



MAYFLOWER COMMUNICATIONS COMPANY, INC.

PROJECTILE INERTIAL NAVIGATOR FROM COTS INSTRUMENTS

Miniaturized GIF GPS Receiver

About the Technology

Mayflower Communications Company, Inc. has developed a High Anti-Jam (AJ) GPS Guidance Electronics Unit (GEU) that has miniaturized Selective Availability Anti-Spoofing Module GPS receivers and GPS anti-jam modules suitable for most precision guidance munitions. The gun-hardened GEU system has anti-jam capability and provides a high degree of protection against jamming of GPS receivers. The AJ GPS guidance system was developed in response to Navy’s need for a commercially available and affordable inertial navigator that is suitable for use in guidance and control of projectiles.

In a teaming arrangement with Alliant Technologies, Inc. (ATK), Mayflower is supporting the Ballistic Trajectory Extended Range Munitions (BTERM II) Demonstration Program. The company is providing its GPS antenna AJ electronics to ATK/Draper for the Navy BTERM II projectiles. BTERM II is considered an alternative to the extended range, gun launched projectile and an alternative to the Extended Range Guided Munitions. Mayflower is also applying its GPS/AJ technology to the DoD’s Guidance Integrated Fuze (GIF) Demonstration Program, and is developing miniaturized anti-jam antenna electronics and a single chip SAASM GPS receiver for use in the GIF GEU.

Military and Commercial Significance

Mayflower’s Anti-Jam GPS GEU offers a powerful, high performance, small size, low cost solution for precision guided munitions. Production cost is decreased by using commercially available instruments, miniaturizing the enhanced GPS receiver and anti-jam module unit, and by using “accelerometers only” inertial navigation systems without including the more expensive gun-hard gyroscope that is not available commercially. The GPS anti-jam technology mitigates multiple wideband jammers for gun-launched rolling projectiles by utilizing a conformal antenna. The GIF program seeks to replace the existing NATO standard fuze on existing stockpiled Army, Navy, and Marine Corp ammunition with a low-cost, fuze-sized module.

APPLICATIONS

- Navy – Guidance Integrated Fuze, Ballistic Trajectory Extended Range Munitions II
- Army - Precision Guidance Kit, homeland security, battery operated robots, soldier radio
- Air Force - Unmanned Aerial System
- Commercial Industry - GPS navigation for aviation, automotive, farm, mobile robots for mining and hazardous materials

About the Company

Mayflower Communications, founded in 1986, is a technology leader in providing cost-effective solutions for high performance affordable radio navigation and communication products. Mayflower has led the development of RFI mitigation technologies and products utilizing advances in signal processing, antenna and sensor integration technologies. The Navy SBIR program has greatly impacted the company’s increase in revenues and growth of more than 50% within the last year. Because of SBIR funding and acquisitions, Mayflower is now a competitive, qualified source of military GPS receivers, and GPS anti-jam products for the DoD.

Topic Number: N01-077
(NAVSEA, PEO-SHIPS & IWS & SUBS)

SBIR Investment: \$1.1M
Project Revenue: \$18.1M

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