

SELF-CALIBRATING SHOOTER ESTIMATION

ABSTRACT

Shockwave-only solutions that estimate shooter position and shot trajectory are extremely sensitive to the quality and precision of the shock time-of-arrival (TOA) measurements as well as the accuracy to which relative sensor positions in space are known. Over the life of a long-deployed system, the sensor positions can shift and the performance of some sensors may degrade for various reasons. Such changes can degrade the performance of deployed shooter estimation systems. Disclosed are systems and methods that can be used to calibrate sensor positions based on shock and muzzle measurements processed from a series of shots fired from a known location and in a known direction, as well as an approach for dynamically adapting shock-only shooter estimation algorithms to compensate for sensor degradation and/or loss.

FIGURE 1