Contract Engineering Capabilities

Great minds equal great innovations.

With an extensive line of high performance GPS receivers, data communications systems and robotic machine controls, NavCom Technology has been delivering groundbreaking Contract Engineering and custom solutions for its clients since 1992.

WHO WE ARE

NavCom was established in 1992 as a world-class contract engineering and consulting firm specializing in precise positioning and wireless communications for land, marine and aviation applications. In 1999, after successfully completing many contract engineering projects for one of our largest clients, John Deere, NavCom was acquired by this worldwide leader in agriculture and now operates as a wholly owned subsidiary of Deere & Company. As early adopters of GPS technology for agricultural applications, Deere believes satellite positioning and the technological innovations developed by NavCom to be an integral part of its current and future business. As a member of Deere & Company, we are dedicated to its 168 year-old tradition of product integrity, reliability and customer satisfaction.

As industry leaders, NavCom has a management team with over 150 years collective GPS experience and more than 70 engineers and scientists capable of taking a project from conception, through design, to a complete system solution. Our technical expertise includes system architecture design and engineering, digital signal processing (DSP) design, RF and digital ASIC design, digital circuit design, embedded software, smart antennas and application software.

The driving philosophy at NavCom has always been a strong commitment to innovation, and the development of new and emerging technologies. As a result, our portfolio of expertise has expanded to include Local Positioning Systems, Robotics and Autonomous Vehicle Control Systems ensuring that our clients receive the most up to date, cutting edge system solutions available.

HOW WE WORK

NavCom specialists work with the client through all phases of a project from the initial project brainstorming to final acceptance and test. Each project is assigned a program manager to provide formal communication between the client and our development team, ensuring close communication of progress and problems at all times. We work hard to ensure that there are no conflicts of interest in the contracts we accept, and we do not compete with our clients in their markets. Our clients benefit from the following work-flow structure:

Project Brainstorming:
Technical specialists are available for brainstorming from the earliest phases of a project, working with client's technical team to optimize the project concept.

Program Management:
An experienced program manager is assigned to all contract engineering projects, acting as the day-to-day contact with the client, applying their expertise to resolve technical issues as they arise.

Project Planning:
A complete project plan is developed with the client including schedule and cost estimates against which the project will be monitored as it proceeds.

System Engineering:
A dedicated staff of system engineers with specialized experience in a wide range of projects ensure that the project has a sound system design from the start.

I/P Management:
Comprehensive management of intellectual property with expertise in identifying and applying for patents.

Ongoing Technical Support:
We are available to help with customer field testing, documentation, design modifications and new versions of the initial design if needed.

Innovative flexible solutions that meet your needs

NAVCOM

A John Deere Company

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Contract Engineering
OUR WORK

PROJECTS OF NOTE

NavCom has completed highly successful projects for Fortune 500 companies, US Government agencies and as a sub-contractor to US Government Prime Contractors. We provide a turnkey service with professional program management to ensure targeted schedule and cost performance are met. Our laboratories are equipped with the latest specialized facilities and the highest quality test equipment.

POWERGPS™ Survey Receiver:
An internationally recognized Japanese survey instrument company contracted NavCom to develop a state-of-the-art GPS receiver for use in a new line of GPS survey receivers. For this project, NavCom developed the most accurate dual frequency GPS receiver on the market at the time. The receivers have been in production in Japan since that time.

The StarFire™ Network:
Upon completion of a number of successful GPS development projects for John Deere, Deere set its sights at developing a proprietary and more cost-efficient GPS correction network capable of providing greater accuracy than those available on the market and with the ability to provide extended global coverage. NavCom met the challenge by implementing a fully-redundant worldwide dual frequency GPS reference network and devising new processing algorithms to allow for optimal compression of GPS correction data in order to reduce satellite bandwidth needs and operating cost. Launched globally in 1999, the StarFire Network is a subscription service using the GPS satellite system, L-band communication satellites, and a global network of reference stations to deliver real-time high precision positioning.

UPS Aviation Receiver:
UPS Aviation Technologies (now Garmin) contracted NavCom to develop a GPS/WAAS Engine for use in their FAA certified aviation products supplied to the general aviation community and the commercial aviation transport industry. NavCom was responsible for system engineering, digital, RF and ASIC design and software. Specialized interference rejection techniques were employed in both the ASIC and RF front end to meet the FAA's stringent requirements. Special test equipment was built by NavCom to verify compliance with the interference and environmental requirements. The design met all high level requirements for FAA certification defined by RTCA/DO-229B and in 2002, the receiver became the first FAA-certified GPS/WAAS receiver on the market.

NASA/JPL Real Time Gypsy S/W Integration:
As the next stage in extending StarFire capability, NavCom concluded an agreement with NASA's Jet Propulsion Laboratory for the use of their Real Time Gypsy software and global dual frequency reference network. Under this agreement, NavCom combined the data from the StarFire and JPL reference networks into a single satellite based augmentation system (SBAS) yielding an unprecedented decimeter positioning accuracy and providing the first truly global correction service. The system continues to be managed by NavCom with correction data disseminated to all users through the StarFire Network.

NAVOCEANO's Integrated RTK-SBAS:
Under the GSA ANSWER Program, the U. S. Navy, Naval Oceanographic Office contracted NavCom to develop a compact, single unit positioning system capable of providing seamless high-accuracy navigation in real-time for both inshore and offshore hydrographic vessels. To accomplish this, NavCom integrated their RTK and SBAS systems to produce a single instrument global RTK-StarFire system, delivering centimeter positioning inshore using RTK with seamless transition to decimeter accuracy offshore. The success of the project has led to further development projects for NAVOCEANO such as GPS integration with water level monitoring buoys to provide superior positioning and real-time Solid Earth Tide Corrections. Through the implementation, the highest level of obtainable vertical positioning accuracies has been achieved, improving oceanographic and hydrographic vertical measurements by up to 30 centimeters.

GPS Reference Data Archives:
Originating from the StarFire Network, data archives of the global GPS constellation performance have been acquired over the years since the launch of StarFire in 1999. This data is made available on a contractual basis in support of post mission analysis projects and projects requiring real-time analysis of GPS receiver performance.

Advanced Autonomous Vehicle:
Employing proprietary positioning systems and robotic technologies, a prototype of a fully autonomous vehicle has been successfully designed for a major client. Under contract, NavCom developed all electronic systems on the machine including the navigation system, obstacle detection and avoidance system, wireless handheld controller and communications, the on-board processor and machine control algorithms.

Specialized Military Projects:
UAS, UGV, UXO Mitigation, IED Detection, Autonomous De-mining Systems