

Issue # 284**March****John Blankenship: Using a Simulated Robot to Decrease Development Time****PROJECT FILES**

To download the code, go to ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/284

RESOURCES

J. Bachiochi, "Robot Simulation (Part 1): RobotBASIC Basics," *Circuit Cellar* 279, 2013

———, "Robot Simulation (Part 2): Translating RobotBASIC," *Circuit Cellar* 280, 2013

RobotBASIC, www.robotbasic.org

Steve Lubbers: Behavior-Influencing Robots**PROJECT FILES**

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RESOURCES

Anaren, "Integrated Radio AIR BoosterPack User's Manual," 2012,
http://www.anaren.com/sites/default/files/uploads/File/BoosterPack_Users_Manual.pdf

J. Axelson, "Using Serial EEPROMs (Part 1): General Principles," *Circuit Cellar* 84, 1997

———, "Using Serial EEPROMs (Part 2): Putting It All Together," *Circuit Cellar* 85, 1997

M. J. Caruso, "Applications of Magnetoresistive Sensors in Navigation Systems," Honeywell, Inc., 1997, <http://papers.sae.org/970602>

S. Lubbers, "KartTracker: A GPS-Based Vehicle Timing and Monitoring System," *Circuit Cellar* 259, 2012

Parallax, Inc., "Hitachi HM55B Compass Module (#29123)," 2005

Texas Instruments, Inc., "MSP430x2xx Family User's Guide," 2013,
www.ti.com/lit/ug/slau144j/slau144j.pdf

SOURCES

430 Boost-CC110L Air Module BoosterPack
Anaren | www.anaren.com

MSP430 LaunchPad Value Line Development Kit, MSP430G2553 microcontroller, ULN2803A driver, and Code Composer Studio IDE
Texas Instruments, Inc. | www.ti.com

Ayşe K. Coskun: Greener Cooling

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REFERENCES**RESOURCES**

[1] A. K. Coskun, J. Meng, D. Atienza, and M. M. Sabry, "Attaining Single-Chip, High-Performance Computing through 3-D Systems with Active Cooling," *IEEE Micro*, 2011

[2] M. M. Sabry, A. K. Coskun, D. Atienza, T. S. Rosing, and T. Brunschwiler, "Energy-Efficient Multi-Objective Thermal Control for Liquid-Cooled 3-D Stacked Architectures," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 2011

[3] J. Morgan, "IBM Unveils Computer Fed by 'Electronic Blood,'" *BBC News*, 2013, www.bbc.co.uk/news/science-environment-24571219

[4] A. Raghavan, Y. Luo, A. Chandawalla, M. Papaefthymiou, K. P. Pipe, T. F. Wenisch, and M. M. K. Martin, "Computational Sprinting," *International Symposium on High-Performance Computer Architecture (HPCA)*, 2012

RESOURCE

A. K. Coskun, "Going 3-D for Energy Efficiency," *Circuit Cellar* 282, 2014

Ed Nisley: Arduino PWM vs MOSFET Transconductance**PROJECT FILES**

To download the code, go to ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/284

RESOURCES

E. Nisley, "Arduino MOSFET Power Switch," *Circuit Cellar* 284, 2014

———, "Low-Loss Hall Effect Current Sensing," *Circuit Cellar* 280, 2013

———, "Pulsed LED Characterization," *Circuit Cellar* 278, 2013

———, "LED Characterization: Arduino-Based Curve Tracer," *Circuit Cellar* 276, 2013

———, "Hall Effect Sensor Calibration," *Circuit Cellar* 274, 2013

Tektronix, Inc., www.tek.com

SOURCES

Arduino Pro Mini board

Arduino | <http://arduino.cc/en/Main/ArduinoBoardProMini>

FDD6530A MOSFET

Fairchild Semiconductor Corp. | www.fairchildsemi.com/pf/FD/FDD6530A.html

Maxim MAX4330

Maxim Integrated | www.maximintegrated.com/datasheet/index.mvp/id/1673/t/al

George Novacek: Wireless Data Links (Part 2): Transmitters and Antennas

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RESOURCES

Adafruit Industries, www.adafruit.com/category/29

Maxim Integrated, www.maximintegrated.com

Micrel, Inc., www.micrel.com

G. Novacek, "Impedance Matching," *Circuit Cellar* 281, 2013

RF Monolithics, Inc. (RFM), www.rfm.com

Wenshing Electronics Co., Ltd., "RF Program Writing Analysis and Q&A,"
www.wenshing.com.tw/SERVICE/pdf/RF-JISHU_E.pdf

T. Yestrebeky, "MICRF001 Antenna Design Tutorial," Application Note 23, Micrel, Inc., 1999,
www.micrel.com/PDF/App-Notes/an-23.pdf

SOURCES

MC145026, MC145027, and MC145028 Encoder and decoder pairs
Freescale Semiconductor, Inc. | www.freescale.com

HT12D Decoder and HT12E encoder
Holtek Semiconductor, Inc. | www.holtek.com

WRL-10534 Transmitter and WRL-10532 receiver
SparkFun Electronics | www.sparkfun.com

Jeff Bachiochi: A Low-Cost Connection to the IoT**PROJECT FILES**

To download the code, go to ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/284

RESOURCES

Electric Imp, Inc., "API Docs," www.electricimp.com/docs/api

Squirrel, The Programming Language, www.squirrel-lang.org

SOURCES

ATSHA204 Full turnkey security device
Atmel Corp. | www.atmel.com

imp connectivity platform
Electric Imp, Inc. | www.electricimp.com

Tom Cantrell: Connect the Magic: An Introduction to the WIZnet W5500**RESOURCES**

T. Cantrell, "I-Way the Hard Way," *Circuit Cellar* 135, 2001

———, “Weatherize Your Embedded App,” *Circuit Cellar* 273, 2013

S. Foskett’s blog, “Power Over Ethernet Calculator,” <http://blog.fosketts.net/toolbox/power-ethernet-calculator>

Postscapes, “IoT Data Broker and Cloud Service Providers,”
<http://postscapes.com/companies/iot-cloud-services>

WIZnet, “Connect the Magic,” <http://wizwiki.net/wiki/doku.php?id=connectthemagic>

SOURCES

Exosite Device Cloud

Exosite | www.exosite.com

RPLC-201KIT AV Adapter starter kit

Rosewill, Inc. | www.rosewill.com

TL-WR702N Wireless N NanoRouter

TP-Link Technologies, Co. | www.tp-link.us

W5500 Ethernet controller

WIZnet | <http://wizwiki.net>