The Game Controller

This chapter digs into the game controller that you’ll be using to interface to the sample application, the Pong game. Your understanding of the controller will be developed from the inside-out, meaning that I will discuss the initial design and show the various stages of development from logic diagrams to the completed unit.

However, before getting started on the game controller, it might help to take a detailed look at another sample accessory that is currently in production at the time of writing.

The Griffin iTrip

For a long while now, Griffin has been making accessories for every popular MP3 player on the market including the iPod and iPhone. One of their most popular devices, the FM transmitter, takes the output of various music players and converts it to a radio frequency (RF) frequency modulated (FM) signal. This weak signal can then be transmitted a short range to an FM radio and picked up on an unused station, typically on your car’s radio.

Recently, as part of Apple’s MFi/WWi program, Griffin released the iTrip for the iPhone and iPod, shown in Figure 4–1. The iTrip works exactly as an Apple accessory is supposed to—when you first attach the iTrip to your iPhone or iPod Touch, it will detect that the iTrip application is not present and ask if you would like to retrieve it from the App Store. Selecting yes takes you there where you can immediately download and start using the app.

In addition to the iPhone and iPod Touch, the iTrip works with other iPods sending music to a nearby FM radio. These other iPod generations do not require any app to operate correctly. The iTrip exchanges data with Apple products via the 30-pin connector the same as your Game Controller.
Figure 4–2 shows the iTrip application icon on the iPhone springboard. Prior to starting the app, you attach the iTrip to the iPhone at the 30-pin dock connector, as shown in Figure 4–3. You can then tune the RF transmitter to an open FM station as well as selecting various presets that can be accessed by a single touch of either the App screen or the iTrip buttons.

If you attempt to start the iTrip app without the iTrip accessory attached, or remove the accessory while the application is running, you will see the screen in Figure 4–4 telling you to reattach the iTrip accessory.

**NOTE:** Information on Griffin’s complete line of products can be found at their web site http://www.griffintechnology.com.