Why M.E.D.I.C is useful

**M.E.D.I.C saves lives**

M.E.D.I.C is meant to serve as a monitoring device for individuals in dangerous service positions. The purpose of M.E.D.I.C is to allow dispatchers to monitor their personnel’s health status remotely and in real-time. This device was designed specifically for law-enforcement, military, and fire fighters—individuals who work in high-risk occupations. M.E.D.I.C will allow dispatchers or triage administrators to faster and more effectively allocate resources, saving and even greater number of lives.

M.E.D.I.C also has commercial applications, such as allowing professional sports teams to monitor the status of athletes for improved safety and to keep team performance at an optimum level by rotating out personnel. The extensibility of the M.E.D.I.C system allows addition of biometric sensors to suit a wide variety of end-user needs.

What is M.E.D.I.C

Project M.E.D.I.C is composed of over-the-counter or easily accessible components that will greatly serve its wearer. In its first installment, M.E.D.I.C is a hear rate sensor that remotely reports the wearers data to an online reporting site via a smartphone. This site records the wears geo-location and last known heart rate.

Using an Arduino-based configuration, M.E.D.I.C is a small unit that connects to a smart phone via a USB cable. M.E.D.I.C is supported by all smart devices, such as cell phones and tablets, which support GPS capabilities and Internet access (the device is indifferent whether it is connected through WiFi or a Data plan).
Three Principles: E.K.U

Project M.E.D.I.C is a novel ideal following an Extensible, Kaizen Upcycling (E.K.U) model. The project goal was to create a system that will report biometric data, in real time, using only low-cost, off-the-shelf, and often repurposed components. In its first installment, M.E.D.I.C is a heart rate sensor that remotely reports the wearer's data to an online database/CMS interface via a smartphone. This site regularly logs the wearer's GPS location and heart rate for use in triage should an injury or crisis arise. M.E.D.I.C. is intended as a distributed system, off-loading sensor I/O and signal processing to an Arduino which interfaces with any internet capable device with access to a GPS and Web browser. This keeps it energy efficient, cross-platform portable, and low-cost.

Goals, Methodology, and Implementation

Goals: This device was to be wearable, extensible, biometric monitoring system that could report to an interactive, user-role protected, CMS driven web interface. The cost of first viable product, excluding repurposed/donated smartphone, is to be kept below $100. The weight, excluding repurposed/donated smartphone, is to be less than one loaded STANAG magazine to minimize extra burden on our troops and patrolmen.

Methodology: As the spearhead of the E.K.U movement, this system combines common, inexpensive, and sometimes recycled/repurposed components to tackle a cross-discipline (Computer Science, Network Security & Electronics, Law Enforcement/Criminal Justice, and Pre-Med/Nursing majors), real-world problems: in this case, the protection of those who risk their lives to protect others. No custom components may be used unless they can be produced inexpensively and in sufficient quantity. The end product must benefit society.

Implementation: The simple, reprogrammable Arduino platform to handle I/O with biometric (and potentially other) sense and control electronic systems. This keeps price down and allows easy, backwards and forwards compatible communication with common smart device. An open source, open hardware pulse sensor module is connected to the Arduino, which has customized code to record heart rate and report this data to the smart device via USB HID emulation. The smart device then fills out a webform (avoiding the need native application development). A web interface built on the Drupal open source CMS framework, living in a LAMP Stack, logs and presents this data to authorized users to aid in the preservation of human life.