BTnode rev3 – Product Brief

The BTnode is a versatile, autonomous wireless communication and computing platform based on a Bluetooth radio, a second low-power radio and a microcontroller. It serves as a demonstration and prototyping platform for research in mobile and ad-hoc connected networks (MANETs) and distributed sensor networks (WSNs). The low-power radio is the same as used on the Berkeley Mica2 Motes, making the BTnode rev3 a twin, both of the Mote and the old BTnode. Both radios can be operated simultaneously or be independently powered off completely when not in use, considerably reducing the idle power consumption of the device.

Availability
- samples available

Pricing
- USD 215 for samples, larger quantities upon request

Contract Manufacturer
- Art of Technology, Zurich, Switzerland, email: btnode@art-of-technology.ch

Support
- through the open-source community

BTnode rev3 system overview

System features
Core microcontroller – Atmel ATmega128L (AVR RISC 8 MHz @ 8 MIPS)
Core memories – 64+180 Kbyte SRAM, 128 Kbyte Flash ROM, 4 Kbyte EEPROM
Bluetooth subsystem – Zeevo ZV4002, supporting AFH/SFH Scatternets with max. 4 Piconets/7 Slaves
Bluetooth v1.2, integrated ARM7 core, 4 Mbit Flash for in-system development
Low-power radio – Chipcon CC1000 operating in ISM Band 433-915 MHz

External interfaces
UART, SPI, I2C, GPIO, ADC, Clock, Timer, LEDs
Standard Molex 1.25mm Wire-to-Board and Hirose DF17 Board-to-Board connectors

Power supply
Separate switchable supplies for Bluetooth, low-power radio, peripherals, and uC core
External DC supply 3.8–5 V or 2 AA cells with on/off switch
Switchable core voltage 3.3V available at extension connectors

Size
- 58.15 x 33 mm attached to a 2 AA cell battery holder

Software Support
- open-source
BTnut System Software and demo examples, standard C programming
TinyOS 2.x compatible
AVR-GCC tool chain on Win/Linux/MacOS/BSD

System programming and debugging
Single connector for in-system programming
AVR target via ISP, JTAG, serial bootloader or wireless network flooding
Linux emulation for fast prototyping
Standard IDEs/toolflows for AVR supported

Extensions
Modular extension port integrated
Generic sensor board extensions
FPGA extension board (prototype design available)

Additional resources – http://www.btnode.ethz.ch