

# Data Collection and Processing for All-Source Positioning and Navigation (ASPN) Program

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**Figure 1.** Sensor configuration in the portable navigator



**Figure 2.** Example trajectory collected by a portable navigator and multi-sensor platform; OSU West Campus

The ASPN program seeks to enable low-cost, robust, and seamless navigation solutions for military users on any operational platform and in any environment, with or without a global positioning system (GPS). This testbed development includes collecting navigation sensor data from a wide variety of sensors; generating truth data; preprocessing the collected data; generating a “standard” extended Kalman filter integration of the sensors; and providing everything to DARPA and/or the agents for the ASPN performers, so the performers can use the collected data to evaluate the performance of their algorithms and architectures. The three universities, OSU, OU and AFIT, who collaborate on this effort, have significant experience in collecting, processing and analyzing these kinds of data sets, and the work performed under this and the related research will enable the ASPN performers to focus on their algorithms and architectures, rather than on collecting and calibrating data from real-world sensors.