Tracker2

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2006 ARRL/TAPR DCC

ARGENT DATA SYSTEMS

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ARGENT DATA SYSTEMS

Successor to the OpenTracker

- Still Open Source
  - GPL instead of BSD license
  - Name changed to avoid confusion
- Larger processor
  - 8 times more Flash,
    10 times more RAM
- Receive capability

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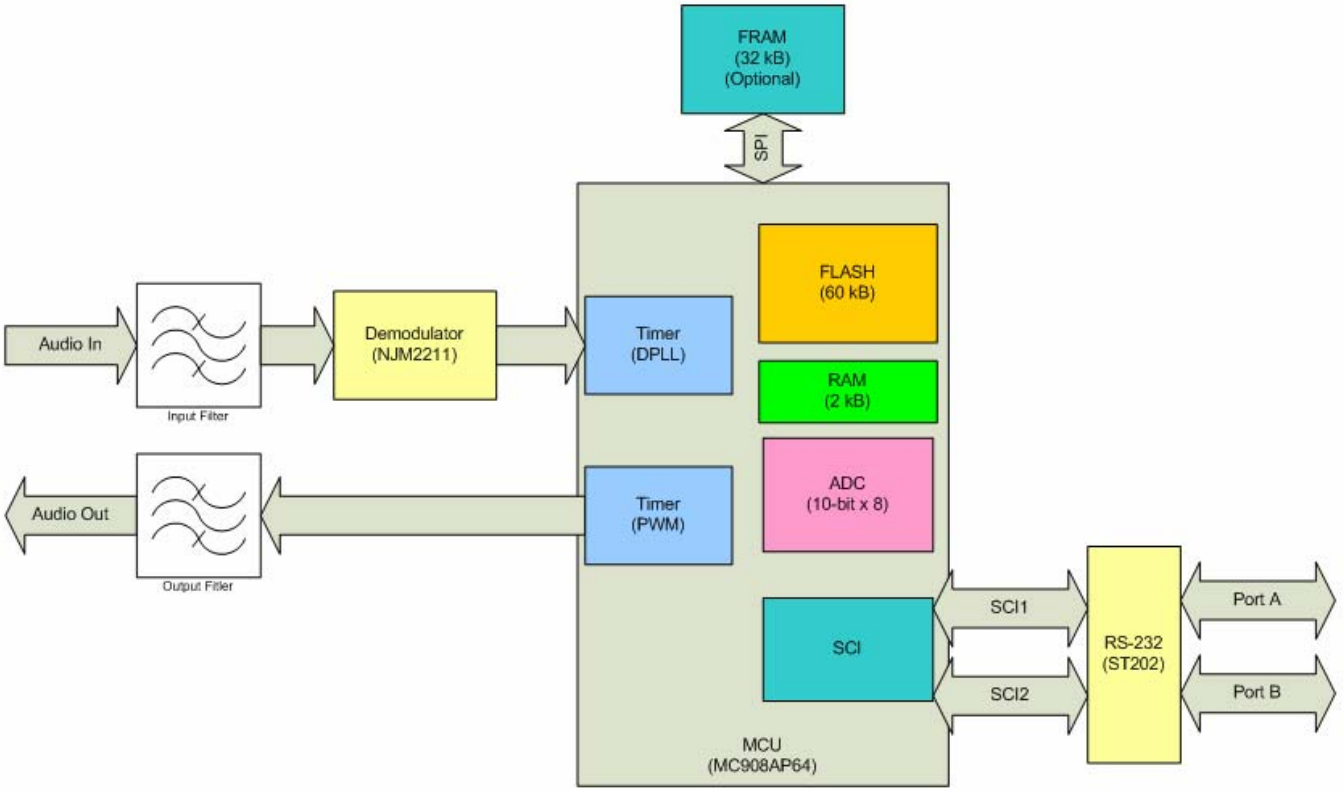
Tracker2 Design Goals

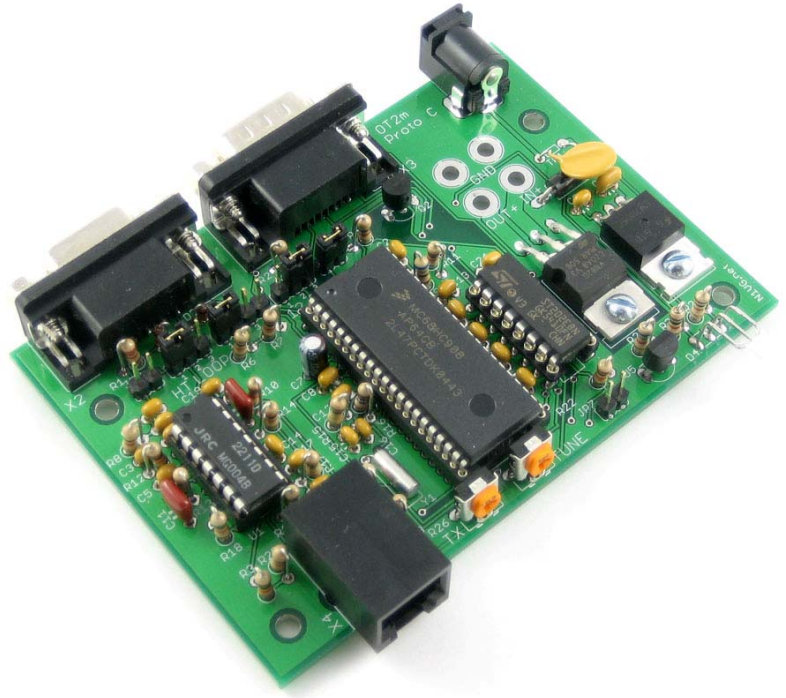
- Low cost
- Readily available components
- Flexible
- APRS-oriented feature set
- Open source firmware

Block Diagram



Hardware

- **Tracker2 model OT2m**
  - **Temperature and voltage sensors**
  - **20-amp high side switch**
  - **True RS-232 interface**
  - **RJ11 accessory jack**
  - **Available as a kit**



Hardware

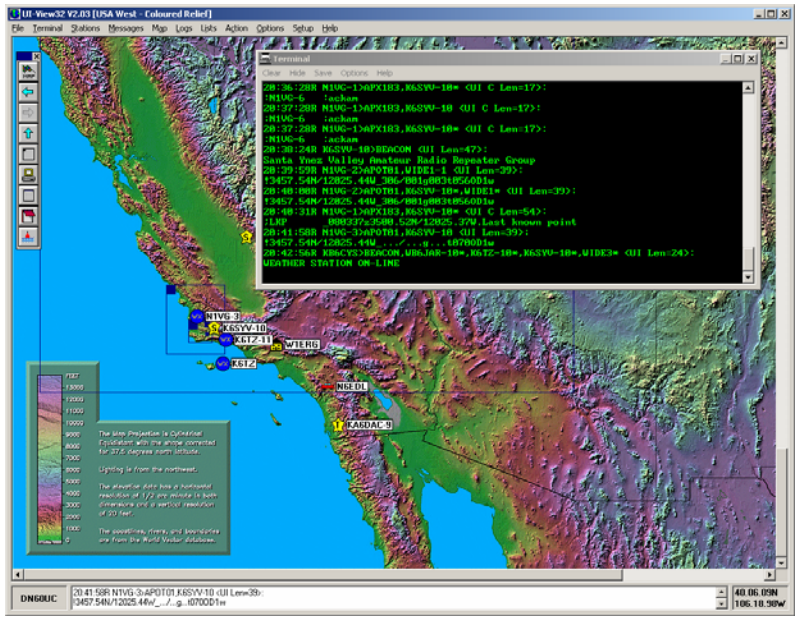
- ‘M’-type case
  - Same as OpenTracker OT1m

Tracking

- All OpenTracker features
  - SmartBeaconing™, timeslotting, low voltage inhibit, compressed format, telemetry, profile switching, relay control
  - On-board temperature and voltage sensors
- Garmin binary protocol support
- Responds to ?APRS? queries

KISS Mode

- Use with most APRS applications
- Works concurrently with digipeating, tracking, etc.



Waypoint Output

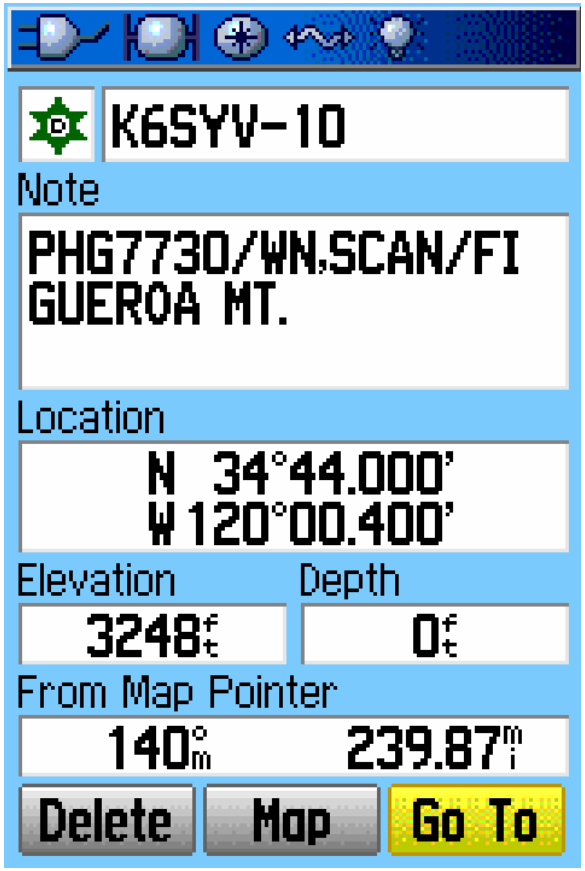
- Decodes (almost) all APRS positions
  - Standard, Mic-E, Base91, NMEA (four kinds)
  - Stations, Objects, Items, Third Party
- Outputs waypoints to GPS receiver
  - NMEA ($GPWPL)
  - Magellan ($PMGNWPL)
  - Garmin binary
- Optional range limit
- Intelligent name truncating

Waypoint Output

- Symbol translation
- Custom symbols supported on some Garmin models
- Additional symbol translation table for old units with only 16 icons

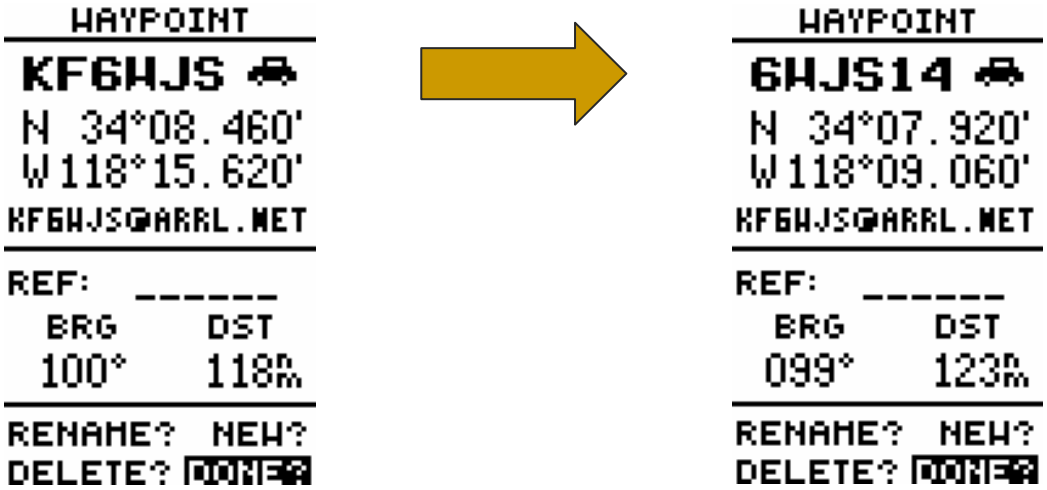
Waypoint Output

- Comment text preserved to limit of GPS receiver
- Altitude field extracted and displayed as elevation

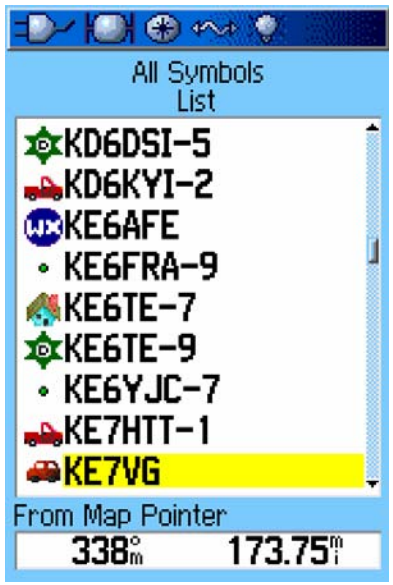


Waypoint Truncation

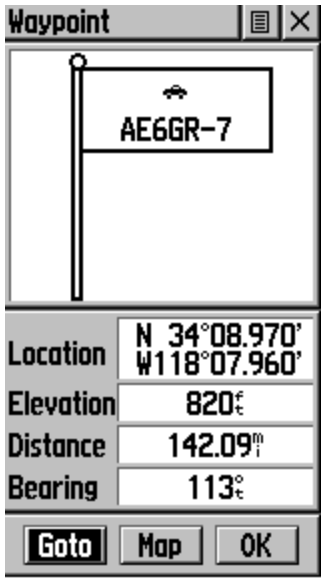
- Optionally truncate names to specified size
- Truncation is automatic in Garmin mode
- Avoids overwriting callsigns with multiple SSIDs



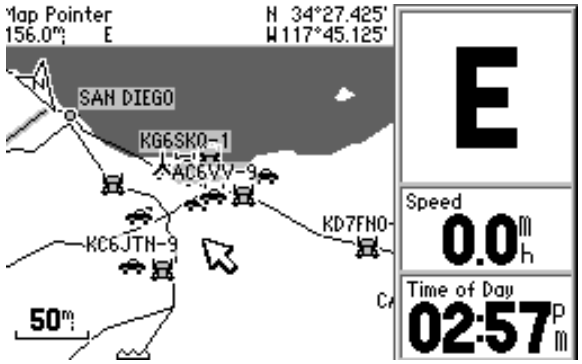
Garmin Support



GPSmap 60CS



eTrex Vista



GPS 5

- Most models and waypoint formats supported
- Additional formats will be added in future updates

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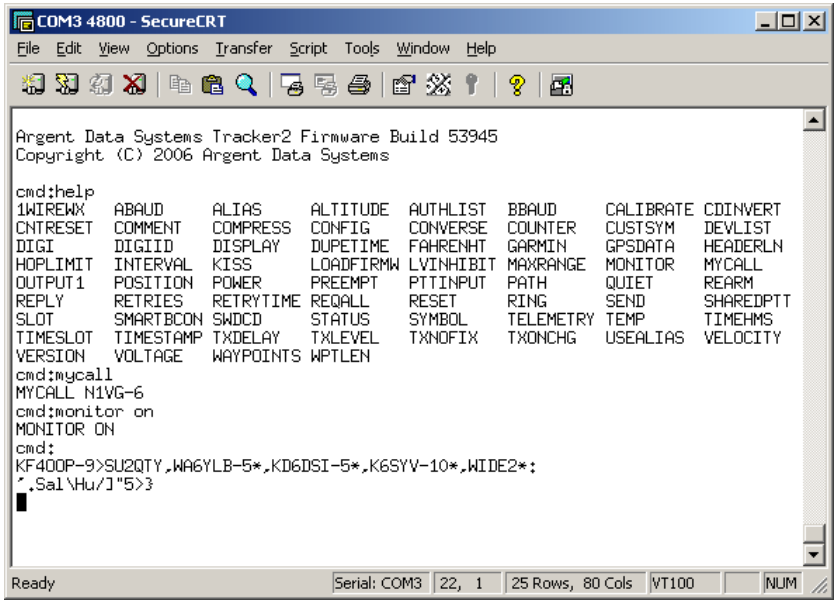
Digipeater

- WIDEn-N, TRACEn-N support
- Up to eight aliases
- Hop count limiting
- Duplicate elimination
- Optional preemption

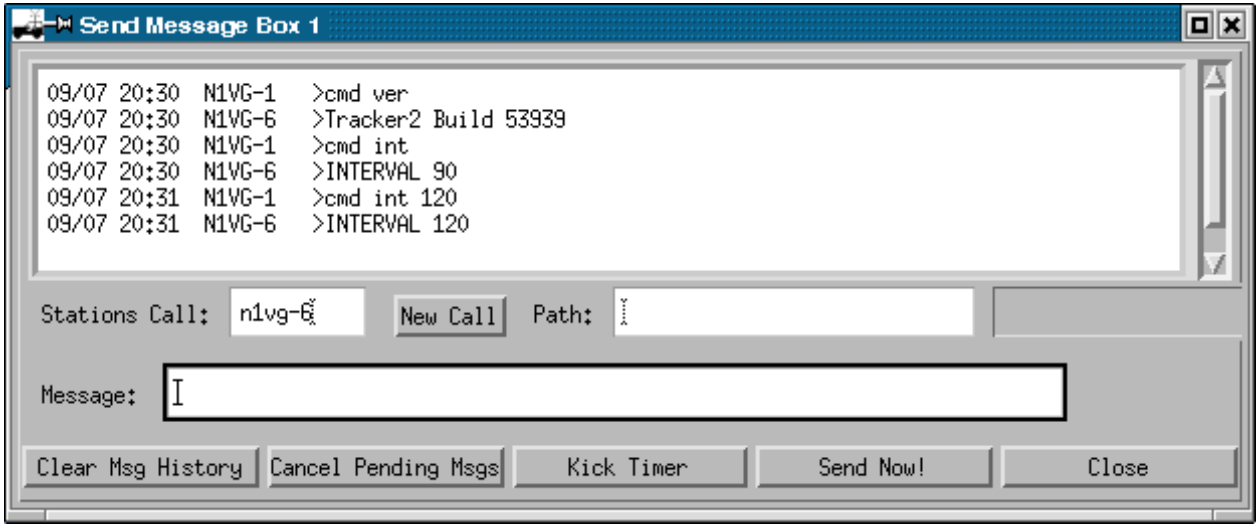
Command Console

- TNC2-style serial console
- APRS messaging
- XMODEM firmware upload



Remote Access

- Use most console command remotely
- Can be used through IGates
- Multiple authentication options



T2-135 Board

- Installs in place of EJ41U TNC
- Front panel data jack for GPS input

T2-135 Installed

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Upcoming Features

- Scripting language
  - Similar to PLC ladder logic
  - Remotely editable

Inputs	Outputs
Digital I/O	Digital I/O
Messages	Console Commands
Timers	1-wire bus
Proximity (point or station)	Power switch
Velocity, Altitude, etc.	Counters

Upcoming Features

- **Garmin database emulation**
  - **Stores incoming positions in memory**
  - **Appears as a Garmin GPS receiver**
  - **Transfers positions in response to waypoint download command**
  - **Allows non-APRS mapping programs to access near real-time APRS data**

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Upcoming Features

- Garmin waypoint monitoring
  - Periodically polls attached Garmin GPS
  - Transmits changed waypoints as objects
  - Acts as Rino to APRS gateway

Upcoming Features

- Antenna tracking
  - Sends commands to rotor controller
  - Set direction manually or track a specified APRS station
  - Use for ATV downlink from aircraft, balloons

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Project Status

- First hardware tested last November
- Currently on third beta test revision
- Approximately 50 units operational
- Documentation in progress