Real-Time Locating System
Based on Bluetooth® Low Energy and Cloud Technologies.

- Healthcare Safety
- Workflow Optimisation
- Nurse & Support Call
- Duress Alarm
- Patient Wandering
- Hands-free Access Control
- Asset Management
- Baby Tagging
- Hang Hygiene Monitoring
9Solutions is manufacturer of modern healthcare safety and workflow optimization solutions for hospitals, care homes and home care environments.

9Solutions supports high quality healthcare services shifting safety of clients and personnel to a new level by use of real-time situational information.

Healthcare Challenges
The healthcare industry is facing different challenges – an aging population, increasing cost pressure as well as growing risks of violence.

In year 2007, the old-age dependency ratio in Germany was 0.32, meaning that there were 100 workers for every 32 retired persons. The German government expects an increase of this figure to 0.5 by 2050 (Statistisches Bundesamt 2007). This trend is similar in most of the European countries.

Public sectors have major concerns with financing the care. Less money and fewer workforce are available to take care of healthcare services. Personnel costs represent the majority of the healthcare costs. The only way to solve this challenge is automating routine tasks and improving processes to let healthcare professionals focus on actual patient care.

Violent and aggressive incidents are one of the major causes of injuries in the health and social care sector. 43.1% of healthcare sector workers has been in a risk of facing threatening situations or physical violence during the last 12 months (TTK, The Centre for Occupational Safety, Finland, 2010).

Why 9Solutions?
The patented Integrated Positioning and Communication System (IPCS) by 9Solutions increases quality and efficiency of healthcare services whilst reducing significantly costs of administration and reporting processes.

- **Safety and workflow efficiency increase**: 9Solutions improves the quality of care as well as safety of patients and staff. Automation of routine tasks saves up to 30% of staff’s working time.
- **Low investment and installation costs**: Advanced Software as a Service (Saas) and robust self-organizing Node network keep investment and installation cost below 65% compared to competing solutions.
- **Fast deployment**: Deployment time of the 9Solutions system is typically 1/3 compared to competing solutions.
- **Low maintenance costs**: Advanced Bluetooth® Low Energy technology keeps maintenance costs below 1/10 compared to competing solutions.
- **High customer satisfaction**: We offer premium products and support by striving for an encouraging atmosphere where customer satisfaction is the driving guideline for innovations.
The local network of 9Solutions Nodes is connected via a 9Solutions CCU to the Internet and the 9Solutions Cloud. The 9Solutions software is running on dedicated secure servers. The 9Solutions Smooth graphical user interface can be accessed using any web enabled device.

9Solutions Nodes form a wireless, self-organizing network using Bluetooth. The Node network forms a data connection to the 9Solutions Cloud via the 9Solutions CCU gateway. 9Solutions Tags exchange data with 9Solutions system server over the 9Solutions Node network, 9Solutions CCU and the Internet.

9Solutions Tags and other registered Bluetooth® devices (like Apple iPhone and iPad) can be tracked in the 9Solutions Node network.

9Solutions Smooth is the graphical user interface of the 9Solutions system that enables monitoring the status of all tracked people and assets graphically using layout view or list view, and offers easy access to all functions of the 9Solutions system.

9Solutions Smooth controls all functions and features of the 9Solutions system and provides instant access to stored data. It allows users to maintain and manage asset and person databases, manage alerts and tasks, send and receive messages, perform searches, and view an asset, person, group or system level reports. The graphical user interface provides an easy way to add people and assets to 9Solutions Smooth and associate them with Tags.

How does it work?
Integrated Positioning and Communication System (IPCS) by 9Solutions

The Wireless Bluetooth® and Cloud based Integrated Positioning and Communication System (IPCS) by 9Solutions enables safety and workflow optimization for healthcare professionals. The basic architecture is as follows:
Healthcare safety

- Millions of healthcare workers are injured on the job each year. The healthcare industry spends billions on workers’ compensation and related costs annually due to employee injuries and illnesses.

- Quality patient care is possible only when the staff’s security and well-being at work is attended to. 9Solutions offers sophisticated staff safety features. 9Solutions Tags can be used as mobile panic buttons, fixed 9Solutions Call Buttons can be installed in strategically selected locations, and 9Solutions ID-Badge LWP can even send alarms automatically in man-down situations.

- Having a way to call other staff members before the situation escalates is very important – and getting help right on the spot when help is needed is mandatory. When the staff feels safe and secured in the working environment, both the work motivation and the atmosphere at the workplace will be ameliorated significantly.

Workflow management

- Utilization of assets, compliance with hygiene processes, utilization of treatment rooms, patient flow monitoring, time spent with patients, guiding patients from treatment room to another, asset management... All of these are daily challenges in hospital environments – and some are even critical to the safety of patients and staff. All of these are directly linked to the bottom line.

- 9Solutions real-time locating system offers real time awareness; process compliance, utilization data, safety and asset management can now be managed using a single solution. Records are always up to date, enabling fast fact based decision-making processes.

- The staff’s valuable time is saved and they can focus on the most important thing: patient care.
Nurse call

- Wired and wireless buttons of the 9Solution Integrated Positioning and Communication System (IPCS) enable emergency and assistance calls everywhere within the premises. The client has the freedom to move around the premises freely, and in an emergency situation help is secured everywhere at all times.

- Emergency and assistance calls can be initiated by wearable 9Solutions Tags, fixed wireless 9Solutions Call Buttons, traditional cords ropes, mobile phones etc. In other words, all traditional methods are supported, and on top of that, new wireless locating based methods can be used freely alongside the traditional ones.

- Since the system is based on real-time locating, the location data is automatically included in the emergency or assistance call.

Patient wandering

- The 9Solutions system helps in giving people with dementia a chance to live their daily life in a humane way. The system monitors the clients’ movements imperceptibly in real time. When they move in the permitted areas within the facility or in the yard, nothing happens – but if they exit the designated area, an automatic alarm is sent to the nursing staff according to the arrangements.

- The system enables also traditional door surveillance. The permitted areas can be specified for groups or even for individuals. They can also be set to certain times and days of the week. The system is discreet and allows clients to feel safe at all times while not feeling restrained by their environment. It also saves nurses more time to perform other tasks instead of constantly having to monitor the clients’ movements in the premises.
Hands-free Access control

- The 9Solutions Access Control goes a step beyond conventional access control systems by combining hands-free operation, patient wandering protection and full featured personal safety solutions in a single infrastructure.

- The hands-free door operation system allows the staff to unlock a door simply by approaching it, when the member of staff is wearing an 9Solutions Tag. As the 9Solutions Gate communicates with the Tags wirelessly, no touch or sweep functions are required.

- All traditional access control features, such as operating automatic swing-doors, exit alarms, and door keypads are supported by the 9Solutions system, and third party devices can be linked to the system effortlessly.

Asset tracking

- The 9Solutions Asset Tracking solution enables fast and efficient locating and protection of assets. With the 9Solutions system you can easily monitor for example the location and the usage of the assets, and the battery level of the tags.

- Using the 9Solutions Smooth user interface, the staff can easily locate for example free wheelchairs or beds in a hospital environment, and also monitor whether the assets have been cleaned or repaired before they are put into use again.

- The wireless 9Solutions Asset Tags are robust and easily attachable to different kinds of assets. They have an alarm/notification button with easily programmable functions, and a tamper alarm option, which creates an alarm when the tag is detached from an asset. This way the system can also prevent asset thefts.
Baby tagging

- The 9Solutions Baby Tagging solution ensures the safety of newborn babies in hospital environments.

- An 9Solutions Tag is assigned to the baby right after delivery, and the mother is assigned with a corresponding tag that recognizes the baby’s tag. This way any possible mix-ups can be eliminated and the mother can be certain that she is taking care of her own child.

- The 9Solutions Tags will also monitor where the babies are moved, and the movement can be limited to certain areas or wards. If someone is trying to move the baby out of the permitted area, an automatic alarm will be sent immediately to the nursing staff.

Hand hygiene monitoring

- Hygiene is of utmost importance in all healthcare facilities. When hygiene standards are not followed, the well-being of both the staff and the patients is compromised. In addition to the obvious threat to life and extended patient suffering, cross contamination infections add significant costs to patient care.

- 9Solutions real-time locating system offers a systematic way to monitor hygiene processes. Using the 9Solutions Washing Station Sensors alongside 9Solutions ID-Badge TTS Tags and 9Solutions Bed Sensors, the healthcare staff’s hand hygiene routines can be monitored and controlled efficiently.

- The automatized hand hygiene monitoring enables also creating reports on the staff’s compliance to the hygiene standards, as all the events are logged in the 9Solutions Smooth user interface. Following hygiene processes is essential – and the process monitoring can be automatized using 9Solutions products.