

Revolution Development Tool Version 4

Setup Guide

Version 0.23

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Revision History

Version	Revision Date	Description
0.23	06/21/2006	Corrected expressions that would lead to misunderstandings Added a description about pairing Added a description about using the battery Revised how "Sensor Bar" is to be written
0.22	06/19/2006	Modified Chapter 2.1
0.21	06/19/2006	Modified the file path of demo program Added a description of the BT Mode Switch
0.20	06/15/2006	Updated for NDEV2 ES 2.01
0.15	03/01/2006	Updated for Revolution SDK 1.0.
0.14	11/11/2005	Modified scripts.
0.13	11/10/2005	Corrected chapter 4.
0.12	11/10/2005	Changed name, added several notes.
0.11	11/07/2005	Added scripts.
0.10	11/07/2005	Changed controller name.
0.09	11/05/2005	Modified DPD setup and corrected text errors.
0.08	11/04/2005	Modified photos.
0.07	10/31/2005	Added photos.
0.06	10/18/2005	Development tool version 3 edition.
0.05	09/27/2005	Fifth draft.
0.04	09/27/2005	Fourth draft.
0.03	09/26/2005	Third draft.
0.02	xx/xx/2005	Second draft.
0.01	xx/xx/2005	First draft.

1 Types of Controllers

There are two NDEV2 development sets: one for the wireless specification with two wireless controllers and one for the wired specification with two wired controllers.

Figure 1-1 Wireless Wii Remote



Figure 1-2 Wired Wii Remote



Figure 1-3 Nunchuk**Figure 1-4 Sensor Bar**

2 Hardware Setup

2.1 Wii Remote Setup

When using the wired version of NDEV, the Wii Remotes must be connected to the NDEV. Connect the wired Wii Remotes to any of the four connectors located on the left side of the NDEV. Connector numbers are not related to the numbers assigned to the controllers.

Wireless Wii Remotes do not need to be connected to the connectors.

You can toggle between use of wired and wireless controllers using the BT Mode switch on the rear panel of the console. Set this switch to the right when using wired controllers.

Figure 2-1 Connector on the Left Side of the NDEV (Wired Version)



2.1.1 Using Batteries with the Wii Remote

Two AA batteries are required both the wired and wireless Wii Remotes.

Battery lifetime differs depending on the type of battery. Lifetimes for various batteries are listed in Table 2-1. The lifetime values are actual hours of operation using a preproduction controller.

Table 2-1 Battery Types and Lifetimes

Battery Type	Lifetime
Manganese batteries (Daiso, black, RP(PU) 1.5V)	11.5 hours
Alkaline batteries (Panasonic, LR6(G))	31.2 hours
Toy Cell ~ nickel hydride batteries (SANYO, HR-3GA)	22.6 hours
Eneloop ~ nickel hydride batteries (SANYO, HR-3UTG)	27.6 hours

Both alkaline batteries and toy cell batteries are recommended. However, manganese batteries are not recommended because they have the shortest lifetime.

Always be sure to observe all manufacturer precautions when using Eneloop and other nickel hydride batteries. Nickel hydride batteries other than Toy Cell brand are not recommended for typical users. This is due to the fact that the risk of leaking or bursting is greater when using nickel hydride batteries without observing manufacturer precautions than when using alkaline batteries. Be particularly careful about observing the following precautions.

2.1.1.1 Using nickel hydride batteries

Observe the following precautions when using nickel hydride batteries:

- Do not use nickel hydride batteries in combination with other batteries.
- Do not use two nickel hydride batteries together if they hold different amounts of charge.
- Remove nickel hydride batteries from the Wii Remote if it is not to be used for an extended period of time (on the order of a month or more).
- Use the charger recommended by the manufacturer.
- Select the type of nickel hydride battery that can take 1000 charges (over twice the number of charges usually available) since these batteries are the most economical. Both the Eneloop and the HHR-3MPS (from Panasonic) are examples of this type of battery.

2.1.1.2 Using alkaline batteries

Observe the following precautions when using alkaline batteries:

- Do not use alkaline batteries in combination with other batteries.
- Do not use alkaline batteries having different charges.
- Do not mix old and new batteries.
- Remove batteries from the Wii Remote if it is not to be used for an extended period of time (on the order of a month or more).

The risk of leakage or bursting of alkaline batteries is also reduced also by following these precautions.

2.1.1.3 Using other batteries

Do not use nickel oxyhydroxide batteries such as Oxylide (from Panasonic) and Giga Energy (from Toshiba). These batteries are not supported by Development Tool Version 4. A problem was found with these batteries where Motion Sensor values were off.

Plans call for support of these batteries by the time the product is released.

2.1.2 Wii Remote Pairing

The Wii Remote and NDEV communicate with each other using Bluetooth technology. Inter-authentication using pairing information must be performed first before using them together. Pairing is required whether using wired or wireless version controllers.

To perform pairing:

1. Execute the demo included in WPAD under SDK 2.0.
2. Press SYNCHRO on the front panel of the NDEV 2.0.
3. Press SYNCHRO located inside the battery cover of the Wii Remote. (This is the same for both wired and wireless versions.)
4. Wait about 30 seconds to allow the pairing to complete.

2.2 Nunchuk Setup

Connect the Nunchuk to the External Extension Connector on the Wii Remote. Connection and disconnection during operation (hot-swapping) is supported.

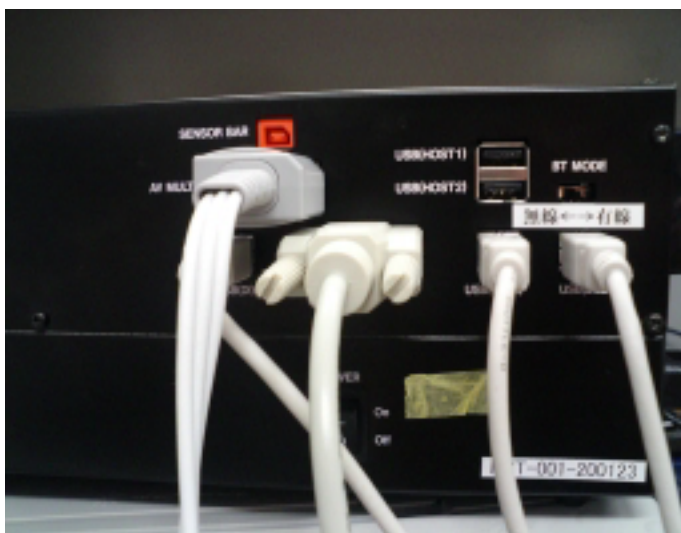
Figure 2-2 Nunchuk



2.3 Sensor Bar Setup

Connect the Sensor Bar to the red connector marked "SENSOR BAR" located on the rear panel of the NDEV2 as shown in Figure 2-3.

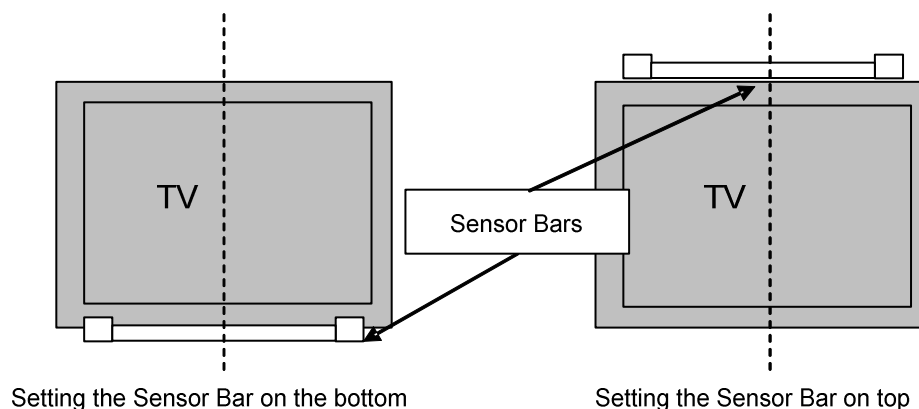
Figure 2-3 NDEV Rear Panel



The Sensor Bar is placed either near the top or the bottom of the television. It may be better to place it near the bottom since fluorescent lamps or light from a window may interfere with the operation of the Sensor Bar.

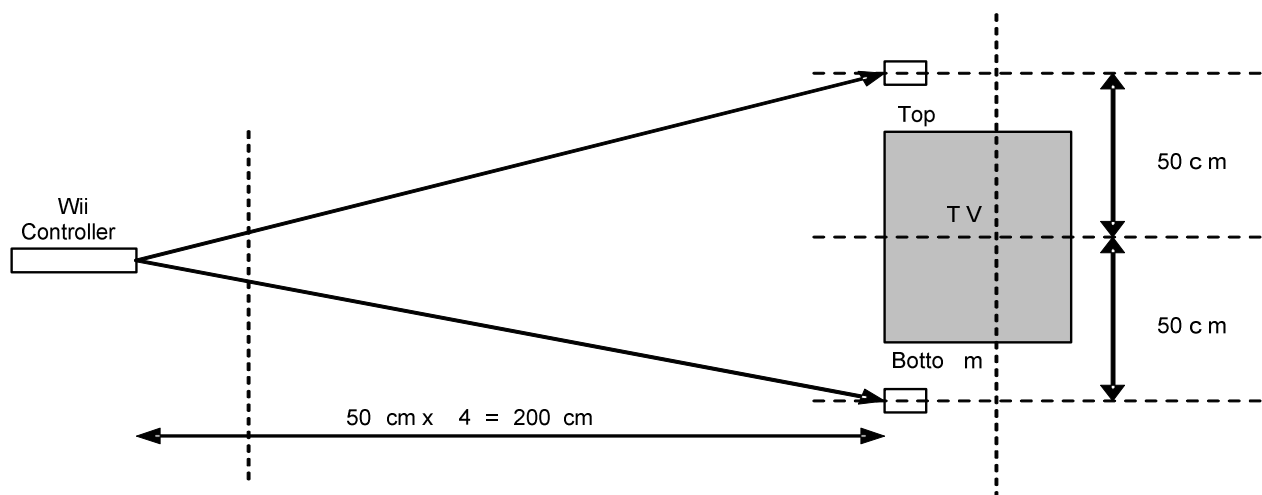
Place the Sensor Bar so that the center between the two sensors lines up with the center of the television. If the Sensor Bar is not placed in the center, the coordinate information obtained from the Sensor Bar might not be correct.

Figure 2-4 Centering the Sensor Bar

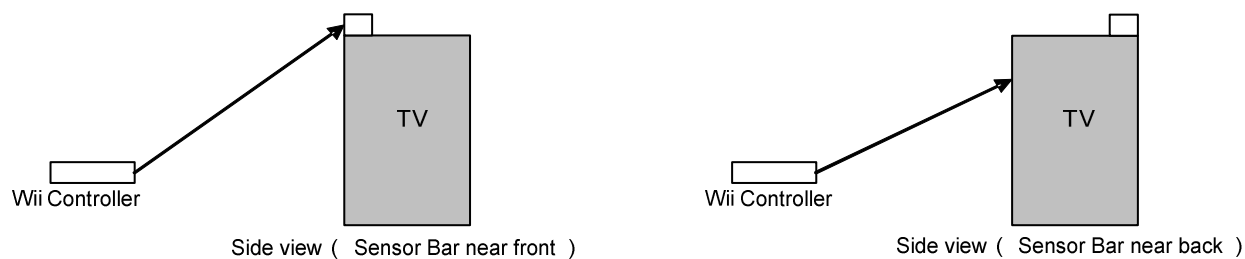


With thin television sets, you might not be able to place the Sensor Bar directly on top of or below the television. In that case, operate the controller from a distance that is at least four times the distance from the center of the television screen to the Sensor Bar. If you are too close to the television, the Sensor Bar could end up outside the Pointer's viewing angle, which greatly impairs its operation.

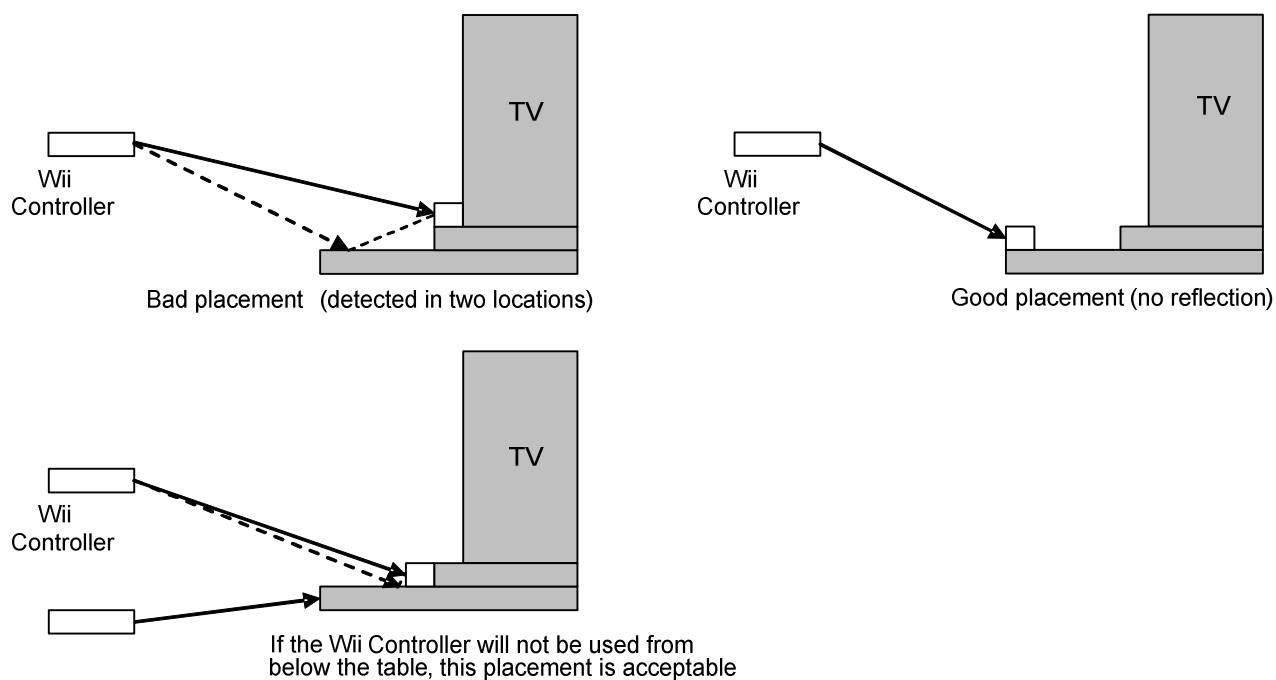
For example, if the Sensor Bar is placed 50 cm below the center of the TV screen, the game player should operate the controller from a distance of at least 200 cm.

Figure 2-5 Distance from Controller to Sensor Bar

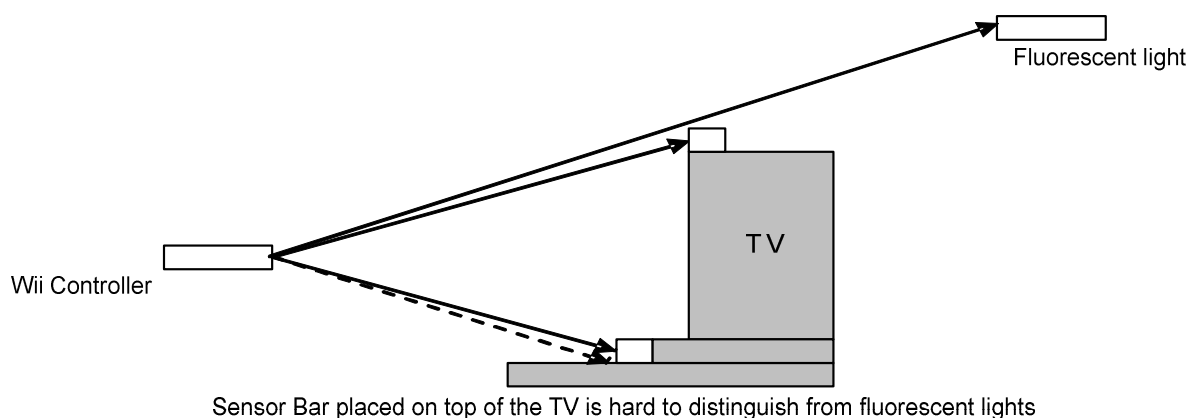
The Sensor Bar should be as close to the front of the television set as possible. If placed near the back, it may be invisible to the Remote Controller.

Figure 2-6 Placing Sensor Bar in the Front of the TV

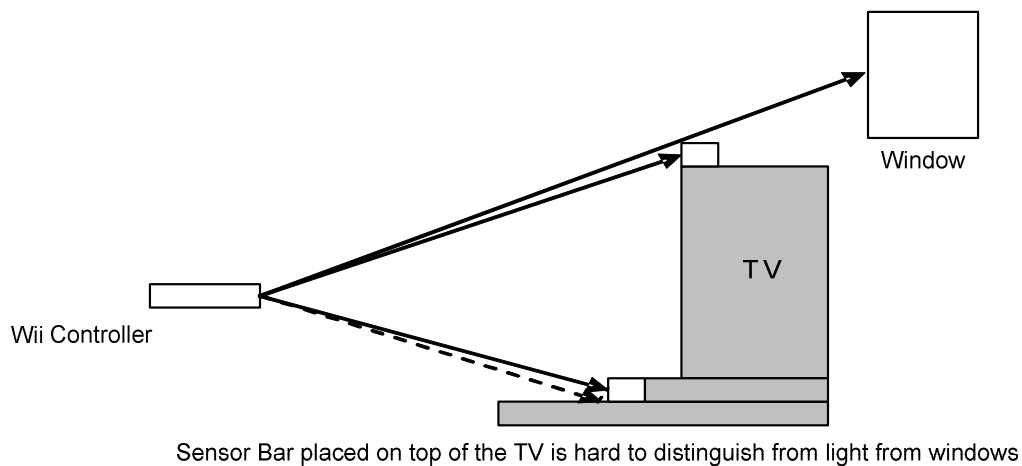
If the television set is placed on a table, the Sensor Bar can reflect off of the table top, causing it to appear doubled. One problem with the Sensor Bar is that it reflects off of smooth surfaces. Place the Sensor Bar near the front of the TV or directly on the table top.

Figure 2-7 Placement of Sensor Bar with TV on a Table

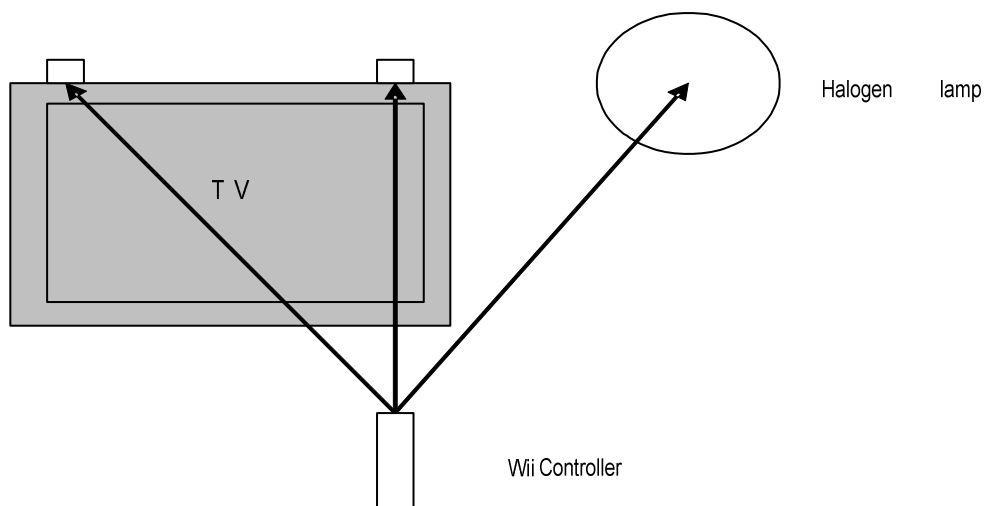
Distant fluorescent lights are difficult to distinguish from the Sensor Bar. When setting up in an office environment, you should place the Sensor Bar near the bottom of the television.

Figure 2-8 Placement of Sensor Bar with Fluorescent Lights Present

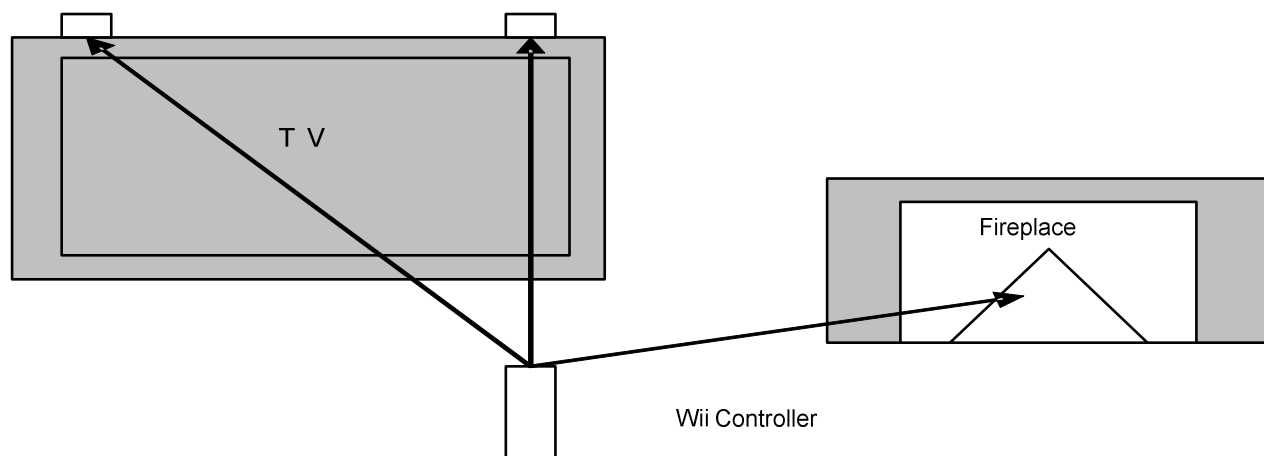
If there is a window behind the television, it is difficult to distinguish the Sensor Bar from the window. You should close the curtains or blinds. You can also place the Sensor Bar near the bottom of the television.

Figure 2-9 Placement of Sensor Bar Near a Window

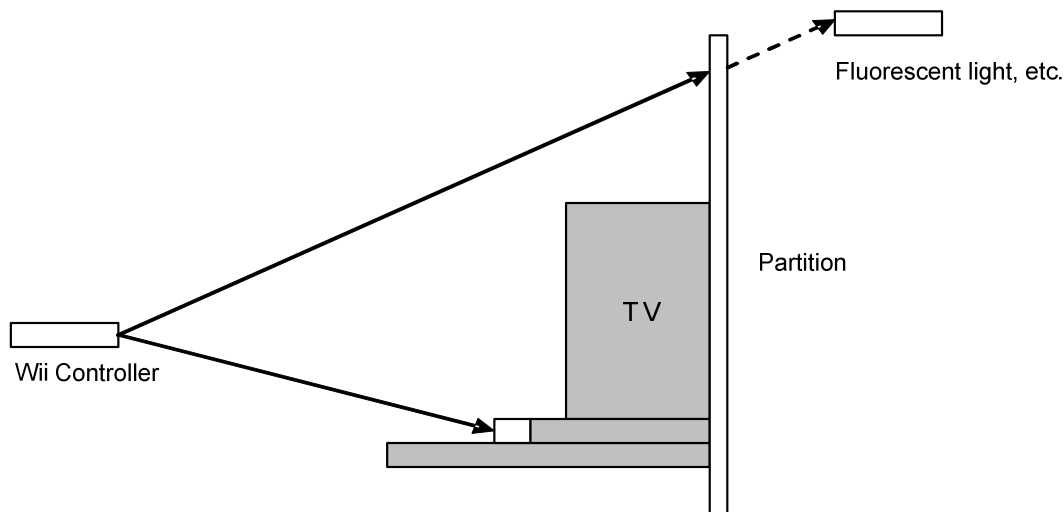
Halogen lamps close to the television are difficult to distinguish from the Sensor Bar. Be sure to turn off any halogen lamps.

Figure 2-10 Placement of Sensor Bar Near Halogen Lamps

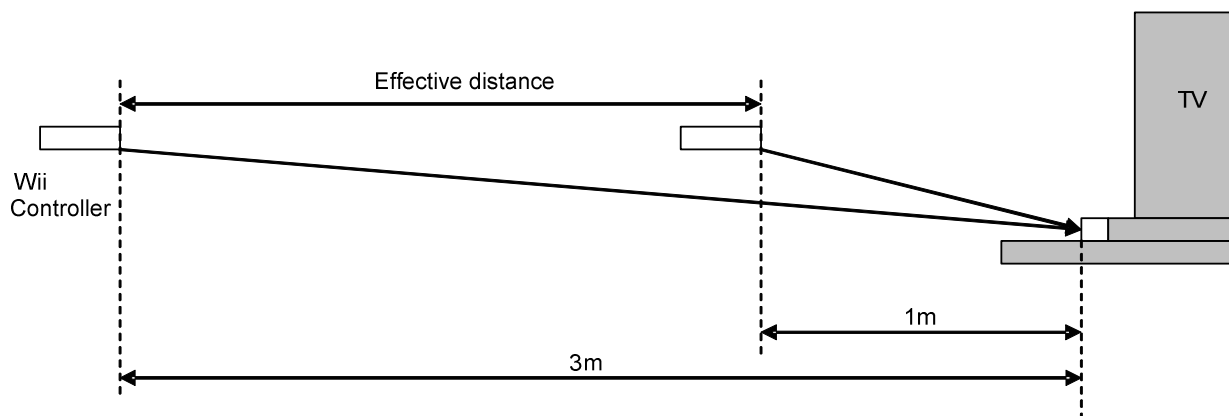
A heater or fireplace close to the television is hard to distinguish from the Sensor Bar. You should extinguish any fire in the fireplace.

Figure 2-11 Placement of Sensor Bar Near a Fireplace

If sources of interference behind the television set are difficult to eliminate, set up a partition behind the television to eliminate the interference.

Figure 2-12 Setting Up a Partition to Screen Interference

The development tool Version 4 supports distances from 1 meter to 5 meters.

Figure 2-13 Effective Distance From Controller to Sensor Bar

Game developers and the television screen are generally separated by less than 1 meter. You should be as far as possible from the screen when using the controller. If you use the controller close to the television, the Sensor Bar might end up outside the viewing angle and good recognition may not be possible.

What to Do if Pointer Operations are Unstable

The following are likely causes when Pointer operations are unstable.

- Sensor Bar is too close

The usable range of the Pointer is from one meter to five meters. If you are closer than one meter, marker detection by the Pointer may become excessive, causing unstable operations. Either move further away from the television, or, if this is not possible, place the Sensor Bar even farther away than the television.

- Sensor Bar is being incorrectly recognized

Pointer operations are unstable because the Pointer is incorrectly recognizing some sort of noise source as the Sensor Bar. KPAD includes an algorithm for eliminating the cause of this type of incorrect recognition. Use KPAD to resolve this problem.

3 Wireless Environment

3.1 Notes on Using Wireless Controllers

The 2.4-GHz band is used as the wireless frequency for the Wii Remote. This frequency band is very crowded. If there are many other devices using the 2.4-GHz band in the surrounding area, the data transfer rate will fall. If the data transfer rate falls, controller response will worsen and noise will be heard on the speakers. Consequently, you should avoid using other devices that use the 2.4-GHz band as much as possible.

Some common devices that use the 2.4-GHz band are:

- NintendoDS
- Wii
- PSP
- PlayStation 3
- Xbox 360
- Wireless LAN 802.11 b/g (PCs and wireless routers)
- Bluetooth equipment (mobile telephones and PCs)
- Microwave ovens

4 Software Setup

4.1 Checking Operations

For details on the software environment, see the RVL Quick Start Guide.

Controller operations can be checked as long as software can run in the environment. The following programs are provided for performing operational checks:

```
(REVOLUTION_SDK_ROOT)/RVL/bin/demos/wpaddemo  
(REVOLUTION_SDK_ROOT)/RVL/bin/demos/kpaddemo
```

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