Energy-harvesting evaluation kit powers network with sunlight

ECN Europe

Arrow Electronics [1] has developed an energy-harvesting evaluation kit together with Italian technology consultant company @m2el that enables users to transmit and receive data via modules powered by solar energy and temperature differences. Called â€œThe Drop,â€ the kit showcases components from Atmel Corporation and Linear Technology that were selected for their low-power consumption and suitability for harvesting applications.

[2]

The Drop kit contains two energy-harvesting boards: a solar board (SBN) and a Peltier board (PBN). Both are equipped with a 2.4GHz radio (802.15.4 ZigBee ready) for wireless data transmission that allows them to act as network nodes. A third wireless-enabled node (UBN) can be connected to a Windows-based PC via USB, where the data collected and sent by the two harvesting boards can then be displayed. The boards are built around Linear's LTC3109 auto-polarity ultralow step-up converter and the LTC3105 400mA step-up DC/DC converter with Maximum Power Point Control. Atmel devices used include the high-performance, low-power 32-bit Atmel AVR AT32UC3B0256 RISC-based microcontroller, the low-power, high-performance 8/16-bit AVR ATXMEGA128A3 microcontroller and the low-power 2.4GHz Atmel AT86RF230 transceiver, designed for IEEE802.15.4, ZigBee, RF4CE, SP100, WirelessHART and ISM applications.

In addition to the three network nodes, the kit includes a solar panel, a Peltier cell, three RF antennas and a mini USB cable. The Drop Radio Kit Console software, which includes a demonstration application and USB driver, can be downloaded from www.thedrop.eu [3] or www.arroweurope.com/thedrop [4]. This completes the kit and enables users to set up their own energy-harvesting evaluation system. They can also create their own designs based on the kit using the original schematics, Gerber files and firmware, all of which may be downloaded from the website.

SOURCE [5]

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http://www.ecnmag.com/blogs/2012/02/energy-harvesting-evaluation-kit-powers-network-sunlight?qt-most_popular=0

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