

WMTD Operational Description

Introduction

The Wearable Miniature Tracking Device (WMTD) was designed to help probation and parole officers monitor offenders. It is attached to the offender using a rubber-like strap. It collects positional information and compares this data to rules that have been established by probation or parole officer. These rules geographically define where an offender is allowed or not allowed to go. The WMTD also includes hardware to determine if the WMTD has been tampered with or removed.

System Overview

The WMTD utilizes GPS to establish an offender's location. Positional data (points) are stored every minute while the offender is not in violation of any rule and every 15 seconds whenever he or she is in violation. The cellular network (GPRS) is used to transmit the data back to servers at Pro Tech's data center located in Odessa, FL.



The WMTD is comprised of the following subsystems:

1. GPS Antenna and Receiver
2. GSM\GPRS cellular modem
3. Microprocessor running application software and memory
4. Battery and battery charging circuit
5. Tamper detection circuit including I/R emitter and receiver for monitoring a fiber-optic cable in the strap.
6. Alert pushbutton for offender acknowledgements.

Both the GPS receiver and GSM modem are off-the-shelf modules.