



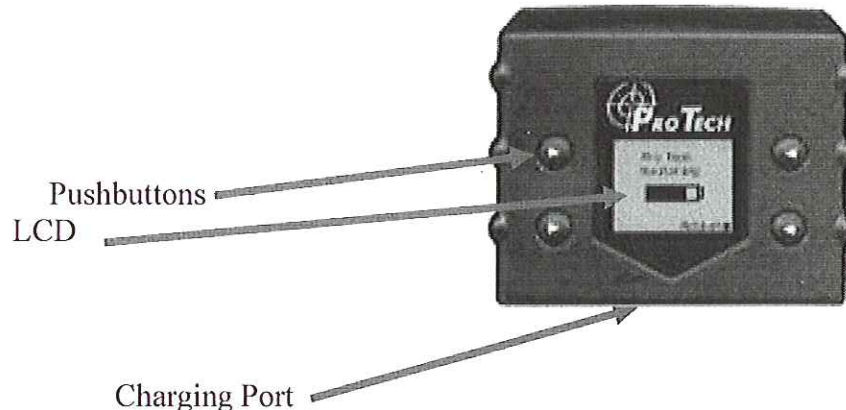
MTD3433 Operational Description

Introduction

The Miniature Tracking Device (MTD) was designed to help probation and parole officers monitor offenders. The offender carries the MTD and a bracelet transmitter that is attached to his ankle provides an electronic tether. The bracelet communicates with the MTD by transmitting short (approx 100ms) packets sent approximately every 15 seconds at 433 MHz. The MTD acknowledges these packets. The MTD 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 MTD also includes hardware to determine if the MTD has been tampered with.

System Overview


The MTD 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 MTD is comprised of the following subsystems:

1. GPS Antenna and Receiver
2. LCD
3. GSM\GPRS cellular modem
4. ISM band (433 MHz) transceiver
5. Microprocessor running application software and memory
6. Battery and battery charging circuit
7. Tamper detection circuit.
8. Pushbuttons for offender acknowledgements.

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



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