

Issue #288**June – Internet & Connectivity****Steve Hendrix: Personal Solar Power Setup (Part 1): Solar Panels, Batteries, and Storage****PROJECT FILES**

To download the solar panel angle spreadsheet, go to ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/288/

Tom Struzik: Automotive Isolated Switching Power Supply**PROJECT FILES**

To download the code, go to ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/288

RESOURCES

Linear Technology Corp., "LT3748 100-V Isolated Flyback Controller," 2010, <http://cds.linear.com/docs/en/datasheet/3748fa.pdf>

Littelfuse, Inc., "Suppression of Transients in an Automotive Environment," Application Note AN9321.5, 1999, www.littelfuse.com/data/en/Application_Notes/an9312.pdf

Sixerdoodle Electronics, "LTspice Tutorial—Car USP Power Supply," www.jenrathbun.com/Electronics/projects/ltspice-tutorial-car-usb-power-supply

T. Struzik, "Wireless Data Exchange: Build a 2,700-lb. Bluetooth Headset," *Circuit Cellar* 240, 2010, www.jenrathbun.com/Electronics/projects/ltspice-tutorial-car-usb-power-supply

Wikipedia, "USB: Charging Port and Accessory Charging Adapters," http://en.wikipedia.org/wiki/USB#Charging_ports_and_accessory_charging_adapters

SOURCES**LTspice SPICE simulator and LT3748 controller**

Linear Technology Corp. | www.linear.com

Si4490DY Field-effect transistor (FET)

Vishay Siliconix | www.vishay.com

750311689 Transformer

Würth Elektronik GmbH & Co. | www.we-online.com

Carlo Tauraso: Build a Thermal Monitoring Network**PROJECT FILES**

To download the code, go to ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/288

RESOURCE

Dynastream Innovations, Inc., "ANT Basics: Welcome to the World of Ant," www.thisisant.com

SOURCES

8051 MicrocontrollerIntel Corp. | www.intel.com**DS18B20 Sensor**Maxim Integrated | www.maximintegrated.com**PIC18F2550 Microcontroller**Microchip Technology, Inc. | www.microchip.com**Visual Studio 2012 IDE**Microsoft Corp. | www.microsoft.com**nRF24L01 RF Transceiver and nRF24LU1+ system-on-a-chip**Nordic Semiconductor | www.nordicsemi.com**WRL-00691 and WRL-09034 Breakout boards**SparkFun Electronics | www.sparkfun.com**Ayse K. Coskun: Power Management in Mobile Devices****REFERENCES**

[1] I. Paul, S. Manne, M. Arora, W. L. Bircher, and S. Yalamanchili, "Cooperative Boosting: Needy vs Greedy Power Management," in Proceedings of the International Symposium on Computer Architecture (ISCA), 2013

[2] M. B. Taylor, "Is Dark Silicon Useful? Harnessing the Four Horsemen of the Coming Dark Silicon Apocalypse," in Proceedings of the Design Automation Conference (DAC), 2012

RESOURCESA. K. Coskun, "Application-Aware Power Capping," *Circuit Cellar* 280, 2013**SOURCES****IFC6410 Single-board computer**Inforce Computing, Inc. | www.inforcecomputing.com**Snapdragon 600 system-on-a-chip, 8974 mobile development platform, and Krait 400 four-core processor**Qualcomm, Inc. | www.qualcomm.com**George Novacek: WWVB Clock Revisited****RESOURCES**

J. P. Lowe and K. C. Allen, "Increasing the Modulation Depth of the WWVB Time Code to Improve the Performance of Radio-Controlled Clocks," The National Institute of Standards and Technology (NIST), 2006, <http://tf.nist.gov/general/pdf/2139.pdf>

G. Novacek, "Sine Wave Synthesizer," *Circuit Cellar* 252, 2011— — —, "Filters, Filters Everywhere," *Circuit Cellar* 243, 2010

The National Institute of Standards and Technology (NIST), "WWVB Radio-Controlled Clocks," www.nist.gov/pml/div688/grp40/radioclocks.cfm

SOURCES

Wireless XBee products and Ultimate GPS breakout board

Adafruit Industries | www.adafruit.com

CMMR-6P IC Receiver

C-MAX Time Solutions GmbH | www.c-max-time.com

LPC1768 Microcontroller

mbed | <https://mbed.org>

LM7332 Op-amp

Texas Instruments, Inc. | www.ti.com

Ed Nisley: Strobe Photography

PROJECT FILES

RESOURCES

The Edgerton Digital Collections, "Harold 'Doc' Edgerton," <http://edgerton-digital-collections.org>

E. Nisley, "Pulsed LED Characterization," *Circuit Cellar* 278, 2013

—, Softsolder.com, "Digitally Triggered Xenon Flash," <http://softsolder.com/2014/03/17/digitally-triggered-xenon-flash>

—, Softsolder.com, "Canon SX230HS vs CHDK: Motion-Detection Shutter Delay," <http://softsolder.com/2014/03/25/canon-sx230hs-vs-chdk-motion-detection-shutter-delay>

Wikia, "What is CHDK?" <http://chdk.wikia.com/wiki/CHDK>

Wikipedia, "Flicker vertigo," https://en.wikipedia.org/wiki/Flicker_vertigo

—, "Forrest Mims," https://en.wikipedia.org/wiki/Forrest_Mims#Using_LEDs_as_narrow_band_light_sensors

SOURCE

Arduino Pro Mini

Arduino | <http://arduino.cc>

Jeff Bachiochi: LCD User Interface: Reconfiguring and Serial Backpacking

SOURCES

DOG LCD Family and LCD Tools for Windows

Electronic Assembly GmbH | www.lcd-module.de



REFERENCES | RESOURCES | SOURCES
circuitcellar.com/ccmaterials

ST7036 LCD Controller/driver

Sitronix Technology Co., Ltd. | www.sitronix.com.tw