PARALLAX 引

599 Menlo Drive, Suite 100
Rocklin, California 95765, USA
Office: (916) 624-8333
Fax: (916) 624-8003

General: info@parallax.com
Technical: support@parallax.com
Web Site: www.parallax.com
Educational: www.stampsinclass.com

Errata for *IR Remote for the Boe-Bot* v1.0

The remote that *IR Remote with the Boe-Bot* v1.0 supported is no longer available. The remote included in your kit is the most similar one we could obtain without raising the price of the kit. Below is an updated Chapter 1, Activity #1 for use with the new remote. On page 2 are a few more updates to pages later in this text to make it compatible with the new remote. Also on page 2 is an updated version of a subroutine that appears in many of the example programs. It has a new feature that helps the example program filter out certain sources of infrared interference.

CHAPTER 1, ACTIVITY #1: CONFIGURING YOUR REMOTE

In this activity, you will program your universal remote so that it sends PWM messages to a television set using the SONY protocol. In this case, the term "programming" means a sequence of key-presses on the remote that tells it to send signals to a SONY TV.

> **i**
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> **If you change the batteries in your remote,** you will probably have to repeat the steps in this activity. Why? Because, when you remove the batteries, the remote will probably forget that it was programmed to be a SONY TV controller.
>
> **Don't throw away the instruction sheet/booklet that comes with your remote!** The batteries for these remotes might last longer than your memory of the code and procedure for entering it. A sticker on the back of the remote with the code and button sequence can also come in really handy.

Infrared Remote Parts

(1) Universal remote
(1) Instruction sheet/booklet for the universal remote
Compatible batteries

How to Configure the Universal Remote to Send SONY TV Protocol Signals

These instructions are for the remote included in the IR Remote AppKit.

- √ Remove the battery compartment cover and determine how many and what kind of batteries to use (AA, AAA, etc).
- √ Load the battery compartment with new (or freshly charged rechargeable) batteries. Do not mix battery types.
- √ Find the TV setup codes section in the instruction sheet/booklet. Here are some examples of titles for that section: "Setup Codes for TV", "Setup Codes for Television", "TV Code List".
- √ Find the code for SONY from the TV code list, and make a note of it.
- √ Find the section that explains how to manually program a TV code into your remote. Here also, are examples of titles for that section: "Programming Your Remote", "To Manually Program Your Remote Control", "Programming for TV".
- √ Follow the instructions in the manual programming section for entering the SONY TV code into your remote.

The instructions might tell you to test it on your TV, but if it's not a SONY, the test probably won't work. In the next activity, you will test to make sure the code was correctly entered by verifying that the signals that the remote transmits have the SONY TV protocol characteristics.

> **i**
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> **Missing instruction booklets:** If you want to try these activities with a remote you already own, you will probably need the instruction booklet for that remote. If it has been misplaced or lost, there may be a copy published on the World Wide Web.
>
> Inexpensive universal remotes can also be purchased from local department stores, and most include instruction booklets. Check the package before you purchase a particular remote to make sure it can be configured to control a SONY TV. If the packaging says something like, "compatible with most/all major brands...", it will most likely work with SONY TVs.

Pages 12, 24, 64.
Don't worry about the warnings not to press the VCR, TV/VCR or CBL keys. The new remote doesn't have them.

Pages 59, 63, 64
Delete or disregard any references to the SLEEP button.. Replace all instances of LAST with PREV CH.

Page 89
Replace LAST with PREV CH in the text. In the code examples, replace **Last** with **PrevCh**. For example, replace **Last CON 59** with **PrevCh CON 59**. Also, substitute **PrevCh** for **Last** in the command **IF (remoteCode = Last)**.

Pages 93 and 95
For Project 1, use MUTE instead of SLEEP. In the Solution for Project 1, use **MuteCode CON 20** instead of **RemoteSleep CON 54**. Also, use **mute VAR Bit** instead of **sleepOnOff VAR Bit**. Throughout the solution, substitute **MuteCode** for **RemoteSleep**. Also substitute **mute** for **SleepOnOff**.

Pages 60 - 61, 68 - 69, 78, 84-85, 121-122, 146 - 147
This is an updated **Get_Ir_Remote_Code** subroutine that features improved immunity to interferences that can result from glitches in some IR receivers' outputs as well as sporadic interference that some fluorescent lights generate. The example programs with this improved subroutine are available from the *IR Remote for the Boe-Bot* pages at www.parallax.com.

```
' -----[ Subroutine - Get_Ir_Remote_Code ]---------------------------------

' SONY TV IR remote subroutine loads the remote code into the
' remoteCode variable.

Get_Ir_Remote_Code:

  remoteCode = 0                         ' Clear all bits in remoteCode

  ' Wait for resting state between messages to end.

  DO
    RCTIME IrDet, 1, irPulse
  LOOP UNTIL irPulse > 1000

  ' Measure start pulse.  If out of range, then retry at Get_Ir_Remote_Code.

  RCTIME 9, 0, irPulse
  IF irPulse > 1125 OR irPulse < 675 THEN GOTO Get_Ir_Remote_Code

  ' Get data bit pulses.

  RCTIME IrDet, 0, irPulse               ' Measure pulse
  IF irPulse > 300 THEN remoteCode.BIT0 = 1 ' Set (or leave clear) bit-0
  RCTIME IrDet, 0, irPulse               ' Measure next pulse
  IF irPulse > 300 THEN remoteCode.BIT1 = 1 ' Set (or leave clear) bit-1
  RCTIME IrDet, 0, irPulse               ' etc
  IF irPulse > 300 THEN remoteCode.BIT2 = 1
  RCTIME IrDet, 0, irPulse
  IF irPulse > 300 THEN remoteCode.BIT3 = 1
  RCTIME IrDet, 0, irPulse
  IF irPulse > 300 THEN remoteCode.BIT4 = 1
  RCTIME IrDet, 0, irPulse
  IF irPulse > 300 THEN remoteCode.BIT5 = 1
  RCTIME IrDet, 0, irPulse
  IF irPulse > 300 THEN remoteCode.BIT6 = 1

  ' Adjust remoteCode so that keypad keys correspond to the value
  ' it stores.

  IF (remoteCode < 10) THEN remoteCode = remoteCode + 1
  IF (remoteCode = 10) THEN remoteCode = 0

  RETURN
```