



001-GNC

# Arduino-based Portable Device for Tracking Forces in Real Time

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*The objective of this work is to propose an information system to track the position and state of soldiers in real time. This system is based on an Arduino platform, which is an open source hardware board that can be easily programmed and expanded with different sensors. Currently, the software used by the Spanish Army to monitor and track small units only provides the position of the vehicles within the small unit, without the possibility of knowing the exact location of each soldier of the unit. This system is named FFT (Friendly Force Tracking) and, in addition to showing the position of the vehicles in a map, it provides useful tools such as messaging, warning sending, positioning of suspected objects and measure of distances. The performed work aims to enhance the features of the FFT system, allowing the positioning of each soldier forming part of the small unit. This information is depicted in the same map where the FFT system shows currently the position of the vehicles. Additionally, the proposed system gathers other useful information of the soldiers, such as temperature or heartbeat. Other interesting features of the proposed system are that it is inexpensive, fully portable with high energy autonomy, it is modular so that new capabilities can be easily added (for instance, smoke or bacteriological detection) and the communication range is large enough to cover the deployment of a light infantry section (around 1 km).*