

GENTAG

Gentag Applications

GENTAG's issued patents cover the uses of cell phones as RFID sensor readers. The technology empowers consumers to detect virtually anything, anywhere, and for almost any application. Korean companies were the first to start embedding RFID readers in their cell phones (see "[Honing Its Digital Game](#)"). More recently, major technology leaders, including Google and Nokia have also announced integration of the technology into their cell phones. Cell phones are perfect for consumer-based sensor networks because:




- Cell phones feature powerful processors for analyzing sensor data
- Cell phones are ubiquitous
- Cell phones are networked
- Cell phones can be geolocated, in real time, for emergency needs

GENTAG's goal is to redefine consumer-based diagnostic capabilities by enabling consumers' cell phones to access and read any RFID tag or sensor tag, anywhere. Our IP focuses on key medical-diagnostic RFID sensors, where utilizing advanced wireless technologies and their associated networks provide substantial cost savings for every stakeholder category.

Counterfeit Prevention

Counterfeits, including counterfeit drugs are increasingly common and put the health and well-being of people worldwide at risk.

GENTAG offers a simple, low cost [wireless tag](#)  that is specifically designed to be injection molded inside the caps of pharmaceutical bottles and where the consumer can check the authenticity of the product directly with their cell phones prior to purchase or use. The technology is not limited to checking for counterfeit drugs, but can be applied to any authentication market or application, thereby helping reduce the estimated \$1.2 trillion/year global counterfeit market.



Counterfeits can also be detected using GENTAG's multi-level authentication process and software using any web-enabled cell phone. The software can be tailored to any market or application. Examples include counterfeit wine prevention, counterfeit drug detection or parts authentication. Please contact us for more information.

RFID Sensors

A new disposable, wireless sensor platform is crucial to making the necessary quantum leap to low-cost consumer-based wireless sensor technologies. GENTAG's two-tiered approach to this challenge is as follows:

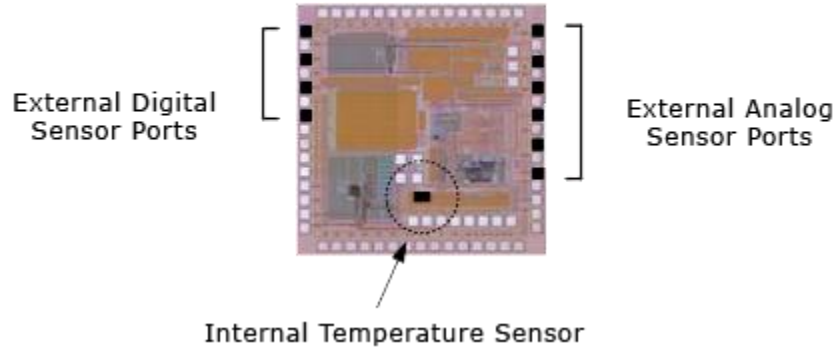
- Use the cell phone itself as the universal processor, power and reference source for remote RFID sensors.
- Use the RFID core as a platform to make low-cost wireless RFID sensor tags. This wireless-sensor platform can be completely passive (no batteries required) and is disposable.

In order to facilitate a low-cost, disposable, consumer-based wireless sensor platform, GENTAG has designed and successfully tested a new low-power, digital circuit that uses its ultra-linear dependence on temperature as a stable reference point for additional on-chip or external sensors.

This tested and patented technology only requires a *single temperature calibration point*, thereby allowing the production of low-cost, disposable RFID sensor tags.

The RFID chip can serve as a "generic" sensor platform with an internal temperature sensor and external analog and digital ports, thereby allowing a multitude of different wireless sensors to be made and read directly with NFC enabled cell phones, using a proprietary communication process.

Generic RFID Sensor Platform (Illustration Only)



RFID Diagnostic Smart Skin Patch Technology

GENTAG's patented "smart" skin-patch technology combines low-cost, disposable RFID sensors with an adhesive skin patch. As with most of GENTAG's sensor technologies, these disposable, non-invasive "smart" skin patches are directly readable with RFID-enabled cell phones, PDAs or wireless laptops.

The first market application for the smart skin patch is a *patient ID and fever onset bandage*, integrating GENTAG's proprietary sensor circuit in a disposable skin patch. Applications include using cell phones for monitoring the fever onset in a child, patient monitoring in hospitals, or remotely monitoring the well-being of elderly relatives or friends via cell phones or the Internet.

GENTAG has also patented other applications of its RFID smart skin-patch technology, including:



- A glucose-monitoring skin patch
- A cardiac-monitoring skin patch
- A UV-monitoring skin patch
- A biomarker skin test patch

Diabetes Monitoring Using Cell Phones

A special area of emphasis is diabetes monitoring with cell phones using a new [painless glucose sampling](#) technology integrated into a smart sensor skin patch. This technology development effort is in partnership with [SAIC](#) and [Georgetown University](#).

Cell Phone Immunoassays

GENTAG has developed and tested a proprietary technology to combine immunoassays with NFC cell phones or PCs for on-the-spot diagnostics and remote monitoring of results,

anywhere. Applications include pathogen detection, trace analysis detection in foods (e.g. peanuts) and food safety, women's health, and Point-of-Care (POC) diagnostic applications. The company plans to merge this technology with specific [biomarkers](#) for advanced diagnostic applications using cell phones. A specific example is prostate cancer monitoring based on a newly discovered biomarker referred to as PCADM-1. The biomarker is urine-based, meaning that tests are very simple, rapid and low-cost. Clinical tests have shown that the test is much more accurate than the PSA test.



Bluetooth-RFID Hybrid Technologies For Telemedicine

GENTAG is pioneering the use of dual Bluetooth-RFID technology with cell phones to help reduce the costs of health monitoring globally. Using this approach, GENTAG can leverage existing, FDA approved Bluetooth health-monitoring devices and combine this technology with disposable RFID technologies such as painless [diabetes skin patches](#).

This patented, combined technology gives GENTAG a significant market advantage. An application example for Bluetooth-RFID technology is illustrated below for weight management. The GENTAG technology can be used with Windows Mobile, iPhone, Google Android or other common cell phone OS platforms.

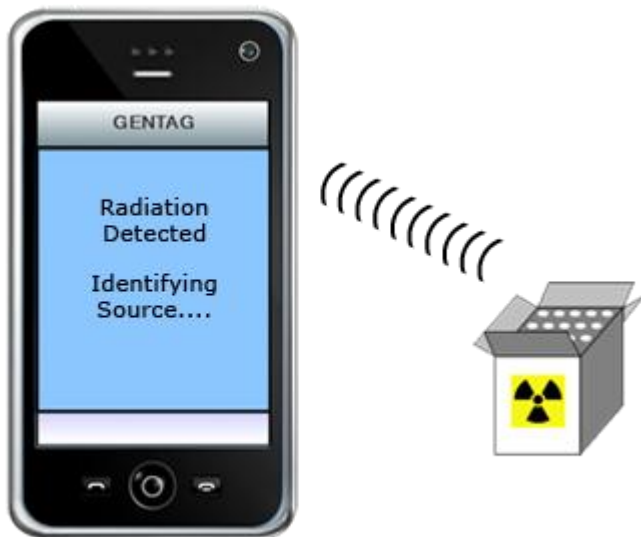


Radiation, Chemical and Biological Detection Cell Phones

GENTAG holds several patents for the concept of modifying a cell phone to serve as a low-cost radiation and/or chemical sensor for the discovery of external threats. This technology was first patented well before "dirty bombs" or other large-scale terrorist threats became a concern to governments worldwide.

GENTAG's patented technology includes both modular (removable) sensor modules or built-in sensors as described in patents [6,031,454](#) and [7,109,859](#) and follow-up patents.

This technology originates from work on wireless triangulation first done for the US Department of Defense starting in 1990 at Sandia National Laboratories. GENTAG's pioneering vision to use cell phones for threat detection has been [widely recognized](#).



Radar Responsive Tags (RTLS Technology)

- Locate goods and people both inside and outside buildings
- Very long range (> 10 miles)
- Field tested, extremely accurate

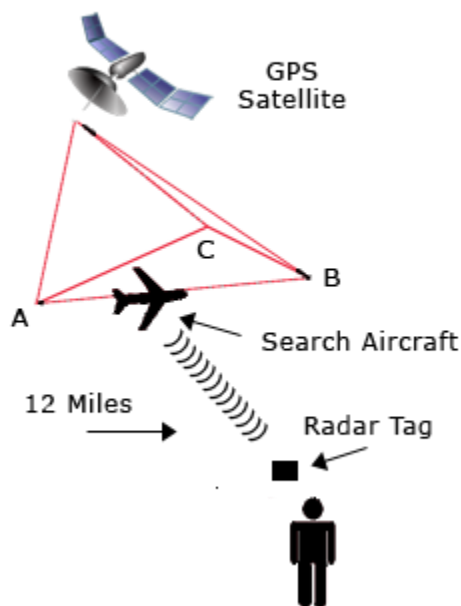
Dr. Mike Lovejoy tested and developed for the US government a wide area non-GPS geolocation technology that can locate in real time small tags with extremely high accuracy over 10 miles away. The technology, which is referred to as "**Radar Responsive**" tags (or RR tags), works inside buildings and therefore can geolocate items or people both inside or outside structures using stand-alone mobile geolocation "base stations" that can be set up anywhere.

Radar Responsive tags are extremely accurate and have been tested by the US military for "Blue Force" tracking to avoid "[friendly fire](#)".

RR tags can be inserted anywhere, are permanent and are potentially very low cost. GENTAG's focus is on hybrid geolocation technologies that combine GPS, RR tags and RFID sensors with cell phones, PDAs or other web-accessible wireless technologies to enable low cost real time highly accurate wireless tracking and sensing for virtually any industrial, consumer or Government application.

Sample applications for RR tags include locating patients with dementia, locating missing people or locating high value assets (e.g. cars) and "smart" diagnostic skin patches for vital sign monitoring and geolocation of soldiers, athletes or people working in dangerous environments over large geographical areas.

Missing Person Sample Setup



For technical or licensing information please contact GENTAG at info@gentag.com