses, appointments schedule or urgent request for Televisit
- Communication via SMS/Email and Videocall with the patient

ADiLife Covid-19 Lockdown Phase 2 profiled for public and private companies. Main functionalities :

- Management of the workflow established by the protocols for health security in companies
- Periodic employee information collection in accordance with personal approval and privacy, with database profiled by type of work, department, geographical area
- Acquisition and collection of temperature data of employees and external people, measured daily through IR thermal scanners at the entrance of the company premises
- SpO2 measurement in case of need
- Interaction and videocalls of employees to family doctor, company medical structures, public health structures, through ADiLife Covid-19 Mobile App
- Management of alerts due to exceeding the body temperature threshold or sudden illness

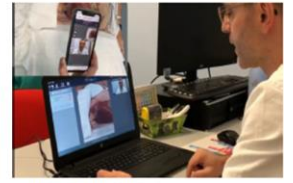
ADiLife Covid-19 Operator Management Tool



Video Call Center

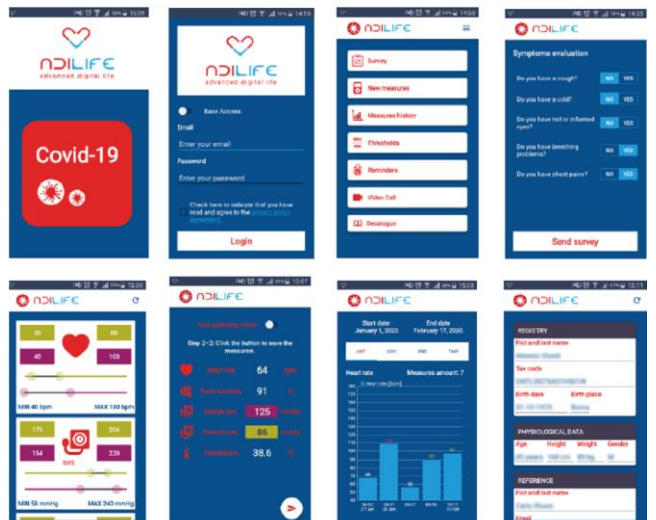


VIDEO CALL CENTRE MANAGEMENT TOOLS



TELE VISIT WITH PATIENTS

Mobile App



Telemedicine Mobile Unit via Satellite

Gordionet in partnership with ADiTech and Italspazio, integrates and implements Mobile Telemedicine Units via Satellite in end-to-end/turnkey scenarios, at an extremely competitive cost thanks to the evolution and compactness of the selected technological solutions.

The Ku Band Satellite Terminal with 4 Mbps full data rate, and up to 20 Mbps with HTS, is one of the most advanced and compact in the world, requiring minimal adaptation of the vehicle and that can be pointed at the satellite and activated in a few minutes.

The Ku Band has worldwide coverage with respect to the Ka Band, and a data rate significantly higher than BGAN L Band. The Satellite Terminal is particularly suitable for services such as broadcast media, emergency response, law enforcement, public safety organizations, telemedicine.



ADiLife Telemedicine Cloud Platform

- Basic Modularity : 200 Patients / 10 Operators
- Upgrade Packages : 201 - 1000 / 1001 - 3000 Patients
- Geolocation
- WebRTC Multipoint Videoconferencing
- PC SW Client and Mobile App (Android, iOS, Windows)
- Video Call Center Service (optional)
- ADiLife Covid-19 Add-on
- ADiLife Covid-19 Lockdown Phase 2 profiled for public and private companies with modularities Small/Medium/ Large Enterprise including App, Workflow Management, Non-touch IR Thermometers, and as options, IR Thermo Scanners, Pulse Oximeter SpO2, Videocontact

Example of Professional Telemedicine Devices Kit for Vital Parameters

- Glaucometer
- Blood Pressure Sphygmomanometer
- Pulse Oximeter SpO2
- ECG Electrocardiograph
- Spirometer
- Dermatoscope - Otoscope - Endoscope
- Weight Scale
- Ear / IR Thermometer
- Multi-Parameter Device (Blood Pressure, SpO2, IR Thermometer, Heart Frequency, Breath Frequency, 3 leads ECG
- Wearable Multi-Parameter Belt

Medical specializations of Telemedicine and electro-medical devices are applied to branches such as Geriatrics, Virology, Oncology, Dermatology, Pulmonology, Dentistry, Cardiology, Psychiatry, Neurology, Gynecology, Diabetology.

*The availability of PPE and Swabs Testing Kits must be compatible with the vehicle's load capacity and in accordance with directives, distribution authorization and availability of sanitary materials, by national authorities such as Civil Protection and National Health Service.

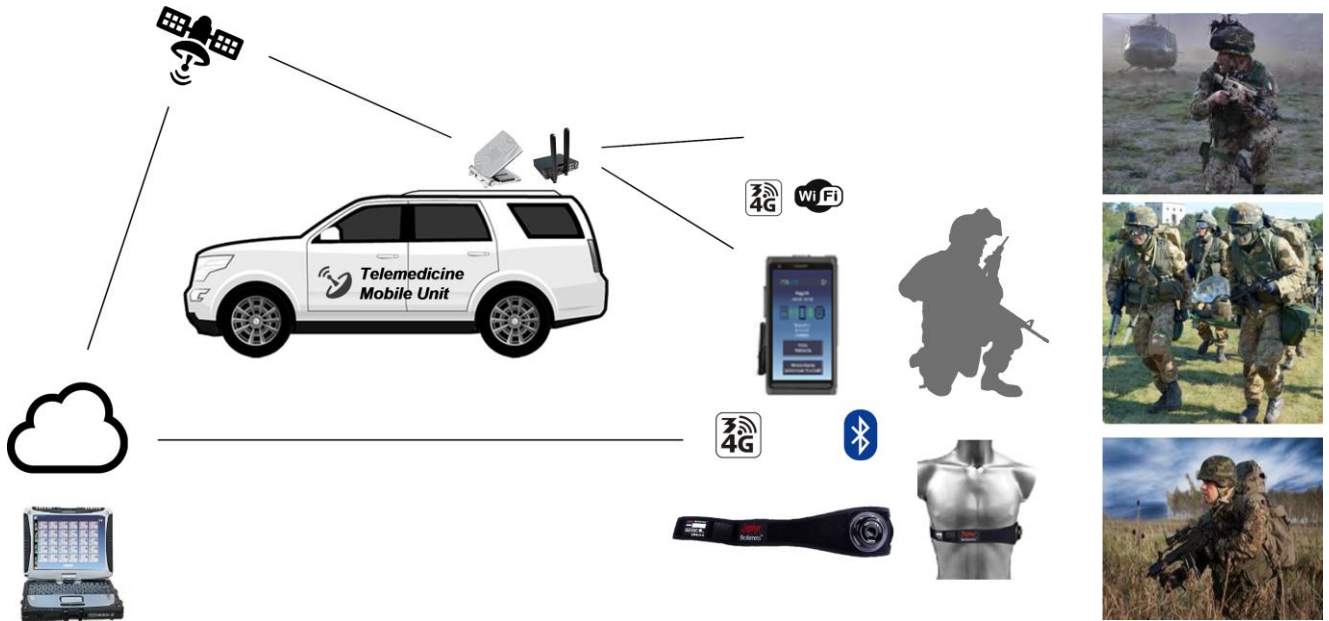
ADiDefence - Monitoring of Military Mission Critical

Knowing the physiological state at all times of military troops in the field or in dangerous missions is an essential element for the safety and success of an operation. Knowing position, physical condition, posture, pace, distance traveled, and emotionality are critical elements for the success of a mission.

The Solution is composed of :

- BioHarness wearable wireless multi-parameter belt with a coin size sensor (17 g), capable of measuring physiological and biomechanical parameters in real time, connected via bluetooth to rugged smartphone
- Telemonitoring software that shows position and physical status on a synoptic panel, including Mobile App
- IP gateway as a rugged-outdoor Mobile/WiFi Access Point Router, linked to a Mobile Telemedicine Unit via satellite in Ku Band (see previous paragraph), or to transportable repeaters linked to 3/4G Mobile Network, or to a tactical military radio system.

ADiDefence is a command and control solution used to monitor militaries who work in conditions of high risk, difficult environments, dangerous or extreme missions. ADiDefence can be seamless and applied in activities such as Command and Control (C2), Tactical Combat Casualty Care (TCCC), Special Forces, First Responders, Training.



ADiDefence and multi-parameter BioHarness belt

Physiological Status • Heart rate • Breath frequency • HRV Heart Rate Variability • ECG • Temperature • Stress

Biomechanical Status • Posture (standing, on the ground) • Activity (stop, walk, run)

Logistic Status • Geographical position • Distance • Speed

Group/Unit/Team Composition, Live Parameters and Thresholds Monitoring, Geolocation, Synoptic Panel, Mobile App

