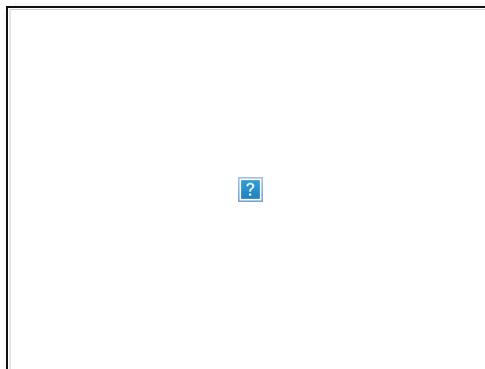


## CD Changer emulator

### PIC version based on vwcdpic project

Edit: better look for [this](#)

UPDATE: [simple boards](#) are for sale (1Euro for board + shipping), also assembled emulators + simple cable with jack (tested vwcdpic + audio cable = 10euros + shipping ), contact me on email if you are interested, also I can send preprogrammed pic +2E



originally this was on [fritzing project page](#). There is lot of "files" so i make it clear here, I hope:

whole project is build around [www.k9spud.com/vwcdpic/](http://www.k9spud.com/vwcdpic/) project ([mirror](#),[mirror of devel site](#)) , which was realease under gpl (2 I thing ...)

There are 3 firmware version:

v1: for large 16pin pic ... don't care

v2:

- for pic12f629
- source code provided
- serial output, easy to handle with arduino
- has bug with serial comuniaction, selecting CD3,4,5,6 send always command 0xd3 (cd3 selected), but fix is sipple,fixed pic asm is on [my github](#)
- is buggy(don't use it!) on blaupunkt chorus1 and concert1 not on philips concert1

v3:

- for pic12f629
- just hex
- serial output but with bug in serial communication (can't fix, no source code)
- is buggy(don't use it!) on blaupunkt chorus1 and concert1 not on philips concert1

I don't know what's real diffrence in v2 and v3 code, except used pins.

I use buggy version 3 of firware only for emulating CD changer, without controling anything else and fixed version 2 to comunicate with arduino, which then I used to controling HTC phone and BT module.

When I start to search about this, I found that guys form [cz skoda forum](#) are doing this fake changer, they add power control to "switching" permanent +12V ..... so I take their design and used it. After some builds, and research how to use [this emulator with old audi chorus unit](#), I realize that [BSP452](#) which is used to switch and provide stable 12V on ACC pin is capable of 0.7A as minimum, so I remove whole "power switch" and drive it whole directly from radio ACC pin.

**Also audio amflifier is better not to be used**, lot of noise etc... I try a lot of shielding, koax kables and design , and then I just give up. Best is to use simple emulator made on universal board, just like next picture, and connect audio directly to coresponding pins on radio CD changer connector. If you relly want to use regural PCB go with smd version down there and just "cut" audio part.



### Blog Archive

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- ▼ 2014 (1)
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CD Changer emulator
- 2013 (17)
- 2012 (6)

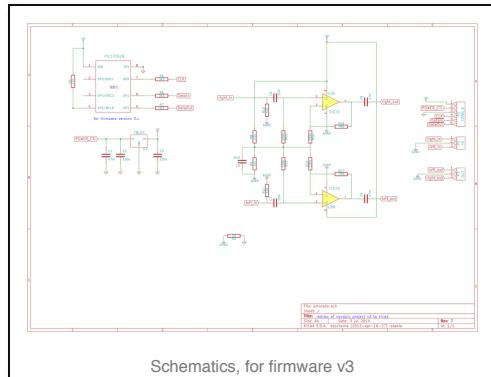
for compiling pic asm: gpasm xxxx.asm

for burning I use <http://rweather.github.io/ardpicprog/>

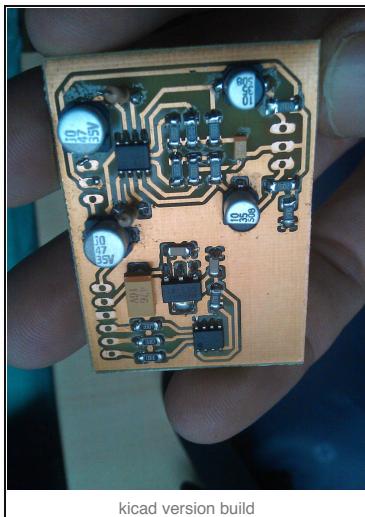
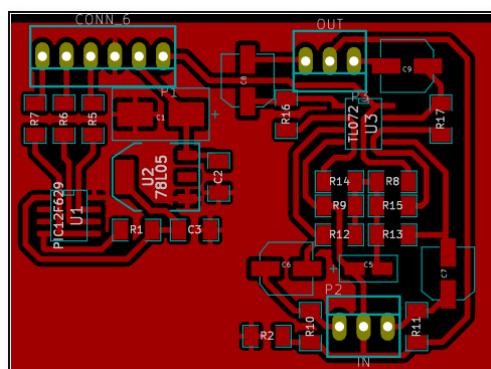
### Emulators with audio amplifier

Kicad files

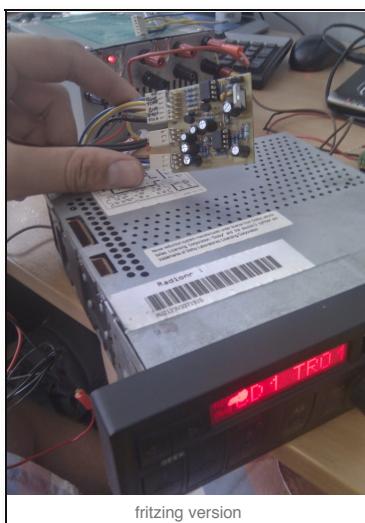
fritzing files



PCB is just remake of PCB which was on k9 site:



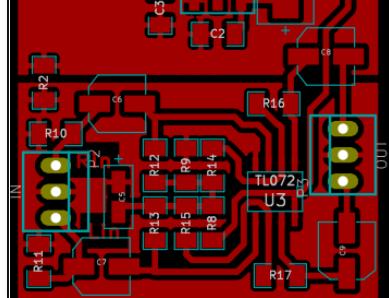
kicad version build



fritzing version

Separated audio ground filling, to try killing the noise comming from communication PIC<->radio. but it don't fix it :(. This can be easily converted to "just emulator" version.

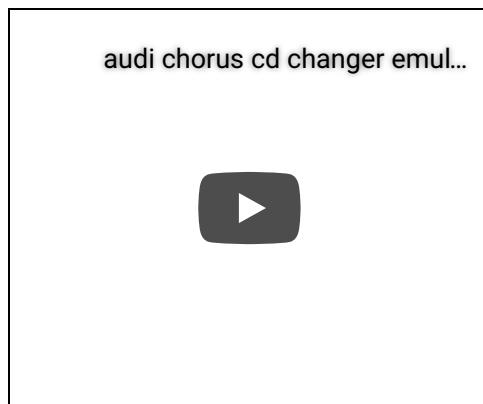
edit: after a while I connect audio ground with separate cable to chassis and it fix noise problem, so



### HTC support

[files](#) on gitbut, also with instruction

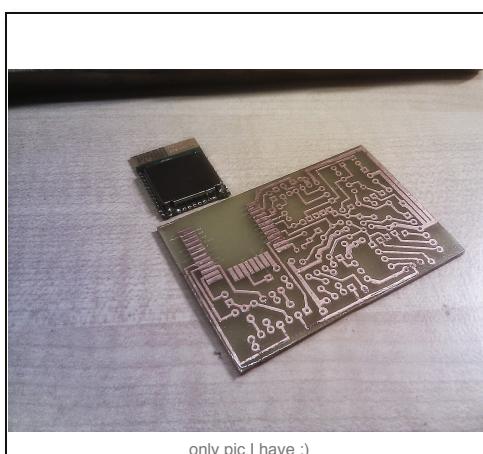
this use v3 of firmware, because there is just "play/pause" on headphone remote control, so bug in firmware is not problem



### Bluetooth support

[files](#) on gitbut, also with instruction

problem with this BT module is in handling incoming call (or its bug in my HTC) after "pickup" it disconnected from phone.

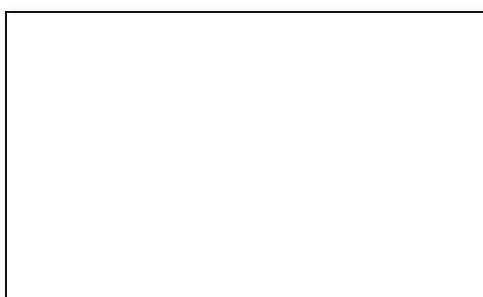


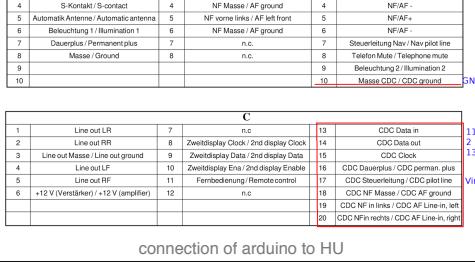
only pic I have :)

currently im doing "sniffer" for pic version, so i can update shyd version of emulator on atmega. I do this because on chorus1 and concert1, there is som sort of bug, which some time lock radio in strange mode, when radio still send one command and do not want to recognize fake changer :)

### ATMEGA version

based on [SHYD](#) work, ported to arduino (ATMega168,328 and also works with ATMega8 -1\$ on ebay). Works with 16MHz Xtal and also with internal 8MHz RC oscillator (tested) - set CPU\_SPEED to cpu clock value in MHz more about this in newer [post](#)





code on [github](#)

Posted by [kovo](#) at 14:58

## 37 comments:

**alfaholik** 7 September 2015 at 22:56

Hi

Great project, much respect :)

I'm wondering, will it work with Alfa Romeo/Fiat radio units?

Pinouts are basically the same. I need to build sth like this for Alfa Romeo since there is no possibility to play any external source

[Reply](#)

[Replies](#)

**kovo** 8 September 2015 at 07:51

look at this

<https://github.com/Andrea81/CDCemu>

**alfaholik** 20 September 2015 at 12:56

Thank you, I saw this before.

If im right this is original site of that project <http://forum.stilocclub.it/viewtopic.php?f=15&t=25667#wrapheader>

but I wanted something on avr or pic to be as simple as your project :)

[Reply](#)

**alfaholik** 7 September 2015 at 22:57

Hi

Great project, much respect :)

I'm wondering, will it work with Alfa Romeo/Fiat radio units?

Pinouts are basically the same. I need to build sth like this for Alfa Romeo since there is no possibility to play any external source

[Reply](#)

**Unknown** 20 October 2015 at 15:53

Dobry den mal by som zaujem o ten cd changer simulator na passat radio je delta 6. Potreboval by som vediet ci k hotovemu simulatoru je este potrebne pripojit kabel s jack konektorom osobitne dakujem.

[Reply](#)

[Replies](#)

**kovo** 21 October 2015 at 10:08

Ahoj,

vidim, ze si uz zadal objednavku na tindie, poriesime to teda tam.

t.

[Reply](#)

**Unknown** 14 March 2016 at 09:21

hi,

will it work with Renault Megane 2 Tuner list radio units?

[Reply](#)

Megane/

I have green connector, so If you want one .....

---

Reply



**Unknown** 21 March 2016 at 20:50

Hi Tomas! I tried your code with arduino and 3 button control android headphone. The code is very good, but the control android headphone do not work. I have to enable any line of your code to operate the buttons? What is my error?

Thanks

Reply



**Unknown** 21 March 2016 at 20:54

Hi Tomas! I tried your code with arduino and 3 button control android headphone. Your code is very good but the android buttons do not work. I have to enable any line of your code to operate the buttons? What is my error?

Reply



**kovo** 21 March 2016 at 22:49

Please tell me which code and schematics you used then i can help you

Reply

Replies



**Unknown** 22 March 2016 at 12:50

I use arduino uno with your code "cdc\_arduino\_ported\_k9spud\_vwcdpic\_just\_8bit\_timers.ino", radio audi concert 1 and htc hd with headphone 3 button control. Thanks!



**kovo** 22 March 2016 at 13:06

ok, and schematics? this one?  
[https://github.com/tomaskovacik/hw/tree/master/kicad/arduino\\_based\\_cdc\\_emulator/atmegax8\\_dip](https://github.com/tomaskovacik/hw/tree/master/kicad/arduino_based_cdc_emulator/atmegax8_dip)

cose, there is used 4066 powered with 5V, this need to be changed to 12V, just for 4066, to have lower switch resistance. otherwise it should works. I made it on bench.



**Unknown** 22 March 2016 at 14:17

Ok. Your code that I use is:  
[https://github.com/tomaskovacik/arduino/blob/master/VWCDCEmu/CDC\\_emulator/cdc\\_arduino\\_ported\\_k9spud\\_vwcdpic\\_just\\_8bit\\_timers/cdc\\_arduino\\_ported\\_k9spud\\_vwcdpic\\_just\\_8bit\\_timers.ino](https://github.com/tomaskovacik/arduino/blob/master/VWCDCEmu/CDC_emulator/cdc_arduino_ported_k9spud_vwcdpic_just_8bit_timers/cdc_arduino_ported_k9spud_vwcdpic_just_8bit_timers.ino)  
but my problem is that arduino no signal output pins 5 (play button), 9 (previous button) and 6 (next button). It is that the code I have to use?

---

Reply



**kovo** 22 March 2016 at 14:19

did you change //define ANDROID\_HEADPHONES to

```
#define ANDROID_HEADPHONES  
?
```

Reply

Replies



**Unknown** 22 March 2016 at 14:37

Yes. but it still does not output signal.



**kovo** 22 March 2016 at 14:50

ok, and other connection to radio? which radio do you have?

---

Reply



**Unknown** 22 March 2016 at 15:50

I have the radio audi concert 1. I connect cables data out, clock and data in, to pins 2,12,13 with the Arduino Uno.

Reply

this is configuration in cdc\_arduino\_ported\_k9spud\_vwcdpic\_just\_8bit\_timers.ino:

```
* ANDROID HEADPHONES SUPPORT
* HTC: 3buttons, 220ohm previous100hm play/pause1470ohm next
*/
-##define ANDROID_HEADPHONES
+##define ANDROID_HEADPHONES

/*
* ANDROID HEADPHONES SUPPORT
@@ -134,9 +134,9 @@
*/
///#define ANDROID_HEADPHONES_ONE_BUTTON

-#ifdef ANDROID_HEADPHONES_ONE_BUTTON //just to be shure
-#define ANDROID_HEADPHONES
-#endif
+/#ifdef ANDROID_HEADPHONES_ONE_BUTTON //just to be shure
+/#define ANDROID_HEADPHONES
+/#endif

#if defined(__AVR_ATtiny85__)
#include
```



**kovo** 23 March 2016 at 13:36

I moved all code here: <https://github.com/tomaskovacik/vwcdavr/>



**Unknown** 28 March 2016 at 21:52

Ok. I'm sorry for my late answer. Thanks for your help.  
Your code work very well making the modifications indicated by you.  
<https://youtu.be/tNRmCUwH-es>

but it does not work well on my radio concert 1.  
<https://youtu.be/HvF-jwfxhLg>

What can I do?



**kovo** 28 March 2016 at 23:19

ok. try use this code

[https://github.com/tomaskovacik/vwcdavr/tree/master/CDC\\_emulator/cdc\\_arduino\\_ported\\_k9spud\\_vwcdpic](https://github.com/tomaskovacik/vwcdavr/tree/master/CDC_emulator/cdc_arduino_ported_k9spud_vwcdpic)

DATAOUT on pin 8

but this one is without headphone support, need to make patch to this one

looks like, INT0 code is somehow buggy make lot of dataerr, I try to look into it



**kovo** 29 March 2016 at 01:27

Also check ground, "just 8bit timers" works, but is buggy .... Or is just bad wire connection, I will try to test it tomorrow



**Unknown** 30 March 2016 at 22:26

Yes. Arduino gnd pin is connected to ground radio concert.  
Your code is very good. I do not think your code has some error. I think my radio concert has different pulse.

I'll use the code:  
[https://github.com/tomaskovacik/vwcdavr/tree/master/CDC\\_emulator/cdc\\_arduino\\_ported\\_k9spud\\_vwcdpic](https://github.com/tomaskovacik/vwcdavr/tree/master/CDC_emulator/cdc_arduino_ported_k9spud_vwcdpic)  
to see if it works on my radio without buttons.

Thanks!



**kovo** 1 April 2016 at 13:48

<https://www.youtube.com/watch?v=LWpjHlddfwc>

I put it on bench and it works, I do make same changes to tweak it, but changes are minor, check it out, also I used 16MHz version. Is your standard arduino?

everything works :)

---

**Reply**

**Unknown** 6 April 2016 at 23:57

with the two codes, the display only show: CD1 TR01  
I think my radio concert works differently and the pulse signal is different but your code is correct and very well.  
thanks for the help!

[Reply](#)

[Replies](#)



**kovo** 7 April 2016 at 00:01

Connect andriod based logic analyzer on that line and check what you see

---

[Reply](#)



**Unknown** 8 April 2016 at 02:24

I do not have oscilloscope but I'll seek an alternative to arduino.  
Your code ([https://github.com/tomaskovacik/vwcdavr/tree/master/vw\\_cd\\_changer\\_sniffer](https://github.com/tomaskovacik/vwcdavr/tree/master/vw_cd_changer_sniffer)) would help me check the signals?

[Reply](#)

[Replies](#)



**kovo** 8 April 2016 at 08:20

[https://github.com/gillham/logic\\_analyzer](https://github.com/gillham/logic_analyzer)

---

[Reply](#)



**Unknown** 13 July 2016 at 21:31

Hi, great job! I would like to build only cd changer emulator for aux in (no amplifier). Do you have info if this emulator could work with Audi Symphony 1 head unit. Basically cd changer is the same for all head units from this year, correct?

[Reply](#)



**Unknown** 13 July 2016 at 21:36

Hi,great job!  
Do you know if cd changer emulator could work with Audi Symphony 1 head unit? I think cd changer stayed the same no matter which head unit was used (in that range of year).

[Reply](#)



**Unknown** 22 December 2016 at 15:10

Hi, I have an Audi A4 B6 with Concert 2 unit. I have connected a bluetooth module on the CD-R/L/GND pins, it starts, I can connect to it with my phone, but I cannot select it. Pressing CD button - no luck, pressing CD + starting the HU I get message "NO CDC". Is there any gadget that you built that can help me with that? I would really like to also connect a microphone to it, if possible

[Reply](#)

[Replies](#)



**kovo** 22 December 2016 at 15:35

Hi, you need emulator, buy one or make one with arduino

T.

[Reply](#)



**Unknown** 3 August 2017 at 20:31

Hello congratulations nice application software can you modify it this way

[https://plus.google.com/photos/photo/101899105574100522850/6450115710770141154?icm=false&authkey=CN\\_-i8XHirX3vAE](https://plus.google.com/photos/photo/101899105574100522850/6450115710770141154?icm=false&authkey=CN_-i8XHirX3vAE)

[Reply](#)

[Replies](#)



**kovo** 4 August 2017 at 11:25

sorry, but I'm not into PIC assambly, but i actualy do something similar here:  
<https://github.com/tomaskovacik/hw/tree/master/fritzing/vwcdpic/HTC>

---

[Reply](#)



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