how to Control arduino by bluetooth from (PC, pocket PC PDA)

by **simon72post** on November 3, 2009

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Intro: How to Control arduino by bluetooth from (PC, pocket PC PDA)

I wanted to make it possible to control an arduino board from my phone.
So that I could control other devices.
the easiest way seemed to be using bluetooth.

but when I received the parts needed I found it want quite as simple as I had hoped.
And after looking on the Internet I didn't find much information to help.

so I have decided to write this guide to help other people that are thinking of doing the same thing.

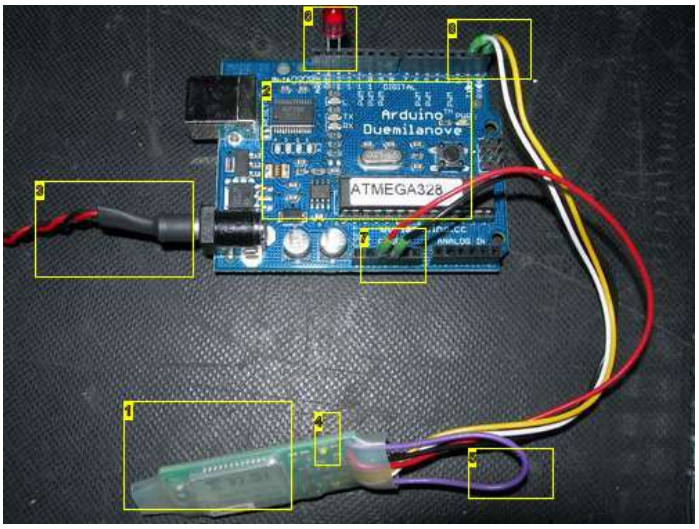


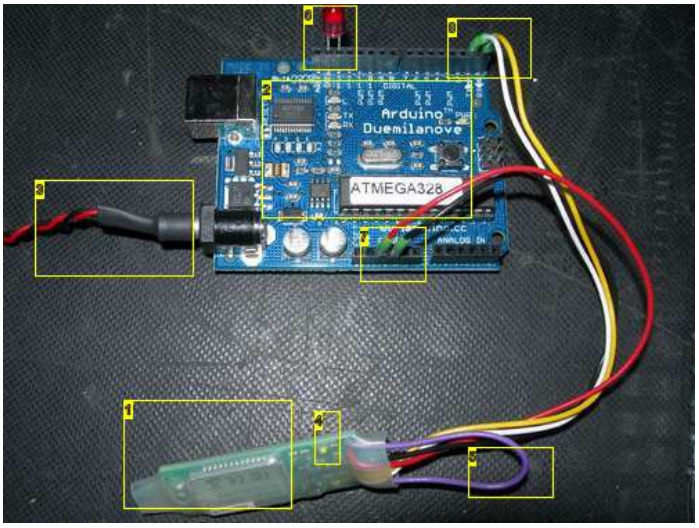
Image Notes
1. bluetooth module
2. arduino board
3. 5v power
4. connected LED
5. link wire
6. LED connected to pins 13 and ground
7. power for the bluetooth module
8. transmit and receieve pins

Step 1: Parts needed

1 arduino board (I used the duemilanvoe 328)
1 bluetooth serial board (I used the sparkfunbluesmirf)
some pieces of wire
1 led
A computer with bluetooth or a usb bluetooth adaptor.
A pocket PC with bluetooth

Software needed

the arduino enviroment software
and some serial terminal software (I used putty)



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Step 2: Wiring it all up

I linked the cts1 to the rts0 on the bluetooth module.
then I wired the tx on the module to the rx on arduino
the rx on the bluetooth to the tx on arduino

I protected the bluetooth module by sealing it with heatshrink.

I then connected +5v and 0v to the bluetooth board from arduino and supplied the arduino board with 5volts.

and pluged an LED in to socket pin 13 and ground to test it.

as shown.

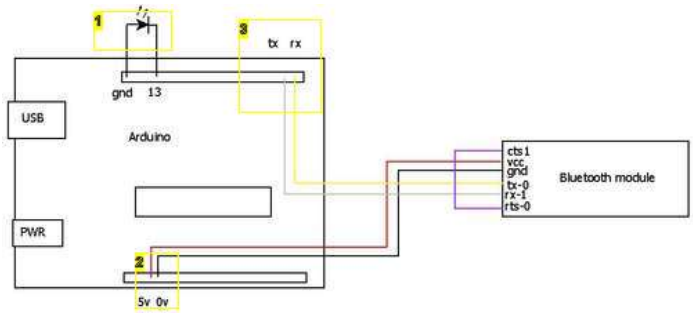

Image Notes
1. led connect anode (long leg) to pin13 connect cathode to ground pin
2. 5 volt power for bluetooth module
3. transmit recieve pins

Step 3: Loading the software

Before I connected the board using bluetooth. I had to load some code on to the arduino board.

The easiest way to do this is to open the arduino enviroment software program and connect the board to a computer using usb.

then go to the tools tab and make sure the correct arduino board and usb ports are selected.

then up load this code on to the board.

this code will allow you to switch on and off the led by pressing 1 for on and 0 for off.
from your terminal.

```
/*
simple LED test
*/

char val;         // variable to receive data from the serial port
int ledpin = 2;  // LED connected to pin 2 (on-board LED)

void setup()
{
  pinMode(ledpin = 13, OUTPUT);  // pin 13 (on-board LED) as OUTPUT

  Serial.begin(115200);       // start serial communication at 115200bps

}

void loop() {
  if( Serial.available() )       // if data is available to read
  {;}
    val = Serial.read();         // read it and store it in 'val'

  if( val == '0' )               // if '0' was received led 13 is switched off

  {
   digitalWrite(ledpin, LOW);    // turn Off pin 13 off
delay(1000);                    // waits for a second
Serial.println("13 off");
  }
```

```
if( val == '1' )              // if '1' was received led 13 on
 {
   digitalWrite(ledpin = 13, HIGH);  // turn ON pin 13 on
   delay(1000);                  // waits for a second
   Serial.println("13 on");
  }
}
```

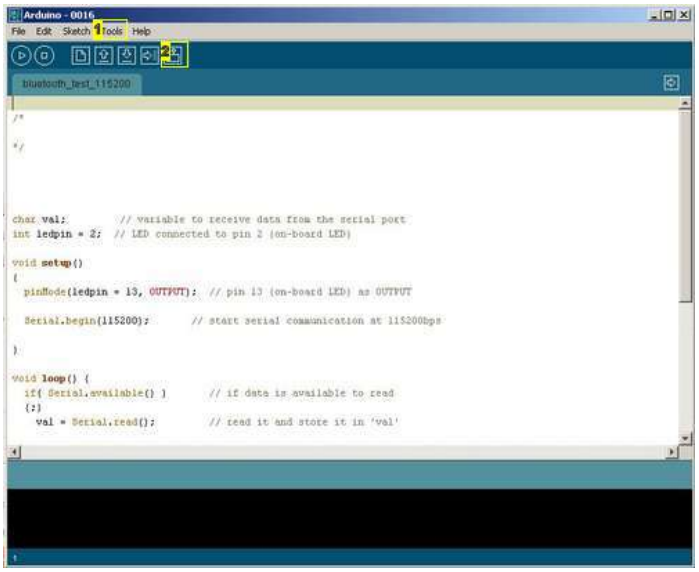

Image Notes
1. select the board from this menu
2. serial terminal

Step 4: Connecting over bluetooth on the PC

the next step is to connect the arduino board using bluetooth.

disconnect the arduino usb cable and connect up the bluetooth module.

power the arduino board. and the red led on the bluetooth module should flash.

now open the bluetooth control panel on your pc this can be opened from the system control panel or from the icon in the bottom right of your desktop.

you will now have to add a new bluetooth device.
click my device is set up and ready to be found

then on the next screen to will see firefly-E754 or something similer. click next

on this screen select use the passkey found in the documentation and enter 1234.

on the last screen you will see which ports your computer assigns my computer set com11 for outgoing and com12 for incoming.

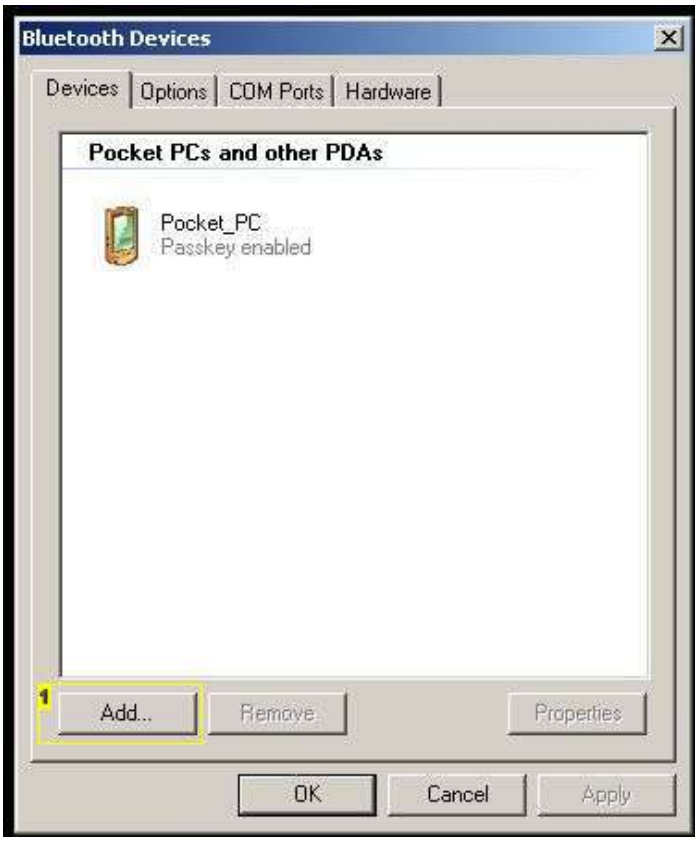

Image Notes
1. click to add new device

Image Notes
1. select
2. next

Image Notes
1. bluetooth module
2. next

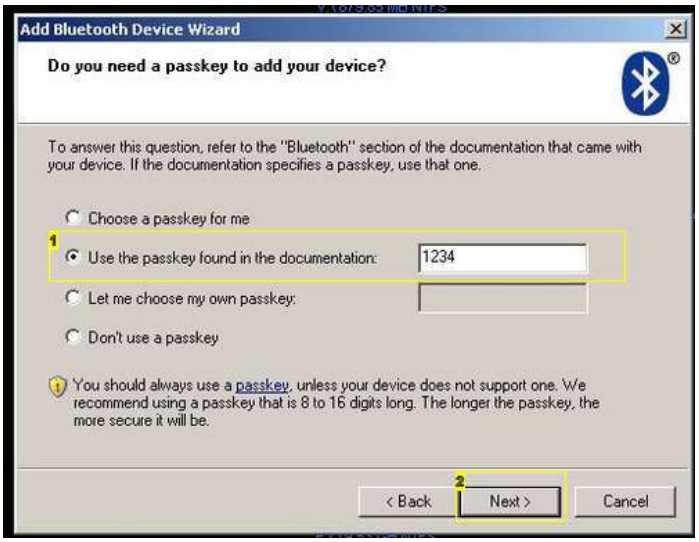

Image Notes
1. pass key 1234
2. next

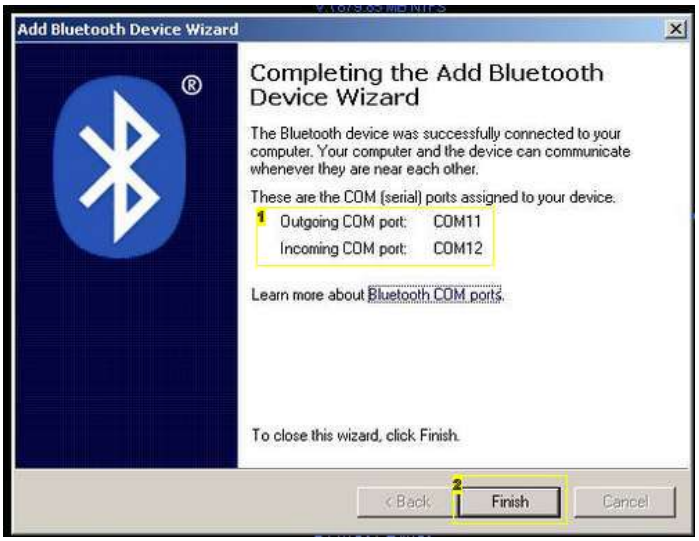

Image Notes
1. com ports used
2. finish

Step 5: Controlling from a terminal in windows

the next step is to connect to your arduino board using a terminal.

I used putty.

I selected the serial option and set the com port to 11 to match the bluetooth settings that my computer set.
then I set the baud rate to 115200. to match the baud rate in the code.

and clicked open

then the terminal window opens and the led on the bluetooth module turns green.

now when I press 1 the led will light up
and when I press 0 the led turns off.

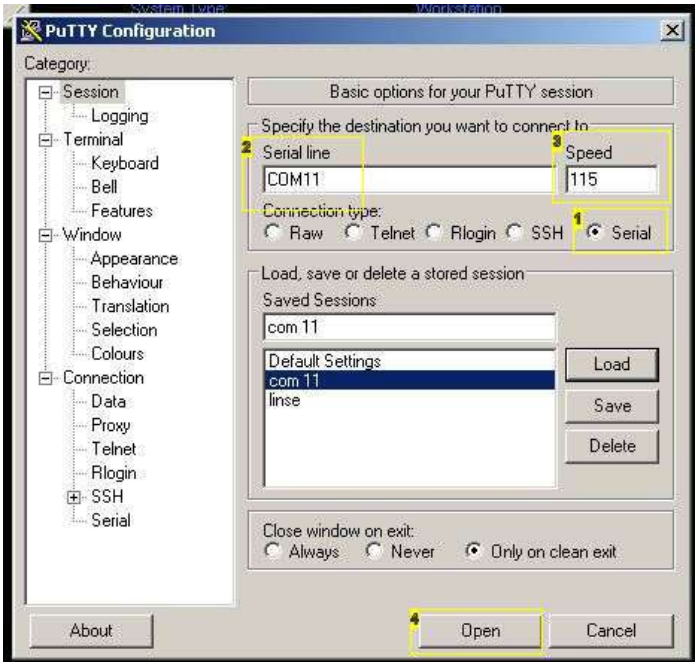

Image Notes
1. comands recieved by the arduino board

Image Notes
1. serial connection
2. com port
3. baud rate 115200
4. click to open the terminal

Step 6: Controlling from a pocket PC PDA

the priciples are basicly the same as connecting using a PC

On the pocket pc open the bluetooth manager and serch for new device.

when you see the Firefly-E754SPP connect to it.
enter the passkey 1234

then open pocket putty.

select serial put in the com port used on my PDA it's com6. set the baud rate speed to 115200.
and click open.

and the terminal should open the led will go green on the bluetooth module. and you will be able to send commands to your arduino.

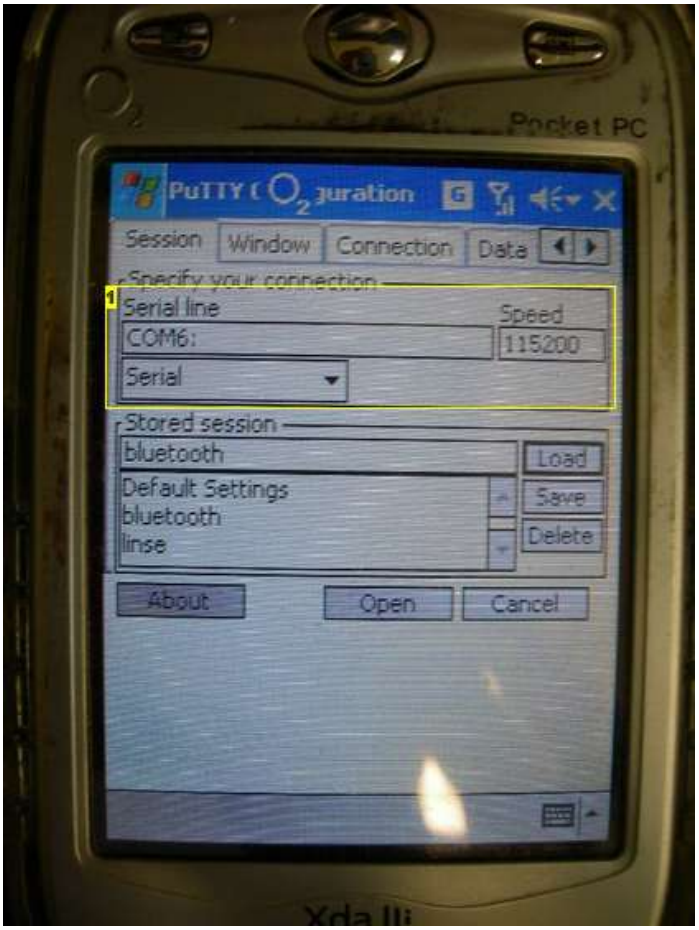

Image Notes
1. com port , baud rate 115200, and serial options

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Comments

10 comments **Add Comment**

mitman93 says: Mar 13, 2011. 1:00 PM **REPLY**

Hello. I was wondering if it was possible to combine this with a usbhost shield? Do the two share any pins? And if so, would they interfere?

Thank you!

Magneto_Man says: Nov 3, 2010. 8:59 AM **REPLY**

Great! thanks a lot! I used a standard serial Bluetooth adapter module and it works perfectly! :-)

Tchnclfl says: Nov 16, 2009. 1:19 PM **REPLY**

You really shouldn't connect an LED like that without some form of resistor...Red LEDS, for example, are only supposed to run at about 2.5 volts MAX, and you're running 5v through that one.

Oxide says: Oct 19, 2010. 8:09 PM **REPLY**

Pin 13 has an internal pull-up resistor: http://www.arduino.cc/cgi-bin/yabb2/YaBB.pl?num=1251513531/2

simon72post says: Nov 17, 2009. 12:10 AM **REPLY**

Hi I agree with your comment about not connecting an led to a 5V supply with out a current limiting resistor.
But if you read the documentation on the arduino board there is a current limiting resistor on pin 13 for this purpose.

doby162 says: Jul 12, 2010. 9:32 AM **REPLY**

this looks awsome! i currently have other projects going(which i plan to submit to instructables) but after them i might try to built a bluetooth controled robot. what kind of range do you get off that thing anyway? if i could controll the robot though out my house than that would be good enuf for me. also were would you get a bluetooth receiver? also some red leds wont even light off 2.5 volts, they very alot. ive even run one off a nine volt with no problem. ovcourse it was only producing 7 volts at the time...

javajunkie1976 says: Feb 14, 2010. 1:18 PM **REPLY**

How would this work if I wanted to connect a wireless handheld controller to an 7 1/2" gauge locomotive and run it remotely? The current set up is too cumbersome with the cable and if track operations dictate the need to do some switching of cars on the track, walking alongside the locomotive gets to be a pain, especially with scenery and other trains.

benjgvps says: Nov 12, 2009. 7:54 AM **REPLY**

It's that easy to use a bluetooth module? I think I may build my own bluetooth adapter for my Palm M500 using the serial pins on the cradle adapter. This may end up being cheaper than the hard-to-find-in-canada SDIO Bluetooth adapter.

joejoerowley says: Nov 4, 2009. 4:18 PM **REPLY**

Very Cool! Great Instructable!

Rorymi6 says: Nov 4, 2009. 9:43 AM **REPLY**

Very interesting, might give this a go. I assume this a BlueSMiRF Gold?
Thanks
Rory