Assignment Background:

The military has decided to design and deploy a new gunshot detection and location system. Mobile units must be designed for inclusion into the equipment of each soldier on the battlefield.

Required components include:

Microphone, amplifier, and A/D

Microprocessor

Power supplies – the equipment provides 24VDC for your use

*GPS with RS232 serial NMEA stream and 1PPS digital signal

*Low bandwidth wireless connection to command/control center via Ethernet interface

Components with * have already been selected by the systems design team, so you can just connect to them via the interface indicated.

Your assignment, should you choose to accept it, is to design the embedded hardware and/or firmware for deployment to provide a message with precise time for any detected gunfire. Command/control will aggregate the messages to pinpoint the enemy. Lives are on the line, so make sure you're thorough. The devil (and credit for your work) is in the details...

Effort:

This message won't self-destruct in 4-8 hours, but you shouldn't spend more time than that on this project. Please send any design documents in pdf format along with code in source files. You are free to use whatever toolboxes and environments you wish. Given the varied nature of embedded systems we don't expect to be able to have the components on hand to build what you provide.