BroodMinder: Smart, Affordable Telemetry for Beekeeping

**Situation:**
Increasing awareness about the important role of honeybees in our global ecosystem has inspired more consumers to become backyard beekeepers. Rich Morris wanted to help this growing community avoid hive starvation or condensation during winter months, so he created a small, rugged, inexpensive temperature and humidity telemetry system that is simple enough for the everyday enthusiast to access and use.

**Solution:**
With more than 35 years experience in electrical engineering and product design, Mr. Morris clearly understood design strategies. He chose the Silicon Labs BLE113 Bluetooth Smart Module for the simplicity it would offer users, and the impact it would have on his bill of materials and time to market. In just a few months, Mr. Morris launched the BroodMinder Model 42, which gives beekeepers actionable data at a low cost.

"The Bluegiga technology stack (now Silicon Labs) was pre-certified and reliable, which allowed me to focus on making my startup a success."

Rich Morris | Founder and Lead Drone, BroodMinder

Benefit:

Using a pre-certified technology stack saved Mr. Morris development and debugging time, allowing him to focus on launching a startup company and new product. The BroodMinder Model 42 connects to smart devices via Bluetooth, so users can quickly acquire data from their hives and publish that data to the cloud, creating a public database of hive diagnostics. This helps beekeepers track, maintain, and improve the health of bee populations.

Bluetooth Low Energy Fundamentals:

- **Ultra-low power**: can run more than a year on a coin cell battery
- **Flexible**: connects to most consumer mobile devices like smart phones, tablets, and PCs
- **Supported by major platforms**: iOS, Android™ 4.3, Windows® 8, OSX®, and Linux®
- **Reliable and Robust**: AFH, retransmissions and 24-bit CRCs
- **Secure**: paring, privacy, MITM protection, and AES-128