December 2017

16 Build a Custom Weather Gauge
This fun, elegant, and useful project pulls data from the Internet so a series of useful displays can show all kinds of cool info in real time from your mantel or bookshelf!

By John Buckner

26 Basic Biological Signal Monitoring with a Translational Reality Twist
Build this inexpensive Arduino based heart rate monitor that you can use as an experimental platform to understand the basics of biological monitoring. As a bonus, also learn how to use a translational reality interface to create an Orwellian PID controller.

By Bryan Bergeron

32 Climbing the Learning Curve
Get Digital and Analog Data from Your PIC to Your Cell Phone Using Bluetooth.
This informative step-by-step guide gets you cell phone connected via Bluetooth LE to your PIC16F1619, allowing you to control digital inputs and outputs, as well as an analog sensor.

By Jerry Baumeister

06 Do You Know Your Acronyms?
All the acronyms in this final quiz of 2017 are related to electronics in some way. They are typical, but variations can also be found, so don't get overconfident on the easy ones!

By David Goodsell

48 Near Space
Approaching the Final Frontier
Total Solar Eclipse Near Space Flight Results
I was able to do a near space balloon launch during the recent solar eclipse, and was able to collect data from high-res photos, photos in near infrared (NIR), and thermal images. Plus, I had one of the most challenging payload recoveries to-date.

54 The Design Cycle
Advanced Techniques for Design Engineers
Go ARM in ARM with Hardware and Firmware
We're going to assemble some ARM hardware and write some ARM code. The ARM hardware featured is the STM32F030R8 development board coupled with a Tiva Industries perfboard.

Departments

05 DEVELOPING PERSPECTIVES
What Your Preferred MPU?
MCU Says About You

07 READER FEEDBACK

14 NEW PRODUCTS

15 SHOWCASE

16 NV WEBSTORE

26 TECH FORUM

32 CLASSIFIEDS

40 ELECTRO-NET

45 AD INDEX

Columns

College of North Atlantic - Qatar
Library

Subscription Information
Nuts & Volts—PO Box 15277
North Hollywood, CA 91615-9218
Call 877-325-2539 or go to www.nutsvolts.com
Subscribe · Gift · Renewal · Change of Info
For more details on subscribing, see our ad on Page 64.
To find out about our special Gift Subscription offer, go to Page 39. Interested in robots? Go to Page 61 for info.

Nuts & Volts (ISSN 1539-3980/CD) Plus Agree #410725301 is published monthly for $23.95 per year by T.S.L. Publications, Inc., 436 Placentia Court, Corona, CA 92879. PERMISSION POSTAGE PAID AT CONEJOS, CA AND AT ADDITIONAL MAILING OFFICES: POSTMASTER: Send address changes to Nuts & Volts, PO. Box 15277, North Hollywood, CA 91615 or Station A, PO. Box 54, Windsor ON N9A 4K5. cspelum@nutsvolts.com.

4 NUTS & VOLTS December 2017