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### NES Controller iPod Remote

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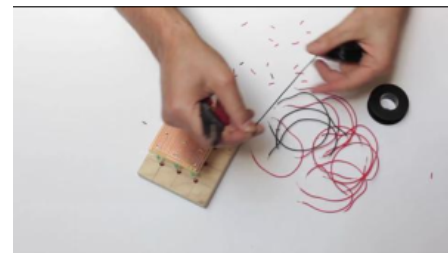
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Author: [PRO Senator Penguin](#) (tchips.com)

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By embedding a PIC microcontroller into an NES controller, it can be converted into a replacement for Apple's iPod remote.

(Only 3rd and 4th Generation iPods have this, it is a the small oval port next to the headphone jack).

Update (8/26/2011):

It's been quite some time since iPods have used this iPod remote connector, but the dock connector (the one used on all iPods except the shuffle, iPad, and iPhone) has the same Rx/Tx pins, as well as a 3.3V out. A simple breakout board can replace the hacked connector at the end, and you can get this to work with any recent Apple products. You can buy breakout boards at: <http://www.kineteka.com/PodBreakout-v1.aspx>

(The mini one is pretty nice, and they also have pinout information).

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**Apple NesRemote**  
by Agurri

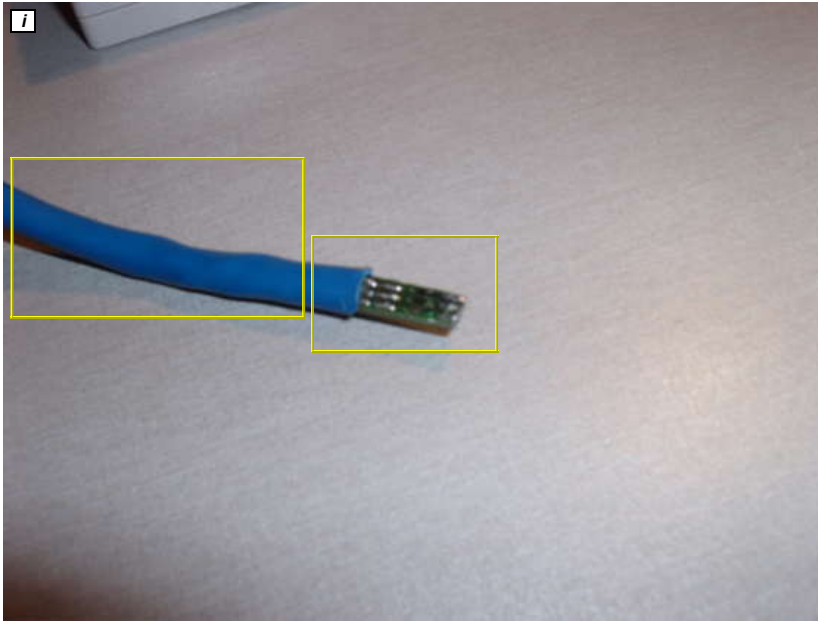


**NES Controller Shuffle (Nintendo Controller MP3, v3.0)**  
by ihrtglfx10



**Remote Control/NES controller/whatever BELT BUCKLE!!!**  
by kalub92

## Step 1 Parts



**Microcontroller-** dsPIC30F2011 These can be sampled from [Microchip's sample site](#)

**Programmer-** the drawback to using a dsPIC is the complicated programming procedure. The easiest way to program it is to use a Microchip ICD2, however these run fairly expensive. I have not tried this, but apparently the utilities found at <http://homerreid.ath.cx/misc/dspicprg/> can be used with a homemade JDM Programmer.

**IC sockets-** I used 2 8-pin DIP sockets(a single 18 pin or 16 pin would have also worked). These are necessary for removing and replacing the IC for programming and debugging.

### NES Controller

Dremel with a cutting bit

Sharp knife

Soldering iron and small gauge electrical solder

Desoldering pump

Flush cutters, or wire cutters

Needlenose pliers

Standard Ethernet (CAT-5) cabling

A good amount of small gauge wire- I used the innards of extra CAT-5 cable.

3G or 4G iPod.

**A plug for the remote jack on the iPod.** This is the most difficult to acquire. Several suggestions are made at [iPod Linux's site](#).

I used a small piece of a shattered old memory module that perfectly fit the remote plug, but any of the other solutions also work.

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**PRO NE patsrock** says:

where does everybody get thoes little game pads i c them everywhere iinstructabless where can i get oone

Sep 7, 2011. 3:39 PM

21



**Turn a NES controller into an iPhone Dock**  
by mickroolz



**Make an iPod Video Projector**  
by tantraad



**a simple ipod sock mod!**  
by rawgoosoul



**JailBreak your Ipod Touch 1st & 2nd Gen(3.1.3)**  
by chrizw123



**How to open the Apple Remote**  
by minimalista



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**Beduk** says:  
can i use it for my itouch(2nd gen)?Can i use my ps1 controller instead of the nes?please give me details.

Nov 4, 2010. 6:46 AM


[Reply](#)



**PRO redneckuprising** says:  
No, you can't do this with your Ipod Touch. The author says that only the 3rd and 4th generation ipods have the oval port next to the headphone jack. I'm pretty sure this mod can be done with a PS1 controller instead of an NES controller however

Dec 8, 2010. 8:11 AM


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**gabrielG2** says:  
Could anyone convert the C code to a PIC16F628? I guess its UART can also be used to conform to the specs of the Apple Accessory Protocol. Running it on 5v would probably need a resistor network on iPod's RX pin. Thanks in advance. Greetings from Brazil.

Aug 16, 2010. 3:48 PM


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**inventordude14** says:  
will this hack work for the ipod nano 3G?

Jan 24, 2010. 3:41 PM

[Reply](#)



**Mr. Squishy** says:  
I have a newer iPod Nano 4g and it doesnt have that connector on the top. But I have an iPod radio remote instead. If I put the chip inside that, will it work?

Mar 16, 2009. 9:47 PM


[Reply](#)



**ignition** says:  
i think you could do that if you ripped apart the radio remote, and basically reran the wiring from those buttons to the buttons of the NES controller... it wouldn't involve any programming of ic's or anything like that... it'd actually be a pretty cool project...

Jun 17, 2009. 7:29 PM


[Reply](#)



**Mr. Squishy** says:  
Ok. Thanks!

Jan 1, 2010. 4:00 PM


[Reply](#)



**PRO Yerboogieman** says:  
FIGURE OUT HOW TO DO THIS FOR A PSP, GET TO IT, NOW.

Mar 3, 2009. 8:33 PM

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**codongolev** says:  
my theory is that (don't quote me on this) the psp remote has one pin with current going out, and five waiting for current (there are only five buttons on the remote). when one gets current, it tells the psp what to do. so in other words, just wire power into the controller and make the different buttons do different things. I just thought of something! what if you had two psp's, one with pikey installed, and one with irshell, you would be able to control one with the other (just use the keyboard to be used with pikey and teach irshell the keystrokes used for the different buttons, then use that one the other psp).

Sep 19, 2009. 3:32 PM


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**TheNerd9101** says:  
mman is right, other that that, its the same

Jun 20, 2009. 6:13 PM

[Reply](#)



**mman1506** says:  
just open the controller and wire the buttons to the nes controller and STOP THE CAPS!

Apr 25, 2009. 7:04 AM


[Reply](#)



**butterflycookies** says:  
i didnt have a sodering gun so i used a lighter. big no no :[

Sep 14, 2009. 7:18 AM

[Reply](#)




**lolcat360** says:  
?

Nov 18, 2008. 1:48 PM


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 **cboy2us** says: Oct 23, 2008. 2:58 PM  
I hope you used the stranded core cat5 cable. It would be hard to use the remote with a stiff cable. Good Instructable


[Reply](#)

 **thefilmstars** says: Jun 6, 2008. 10:46 AM  
This is a very cool project. I am trying to build this on my own. I hope to use the ridax dock connector instead.

[Reply](#)

 **lopagof** says: Apr 18, 2008. 8:27 PM  
I am doing a similar mod with the ipod nano (1st gen) and I was wondering if it uses the same protocol (only through the dock connector). Any help is well appreciated!


[Reply](#)

 **PRO Senator Penguin** (author) says: Apr 18, 2008. 10:13 PM  
It does use the same protocol, as long as you connect to the right pins. If you can solder to the tiny pins in the dock connector (they sell some over at [SparkFun](#)) it's definitely possible. It would certainly be a better connection than my kludged together RAM-chunk connector.


[Reply](#)

 **gbosbiker** says: Mar 20, 2008. 5:24 PM  
old school meets new school. love it


[Reply](#)

 **spikerbond** says: Mar 8, 2008. 9:24 PM  
what microcontroller? there are four different ones with 18 leads


[Reply](#)

 **PRO Senator Penguin** (author) says: Mar 9, 2008. 12:18 AM  
I used the [dsPIC30F2011](#), but with minor changes to the code (pin numbers and speed of the chips are the only relevant differences that come to mind), almost any other dsPIC30 microcontrollers could be substituted. If you are more comfortable with other platforms, the hardest part of the process is understanding the Apple Accessory Protocol, the rest is pretty straightforward.


[Reply](#)

 **aquaman33** says: Nov 14, 2007. 11:38 AM  
dude thats nice I really dig in i made it wireless by using imuffs i just broke open receiver and soldered maybe ill post it


[Reply](#)

 **joly** says: Dec 22, 2007. 2:17 PM  
post it! I would make it for sure!!!!


[Reply](#)

 **Morte\_Moya** says: Jul 31, 2007. 6:46 PM  
Hella NICE!!! I love the fact that you used an NES remote. LOL Nice job!!!


[Reply](#)

 **PRO Senator Penguin** (author) says: Aug 3, 2007. 1:06 AM  
Maybe we should work together and convert an NES into an ultimate iPod dock; just push the iPod into the cartridge slot, controllers act as remotes, and the NES has a complete integrated amp. Between the two of them there are probably enough mangled Nintendo parts to make something spectacular.

[Reply](#)

 **Da\_Fudge** says: Oct 23, 2007. 3:23 PM  
that would be sick to see. tell me how it goes. I might try it.

[Reply](#)

 **Deus** says: Oct 15, 2007. 9:32 AM  
I have seen a video of a ipod dock in a NES and that was used as a game controller for doom II with iPodLinux

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**PRO Senator Penguin** (author) says:  
That was the inspiration for this mod, but I tried to do it without cutting a hole in my iPod and soldering the NES buttons directly to the iPod buttons.



3

[Reply](#)

Oct 15, 2007. 5:06 PM

**JankY** says:

Sep 17, 2007. 12:42 PM

Hi there Senator Penguin,  
I like the way you used the original board. I want to build an mp3 player in a NES. Do you think there is extra space for a mp3 player board inside the NES? [this one](#) It's a real small one.

thx

[Reply](#)


3

**PRO Senator Penguin** (author) says:

Sep 17, 2007. 3:38 PM

Absolutely. Ignoring the fact that I'm unsure if that counterfeit iPod even works, it is very possible. I suggest you use some of the techniques from [this instructable](#), but replacing the buttons entirely with the buttons of the NES board. Much more would have to be cut away, but you likely wouldn't need the printed resistors on the NES board. Play around with a voltmeter and some test leads to see what you would have to do electronically. It is definitely possible.

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5

**Neodudeman** says:

Sep 5, 2007. 1:53 PM

I like how you used the controller's original board. That was nice.

[Reply](#)


2

**Ward\_Nox** says:

Aug 29, 2007. 10:06 AM

you know after being on this site for a month i can't help but think Nintendo could make a mint selling NES controllers again (or at least the shells)

[Reply](#)


1

**garrettmikesmith** says:

Aug 1, 2007. 12:09 AM

awesome instructable. the only downside is that the nes controller is about as big as the ipod.

[Reply](#)
**xsmurf** says:

Jul 30, 2007. 5:41 PM

Very nice. I like the fact that you programmed your own uC instead of reusing an old apple remote. However, maybe you could add a proper schematic? A+ :)

[Reply](#)


3

**PRO Senator Penguin** (author) says:

Jul 30, 2007. 6:30 PM

Got it, added a new schematic step. I was unsure if it would be beneficial, considering a good deal of the wiring is pre-printed and only one component needed to added, but as I drew it up, it definitely looked clearer.

[Reply](#)
**xsmurf** says:

Jul 30, 2007. 6:36 PM

I'd say it helps getting the big bigger. It's much easier to read a (nice :) Eagle schematic than it is to read a proto with traces and wires going everywhere. On another note, I might try something similar. I may go the lazy way as I already have a remote with a dead plug. But really, I'd rather have a good plug with a dead remote, much more fun and nicer finished product. Now that I think of it, it's nothing a piece of old pcb, the proper 3 prongs (+neg) jack and a lot of hot glue can't deal with!

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