# Team #1: RAPTR

(Remote Asset and Person Tracking Reporter)

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## **Board Revision 2**



#### Power consumption

#### • Standby: 0.35mA

- 80uA Amplifier
- 150uA Regulator
- 40uA Accelerometer

#### Active, GPS tracking: ~50mA

- GPS 42mA
- AVR Micro 3mA

#### Active, location transmitting: 850mA

Transmits for 650ms.

## **Battery Life**

- Assumptions:
  - 2600 mAh battery (fits in case)
  - GPS hot fix time: 10 seconds
  - Transmission length: 650ms (measured)



**Battery life (days)** 

Transmission Interval	Battery Life
20 seconds	2 days
2 minutes	2 weeks
10 minutes	2 months
1 hour	6 months

## **GPS** Data







#### **Accelerometer Data**

- Car ride
- Pothole detection?



#### **RF Transmitter Performance**

- 2.5Watt output power
- Free of transients and spurious signals



## Software

- Configuration Tool
  - User configurable options of the device
  - Accompanies serial API
  - Both released as open source
- Tracking Server
  - Listens to transmissions made by devices
  - Decodes packets and stores beacons in database
  - Allows for easy interface for live tracking of position

#### 🕙 UI-View V2.39 [SOUTH-WEST PA USA]

File Terminal Stations Messages Map Logs Lists Action Options Setup Help



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e Terminal Stations Messages Map Logs Lists Action Options Setup Help



Callsign	Received	Icon	Туре	Latitude	Longitude	Comment
W3PIE-3	2012-04-13 02:44:21	S#	!	39° 55.96'	-79° 44.55'	PHG6760/W2,PAn Uniontown ARC W3PIE
N3DXC-1	2012-04-13 02:43:16	I&	=	40° 47.82'	-78° 58.20'	PHG7360/
NU3S-7	2012-04-13 02:42:47	/_	=	40° 22.75'	-80° 4.80'	000/000g000t041r p P000h b10210KU2k
W3VC-1	2012-04-13 02:39:47	I#	!	40° 26.54'	-79° 56.80'	Carnegie Tech Radio Club ar99+@andrew.cmu.edu
NU3S-7	2012-04-13 02:37:47	/_	=	40° 22.75'	-80° 4.80'	000/000g000t041r p P000h b10210KU2k
KD3XC-15	2012-04-13 02:35:35	/_	!	39° 53.35'	-79° 45.66'	ULTIMETER 2100
N3DXC-1	2012-04-13 02:33:20	I&.	=	40° 47.82'	-78° 58.20'	PHG7360/
NU3S-7	2012-04-13 02:32:47	/_	=	40° 22.75'	-80° 4.80'	000/000g000t041r p P000h b10211KU2k
N3ETV-2	2012-04-13 02:31:51	/_	!	40° 56.75'	-80° 16.95'	308/000g000t036r000p009P000hbTU2k
N3SH-2	2012-04-13 02:25:37	S#	=	40° 14.08'	-80° 11.29'	PHG5490/A=001414/N3SH.ORG 443.650+/r
N3DXC-1	2012-04-13 02:23:16	I&	=	40° 47.82'	-78° 58.20'	PHG7360/
NU3S-7	2012-04-13 02:22:46	/_	=	40° 22.75'	-80° 4.80'	000/000g000t041r p P000h b10211KU2k
W3VC-1	2012-04-13 02:20:46	I#	!	40° 26.54'	-79° 56.80'	CMU Radio Club http://www.andrew.cmu.edu/~ar99
NU3S-7	2012-04-13 02:17:46	/_	=	40° 22.75'	-80° 4.80'	000/000g000t041r p P000h b10212KU2k
W3EXW	2012-04-13 02:11:19	S#	!	40° 27.80'	-80° 0.30'	PHG7480 W2, PAn-N, North Hills ARC - Pittsburgh PA
W3VC-1	2012-04-13 02:01:46	I#	!	40° 26.54'	-79° 56.80'	Carnegie Mellon Univ igate Pittsburgh PA
N3DXC-1	2012-04-13 01:53:15	I&	=	40° 47.82'	-78° 58.20'	PHG7360/
KD3XC-15	2012-04-13 01:50:24	/_	!	39° 53.35'	-79° 45.66'	ULTIMETER 2100
N3DXC-1	2012-04-13 01:43:16	I&.	=	40° 47.82'	-78° 58.20'	PHG7360/
W3VC-1	2012-04-13 01:42:46	I#	!	40° 26.54'	-79° 56.80'	Carnegie Tech Radio Club ar99+@andrew.cmu.edu
W3EXW	2012-04-13 01:41:18	S#	!	40° 27.80'	-80° 0.30'	PHG7480 W2, PAn-N, North Hills ARC - Pittsburgh PA
KD3XC-15	2012-04-13 01:35:22	/_	!	39° 53.35'	-79° 45.66'	ULTIMETER 2100
W3VC-1	2012-04-13 01:33:16	I#	!	40° 26.54'	-79° 56.80'	Carnegie Mellon Univ igate Pittsburgh PA
NU3S-7	2012-04-13 01:32:43	/_	=	40° 22.75'	-80° 4.80'	000/000g000t042r p P000h b10214KU2k
N3ETV-2	2012-04-13 01:31:56	/_	!	40° 56.75'	-80° 16.95'	308/000g000t037r000p009P000hbTU2k
NU3S-7	2012-04-13 01:27:43	/_	=	40° 22.75'	-80° 4.80'	000/000g000t042r p P000h b10214KU2k
N3SH-2	2012-04-13 01:25:44	S#	=	40° 14.08'	-80° 11.29'	PHG5490/A=001414/N3SH.ORG 443.650+/r
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