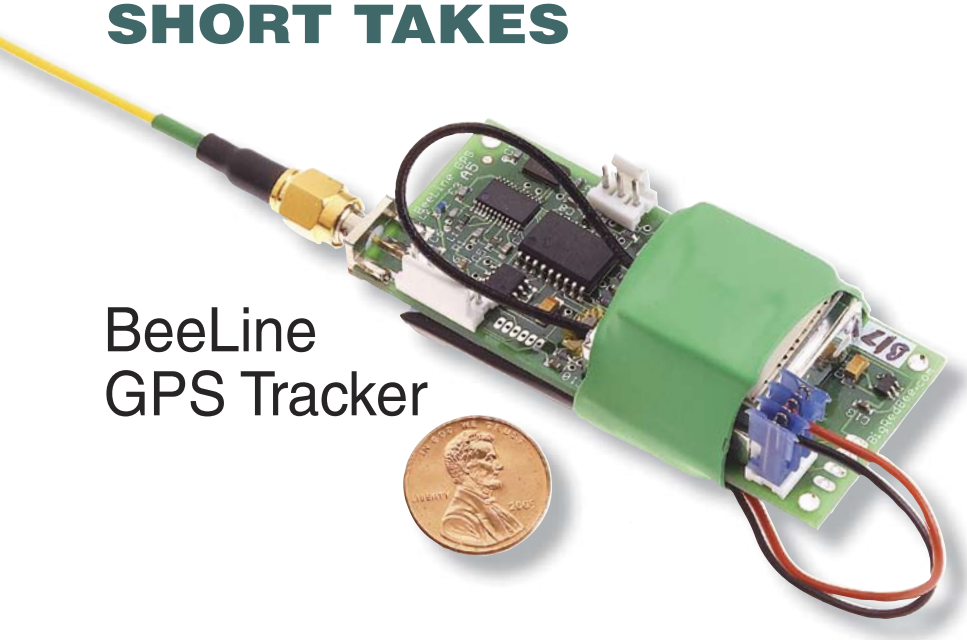

BeeLine GPS Tracker

You have to admire any company that is comfortable with calling itself "BigRedBee." Not BeeTrex. Not BeeCom. Just *BigRedBee*.

This is a small business with a small, clever product: the BeeLine GPS Tracker. The BeeLine is a tiny (1¼ × 3 inch) module that contains a GPS receiver and GPS patch antenna, a Lithium-Poly battery and a 70-cm FM transmitter. The whole package weighs about 2 ounces.

The BeeLine is designed to be a go-anywhere APRS tracker. In case you're unfamiliar with the term, APRS stands for the Automatic Position Reporting System. An APRS tracker takes position information supplied by a Global Positioning System (GPS) receiver, reformats it as packet radio data, converts the data to a modulated audio signal and passes the signal to a transmitter (typically a VHF FM radio). At the receiving end, a packet radio Terminal Node Controller (TNC) decodes the transmission and feeds the information to a computer running APRS software. The result is a computer-generated map that displays the location of the tracker (and the object being tracked).

Unlike some bulky APRS tracking setups comprised of separate GPS receivers, TNCs and radios, the BeeLine integrates everything, including the battery, into a single compact unit. The only downside is that the BeeLine operates on 70 cm, whereas most APRS activity takes place on 2 meters (144.39 MHz). For specialized applications where you're not concerned with making the position information available to the traditional APRS network, this probably isn't an issue.

The BeeLine Package

For this review I purchased the complete BeeLine GPS package, which includes a battery charger, serial adapter (to communicate with your computer) and a 70-cm antenna.

The battery charger is an imported device originally intended to charge cell phone batteries. The BigRedBee Web site suggests modifying the charger to make it easier to interconnect with the BeeLine module. That's the approach I took, modifying the charger by adding a cable with a small three-terminal connector (DigiKey part number WM4201-ND) so that I could easily plug in the BeeLine for recharging.

The serial adapter is something you'll use only occasionally to program the BeeLine with your call sign and other parameters. The *BeeLine Communicator* software for *Windows* is downloadable from the BigRedBee Web site. You simply plug the BeeLine into the serial adapter, plug the serial adapter into a convenient COM port on your computer and then read and write your settings to the BeeLine. It is interesting to note that you can also set the transmit frequency and output power in this fashion. The BeeLine will transmit anywhere in the 70-cm band. I set my unit on 433.920 MHz with full output power (about 16 mW).

The antenna is a quarter wavelength flexible wire terminated in an SMA connector.

Kitty Tracker!

My first impulse was to launch the BeeLine in a model rocket, but the odds of it finding a new home in a treetop placed that notion well outside my comfort zone. So, I grabbed the nearest moving object at hand—my cat. I attached the BeeLine to her harness and turned her loose for a neighborhood patrol. I set the BeeLine to transmit a position beacon once every 60 seconds.

The BeeLine's GPS receiver quickly acquired enough satellite signals to determine her position and apparently maintained GPS lock throughout most of her journey. Back at home, I had no difficulty receiving the BeeLine's reports. You can see the result in Figure 1.

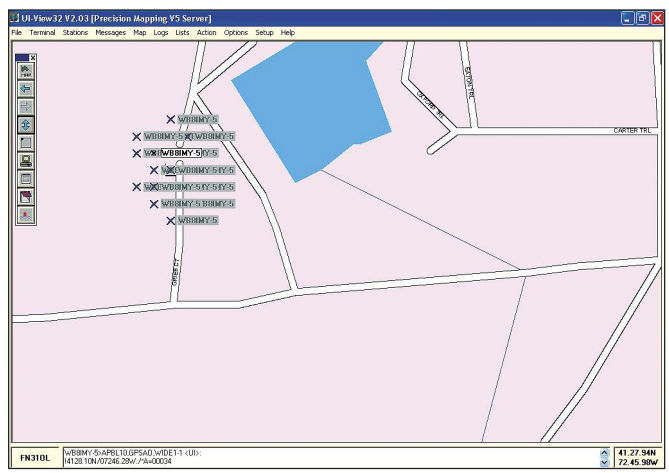

Figure 1—Herding cats may be impossible, but tracking one with a BeeLine GPS certainly works! These position reports were received on 433.920 MHz using a Kenwood TS-2000 transceiver (with its built-in packet radio TNC) and displayed with *UI-View* APRS software.

Serious Applications

The minimal size and weight of the BeeLine makes it ideal for a variety of tracking applications such as model rockets, high-altitude Amateur Radio balloons, radio-controlled airplanes, search and rescue, etc. The BeeLine also features onboard memory that will record about 10 minutes worth of position data. This is particularly useful for model rocket and R/C airplane activity.

Manufacturer: BigRedBee, 5752 Bay Point Dr, Lake Oswego, OR 97035; **www.bigredbee.com**. *$299*

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