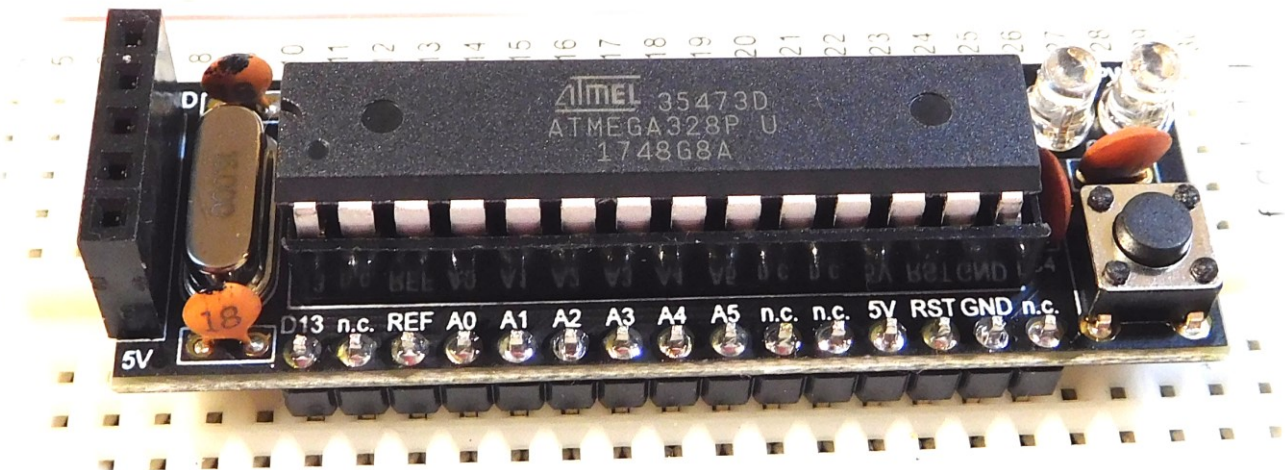


Bread Board Buddy V2 Overview:

CANADUINO Bread Board Buddy V2 is the 2nd generation of our little development board. It is available with an Arduino UNO R3 compatible ATmega328P-PU micro controller, programmed with original Arduino UNO R3 boot loader, and our “fade” sketch (similar to “blink”). BBB V2 comes with a 5-pin female header, which hooks up directly to our CH340G USB-to-TTL converter modules (EAN 4260474030385).

Bread Board Buddy V2 is designed to save as much space as possible on your bread board. It comes with the same chip as Arduino UNO R3, and with the same functions, but a much smaller footprint. Additionally, it comes with the same footprint as the Arduino NANO (but without the voltage regulator, A6, and A7), what makes Bread Board Body V2 even more versatile.

When the 1st generation still required to remove the chip for reprogramming, or to connect a programmer to the bread board lanes, the new V2 offers a direct connection to one of the most common USB-TTL bridges. Bread Board Buddy V2 has the crystal, the reset button, PWR and D13 LED on board. We recommend our bread board power supply module (EAN 4260474031962).



Bread Board Buddy V2 DIY kit:

The kit contains the PCB and all parts as shown, the ATmega328 controller with installed boot loader and “fade” sketch is available as option. The Reset button will be needed for in-circuit programming, and to restart the installed sketch.

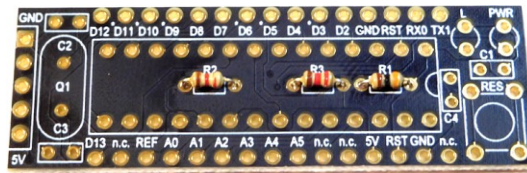
The module works safely with any voltage between 3.8 and 5.5V DC, but we did not experience any funny behavior with a voltage as low as 3V. Higher voltage than 5.5V will immediately brick your Atmel controller.

Assembling:

Assembling this little project is very easy, also for beginners. It can be done on a flat surface by following the right order. Let's start with the flattest parts and finish up with the tallest one.

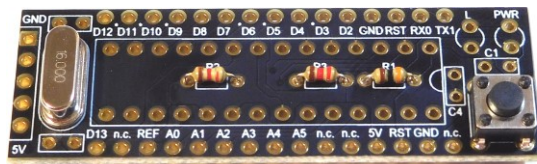
Make sure you don't mix up the resistor and capacitor values, the direction of the IC socket, and the direction of the LEDs.

STEP 1:
 - Resistors

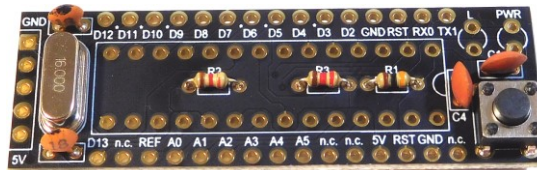


R1 = 10kΩ
 R2 = 1.2kΩ
 R3 = 1.2kΩ
 (compare color code)

STEP 2:
 - Crystal
 - Button

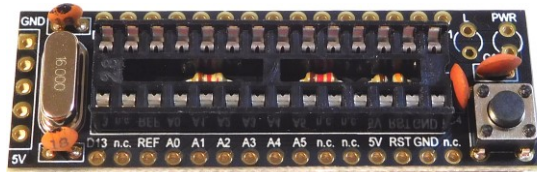


STEP 3:
 - Capacitors



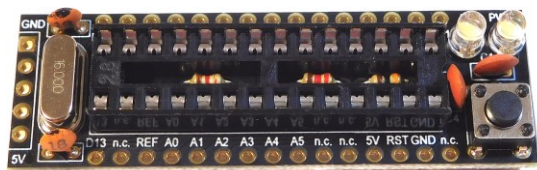
C1 = 100nF (104)
 C2 = 18pF (18)
 C3 = 18pF (18)
 C4 = 100nF (104)

STEP 4:
 - DIP28 socket



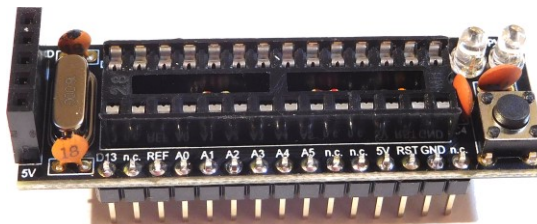
Notch on the DIP socket shows to the Reset button. This is the mark for the IC pin 1.

STEP 5:
 - Power LED
 - D13 LED



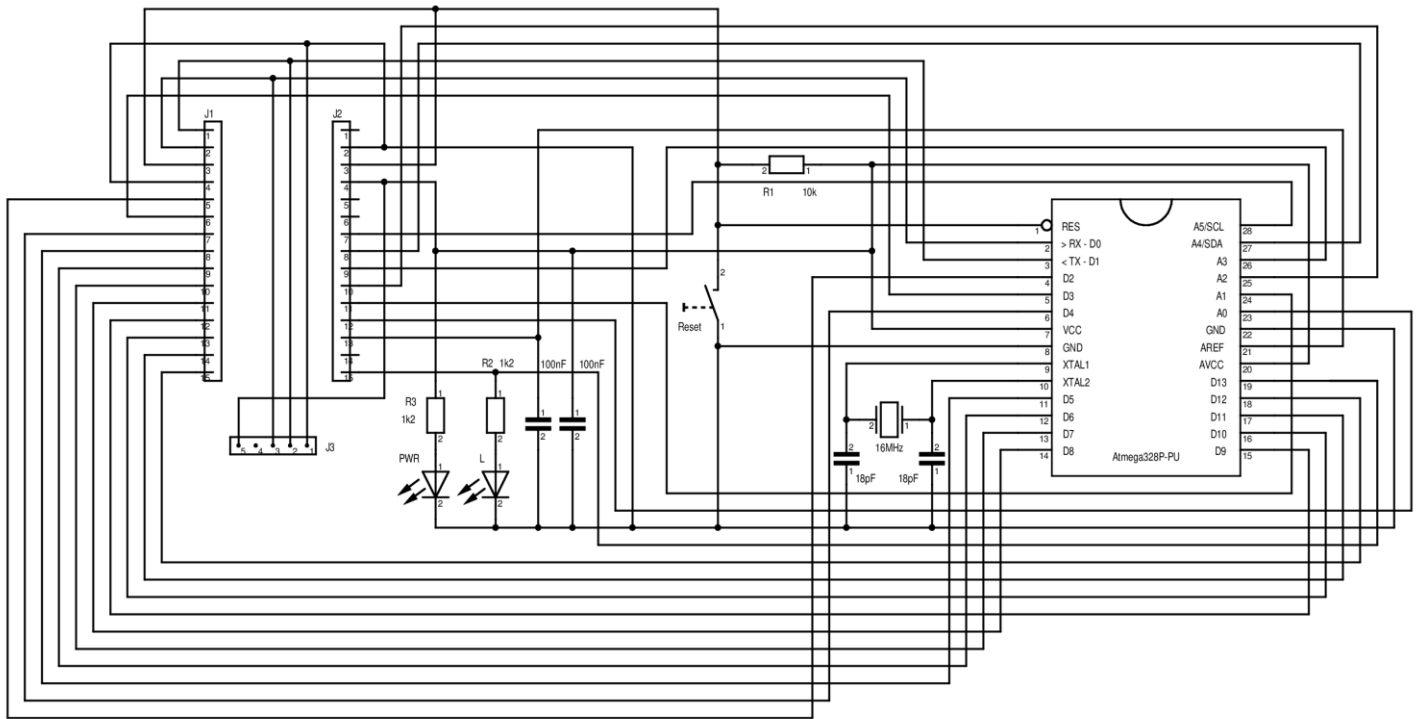
The short leads of both LEDs, or where the flat spots are on the lenses, show to the text "L" and "PWR", the long leads show to the Reset button.

STEP 6:
 - 2 pin header
 - RX/TX header



First press the 2 male 15-pin headers in the bread board, then slide BBB V2 on top over the pins, press it all the way down, and solder the pins to the PCB. If you want to use the RX/TX header as well, assemble it now.

Schematic:



Operation:

- BBB V2 needs a power supply of 3.8 to 5.5V (min/max limits), for example 3 batteries AA or AAA, a USB power supply (for example phone charger), or the USB-TTL bridge adapter.
- The LED "L" is connected to digital I/O 13, just like on other Arduino modules, but only with a current limiting resistor. Means, the use of D13 for other purposes is limited.
- The LED "PWR" shows if the power supply is available.
- The "Reset" button has the same function as on any other Arduino board, but is also needed to start the program download for in-circuit programming:
 - o Connect the CH340G USB-TTL bridge (EAN 4260474030385) to the BBB V2 module. Make sure the polarity, otherwise you can brick the IC, damage the power supply, or the USB port of your computer. The pins for GND and 5V are clearly marked on the USB adapter, and on BBB V2.
 - o Connect the USB-TTL bridge to your computer's USB port, open Arduino IDE, select "Arduino UNO" as the target board, and select the right COM port which represents the USB-TTL bridge adapter.
 - o Press and hold the Reset button on BBB V2, then start compiling/uploading. As soon the message in Arduino IDE changes from "compiling sketch" to "uploading", release the Reset button.
 - o The upload process will start immediately.