

Active RF Tags – Intellectual Property

Application Specific Intelligent Microsensor

12329-B

Patent #: 6,889,165 & NZ530434

An intelligent microsensor module is described that provides a unique sensing technique. The modular sensor unit includes a sensor array layer, a processor and control layer, and a power layer. A communication layer can be added to receive new software to reprogram the smart sensor module for a different application. A network of smart sensor modules can be created.

The intelligent microsensor module can combine the data from different types of sensors and locally determine the current state of the environment in which the unit is placed. The intelligent microsensor module can locally determine and execute an action to be taken based on the determined state of the environment. The resultant state rather than raw data is then communicated to the outside world when the microsensor is queried. The module can be readily reconfigured for multiple applications.

FlexiTag

14423-B

Patent Pending, Application No. 11/044,944 & 11/044,872

FlexiTag is a small, bendable/flexible active RF sensor tag approximately the size of a quarter. The tag is in a self-contained, molded package that conforms to objects that have rounded or curved surfaces. The RF sensor tag is totally encased in a pliable package that makes the tag functional in a wide range of applications and operational in harsh environments, such as industrial or automotive. The tag is inexpensive and disposable with no requirement for battery replacement or other types of maintenance. A peel-off backing is available making the tag easy to mount.

Generation 1 of the FlexiTag incorporates a temperature sensor. More advanced generations have additional kinds of sensors and functional capabilities.

Semi-Passive RFID Tag with Active Beacon

14169-B

Patent Pending: Application No. 10/839,058

A radio frequency beacon device for use with a backscatter interrogator is described. This device includes an active transmitter that can share an antenna with the backscatter modulator or use its own dedicated antenna. The device can be configured with a sensor to trigger the asynchronous communication capability based on the occurrence of the event the sensor is designed to identify. The device can be coupled with a power source such as a battery to extend the range of this semi-passive device.

Low Power Wakeup for Active RFID Tags

14170-B

Patent Pending: Application No. 10/962,006

A wakeup mechanism for an active RFID tag is described. The tag uses a minimum amount of power in the absence of an external communications signal. Power consumption is increased when a remote signal is detected by a low power receiver circuit. The increase in power usage is caused by the activation of an active transceiver for the reading and transmission of data. This wakeup mechanism allows the manufacture of a less expensive, low power active RFID tag with the capabilities of a more expensive, higher-power tag.

Low Power Active RF Beacon Tag with I/O

14234-B

Patent Pending: Application No. 11/011,316

An active RF beacon tag is described whose beacon period can be adjusted via external programming for different time periods. The tag's I/O port can be interfaced to a wide range of threshold sensors and actuators with the results of said sensors then transmitted in conjunction with the tag's internal ID number upon a detection event. Power consumption is increased during transmission of data. The RF power can be adjusted between one microwatt and one milliwatt. The device may be configured in an active, passive or semi-passive implementation. For those implementations requiring energy, the power source can be a coin cell battery, a thin flexible one time use battery or a thin rechargeable battery capable of being recharged from sources such as scavenged RF power, solar power and acceleration.