

Four Patents for Positioning and Automated Steering

Hemisphere GPS has expanded its intellectual property portfolio with four new patents. These patents are the latest innovations in the areas of GPS positioning and automated steering.

The Satellite Position and Heading Sensor for Vehicle Steering Control patent (U.S. Patent No. 7,400,956) is based on the company's successful and patented Crescent Vector technology used in marine navigation and various precise positioning and attitude determination applications. Multiple antennas are used to provide accurate heading and roll data in addition to position. The heading and roll information provides accurate and dynamic steering information, even on rough or sloped terrain. The data is provided instantaneously and the quality is sustained over long periods of time. Alternative methods use inertial components that offer short-term accuracy but drift over time. Sophisticated steering algorithms based on accurate position and attitude from the Crescent Vector technology, along with dynamic calibration techniques that compare the vehicle response with the steering commands, ensure simple operation and precise steering performance.

The technology outlined in the Portable Reference Station for Local Differential GPS Corrections patent (U.S. Patent No. 7,400,294) is currently employed in the popular Outback Guidance BaseLineHD. This portable base station provides differential corrections and requires minimal user setup. New reference locations are stored in the base station, and additional locations can also be uploaded. The base station first determines its own position, and then automatically determines the appropriate reference location. The user only has to place the base station in the desired location and turn it on. It can provide centimeter-level performance and accuracy that is repeatable from day to day and even year to year.

The Articulated Equipment Position Control System and Method patent (U.S. Patent No. 7,373,231) enables the position of an implement to be controlled while it is being towed behind a tractor or other self-propelled vehicle. Using an articulated connector between the vehicle and the implement, the control system interfaces with a steering guidance system to keep the implement on a predetermined course.

The Carrier Track Loop for GNSS Derived Attitude patent (U.S. Patent No. 7,388,539) provides a method and system for reducing inconsistencies on the Global Navigation Satellite System (GNSS) carrier tracking loop. This technology provides direct communication between two GPS receivers' tracking loops in order to minimize common noise induced effects. This technique reduces the number of components needed to achieve this level of performance, all of which translates into a lower cost, higher value product for users.