

INSIDE ISSUE

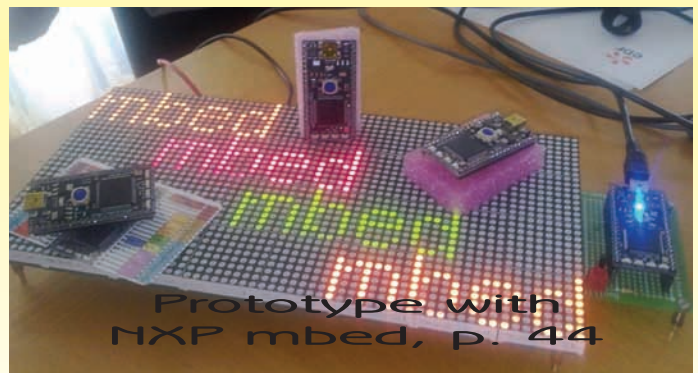
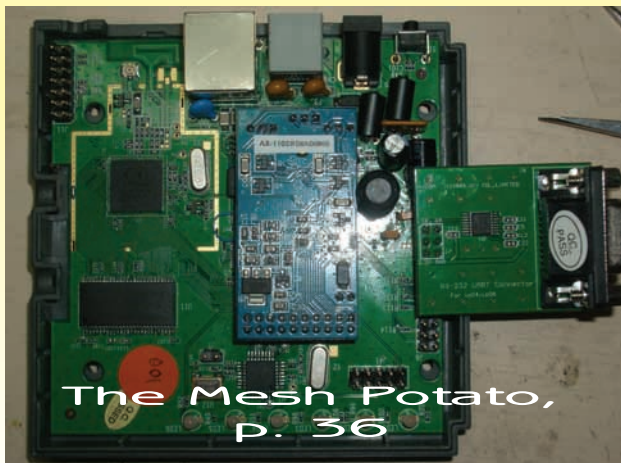
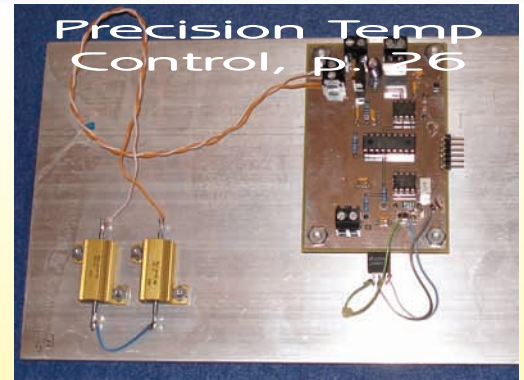
242

September 2010 • Data Acquisition

26 Precision Temperature Control Circuitry
David Ludington

36 Mesh Telephony System
The Mesh Potato Project from an Embedded Designer's POV
David Rowe

44 NXP mbed Design Challenge 2010 Primer
Rapid Prototyping
Build a Scrolling LED Message Board with an mbed/NXP LPC Platform
Clemens Valens



22 THE CONSUMMATE ENGINEER
Is the Door Closed?
Why Every Safety-Critical Decision Matters
George Novacek

50 LESSONS FROM THE TRENCHES
State Machines Revisited
Real-World Word Problems
George Martin

56 FROM THE BENCH
Transmit and Decode Data
Design and Implement a Keyfob Decoder
Jeff Bachiochi

64 SILICON UPDATE
Once More, With Feeling
An MCU + FPGA Without the Compromises
Tom Cantrell

TASK MANAGER 4
Design Inspiration
C. J. Abate

QUESTIONS & ANSWERS 18
Interdisciplinary Engineering & Research
An Interview with Bruce Land
C. J. Abate

NEW PRODUCT NEWS 8

TEST YOUR EQ 17

CROSSWORD 74

INDEX OF ADVERTISERS 79
October Preview

PRIORITY INTERRUPT 80
Mobile Metamorphosis
Steve Ciarcia

INSIDE ISSUE

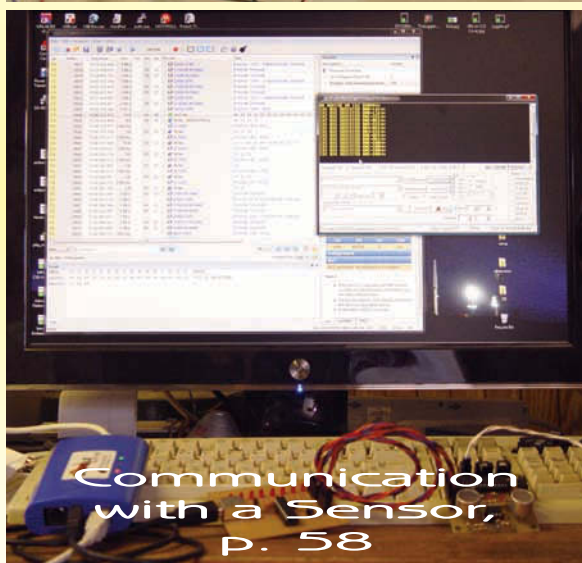
241

August 2010 • Embedded Development

20 **Advanced USB Design Debugging**
Colin O'Flynn

28 **The 4-to-20-mA Current Loop**
Aubrey Kagan

36 **Build an X10 Controller (Part 2)**
The Controller Program and Utility
Devlin Gualtieri



16 **THE CONSUMMATE ENGINEER**
Embedded Safety
George Novacek

42 **ABOVE THE GROUND PLANE**
Crystal Properties
Circuit Models, Measurement, and Conversion
Ed Nisley

50 **THE DARKER SIDE**
A Tour of the Lab (Part 1)
Time Domain Measurement Equipment
Robert Lacoste

58 **FROM THE BENCH**
Application Communication with USB (Part 3)
Assembly Code Finale
Jeff Bachiochi

66 **SILICON UPDATE**
MIPS and More
Tom Cantrell

TASK MANAGER **4**
Proactive Engineering
C. J. Abate

QUESTIONS & ANSWERS **8**
Custom Instrumentation Engineering
An Interview with Brian Millier
C. J. Abate

NEW PRODUCT NEWS **12**

TEST YOUR EQ **15**

CROSSWORD **74**

INDEX OF ADVERTISERS **79**
September Preview

PRIORITY INTERRUPT **80**
Is the Internet Making Us Smarter or Dumber?
Steve Ciarcia