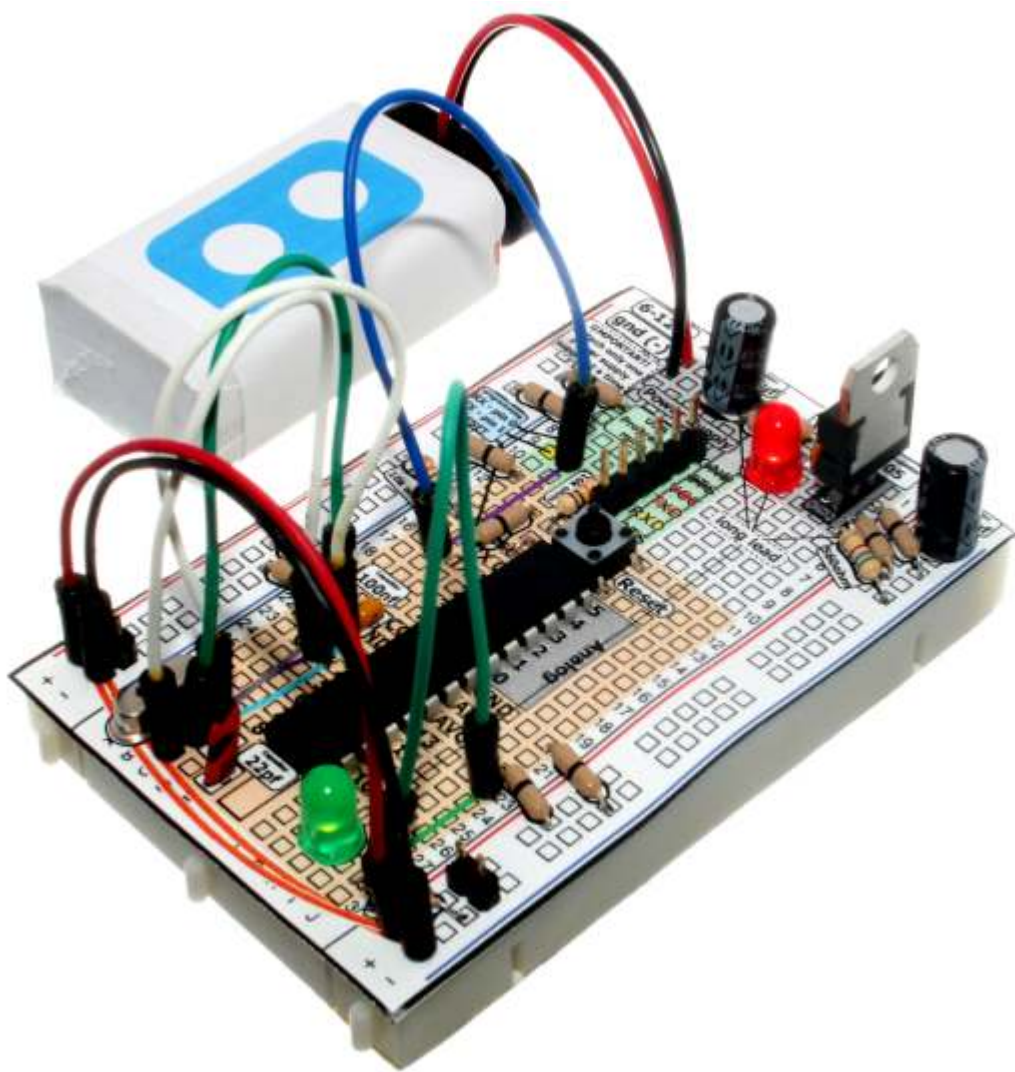
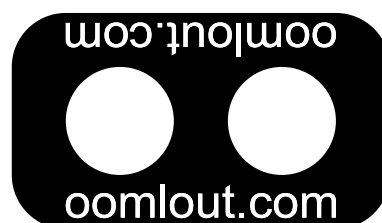


**(BBAC)**  
breadboard arduino  
compatible

# Breadboard Arduino Compatible Assembly Guide



**(BBAC)**



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## A Few Words

### About this Kit

The pre-made Arduino Duemilanove board is an amazing prototyping platform, but sometimes its fun to make something for yourself. The goal of this kit is to make building your own a fun and easy experience. Collecting all the bits and pieces so you can pop them into place and have a fully functional Arduino compatible to play around with in no time.



### About Open Source Hardware

All of oomlout's projects are open source. What does this mean? It means everything involved in making this kit, be it this guide, 3D models, or code is available for free download. But it goes further, you're also free to reproduce and modify any of this material, then distribute it for yourself. The catch? Quite simple; it is released under a Creative Commons (By - Share Alike) license. This means you must credit oomlout in your design and share your developments in a similar manner. Why? We grew up learning and playing with open source software and the experience was good fun, we think it would be lovely if a similar experience was possible with physical things.

(more details on the Creative Commons CC (By - Share Alike) License can be found at )  
( <http://tinyurl.com/2dkzmd> )

### About oomlout

We're a plucky little design company focusing on producing  
"delightfully fun open source products"

To check out what we are up to

<http://www.oomlout.com>

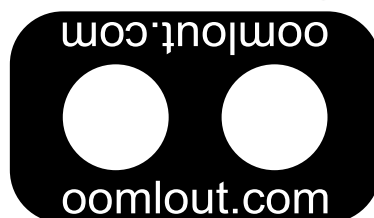
### About Problems

We strive to deliver the highest level of quality in each and every thing we produce. If you ever find an ambiguous instruction, a missing piece, or would just like to ask a question, we'll try our best to help out. You can reach us at:

[help@oomlout.com](mailto:help@oomlout.com)

(we like hearing about problems it helps us improve future versions)

## Thanks For Choosing oomlout



## .: Where to Find Everything :.

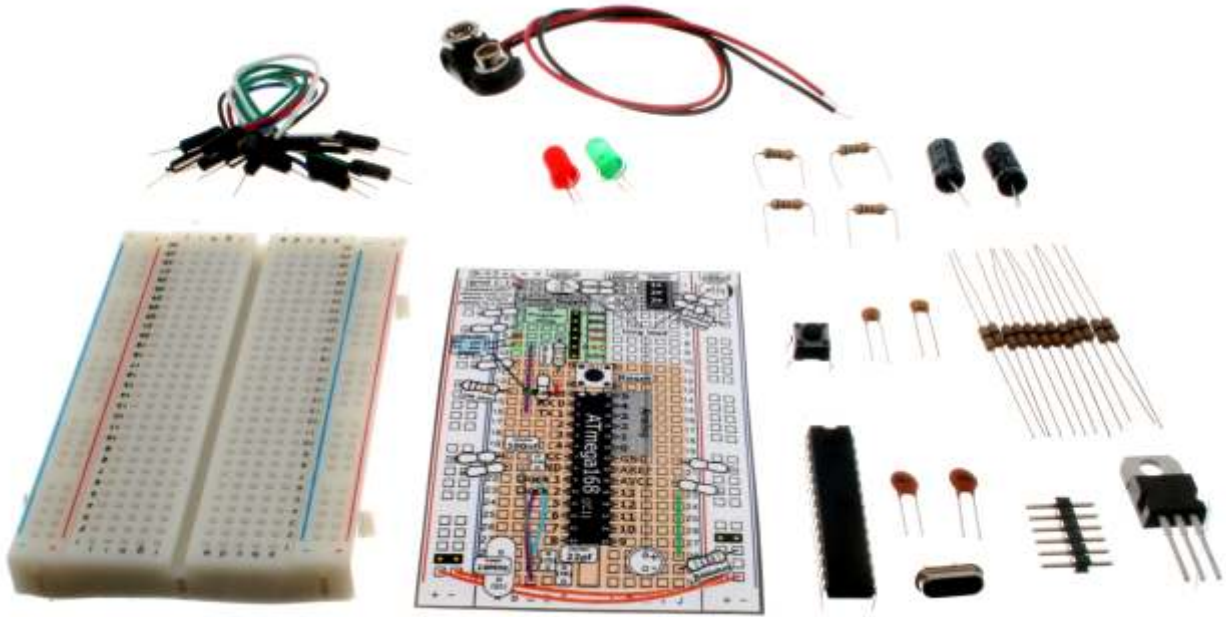
{PART}	Required Parts	02
{COMP}	Comparing a BBAC to an Arduino USB	03
{SCHEM}	BBAC Schematic	04
{ASEM}	Assembly Instructions	05
{PROG}	Programming Instructions	08
{NOTE}	Room to Take Notes	09






# 01 PART

the parts




## :: The Parts Needed for a :: :: Breadboard Arduino Compatible::




### Capacitors

-  **100 uf** - filters the power supply
-  **100 nf** - bypass capacitor
-  **22 pf** - filters the crystal


### Resistors

-  **0 ohm** (black)  
used as jumper wires
-  **560 ohm** (green-blue-brown)  
LED current limiting
-  **10k ohm** (brown-black-orange)  
Pull-ups

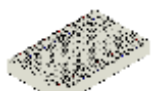
### Header - (6 pin)

-  Used for programming with an FTDI cable


### Battery Clip - (9v)

-  For powering the board with a 9v battery


### Breadboard

-  Allows for easy assembly of circuits without soldering


### Crystal - (16 MHz)

-  Provides a clock signal for the ATmega chip


### Breadboard Layout Sheet

-  Place on top of a breadboard to show where components go


### Microcontroller - (ATMega168)

-  A single chip computer that runs your code

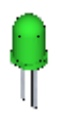

### Pushbutton - (Reset)

-  Resets the micro-controller when pressed

### Voltage Regulator - (7805)

-  Takes in 7-12 volts and outputs 5 volts

### LEDs- (Light Emitting Diodes)

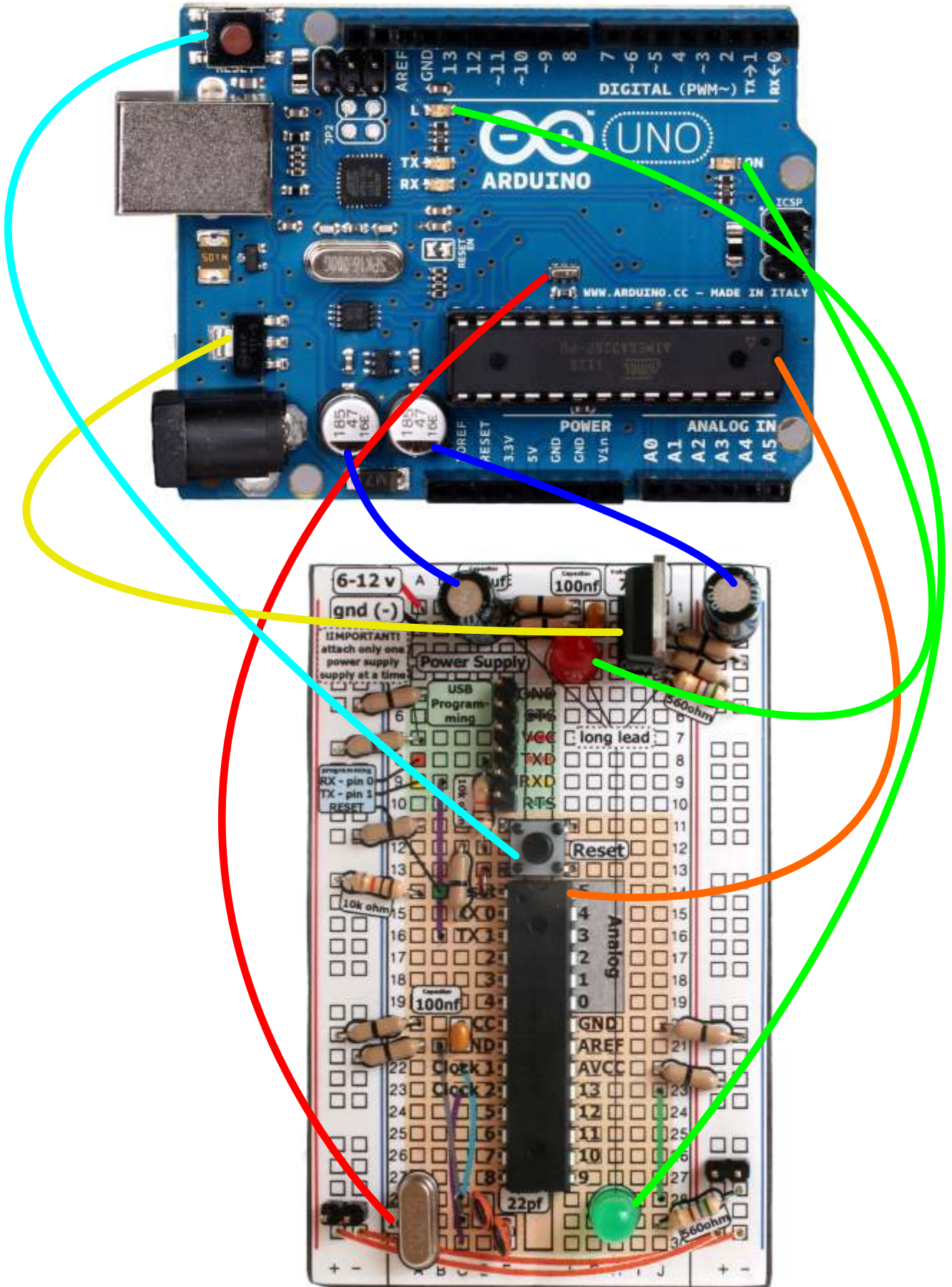
-  Used as indicators  
Red - power
-  Green - connected to pin 13

∴ An Arduino USB∴

&

∴ Breadboard Arduino Compared∴

**02 COMP**  
comparison



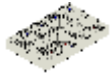


# .: Breadboard Arduino Compatible.:.

# 04 ASEM assembly

## .:Assembly Steps.:.

### Parts:



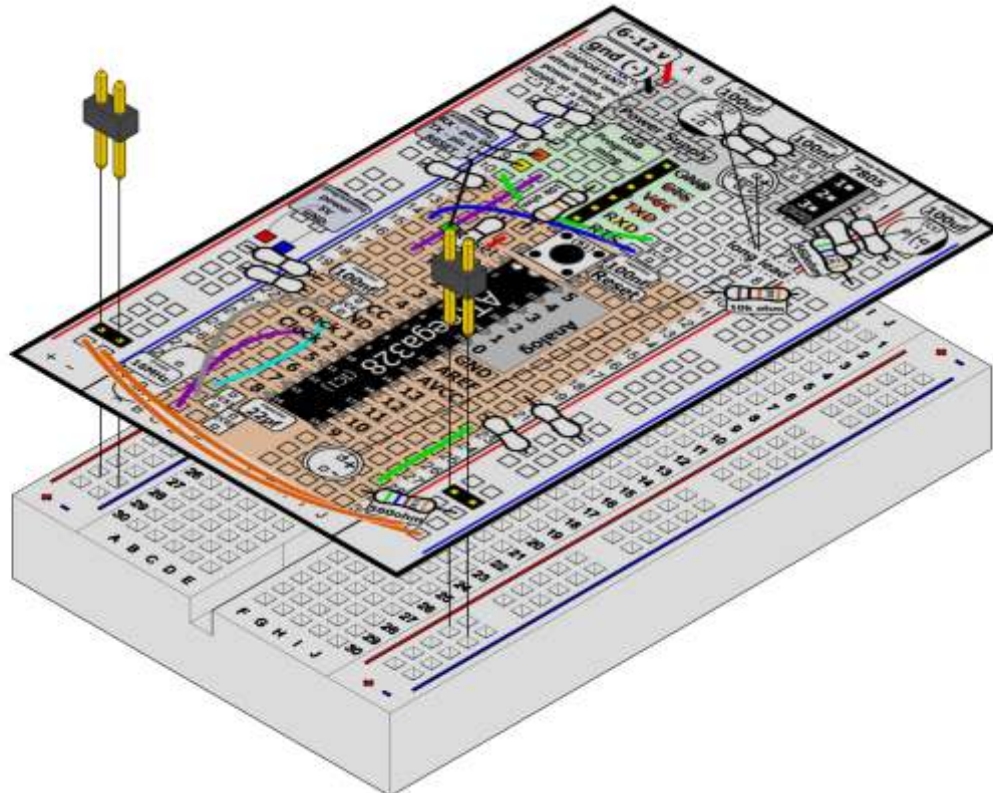
Breadboard  
x1



Breadboard  
Layout sheet  
x1



2 Pin Header  
x2



# 1

### Parts:



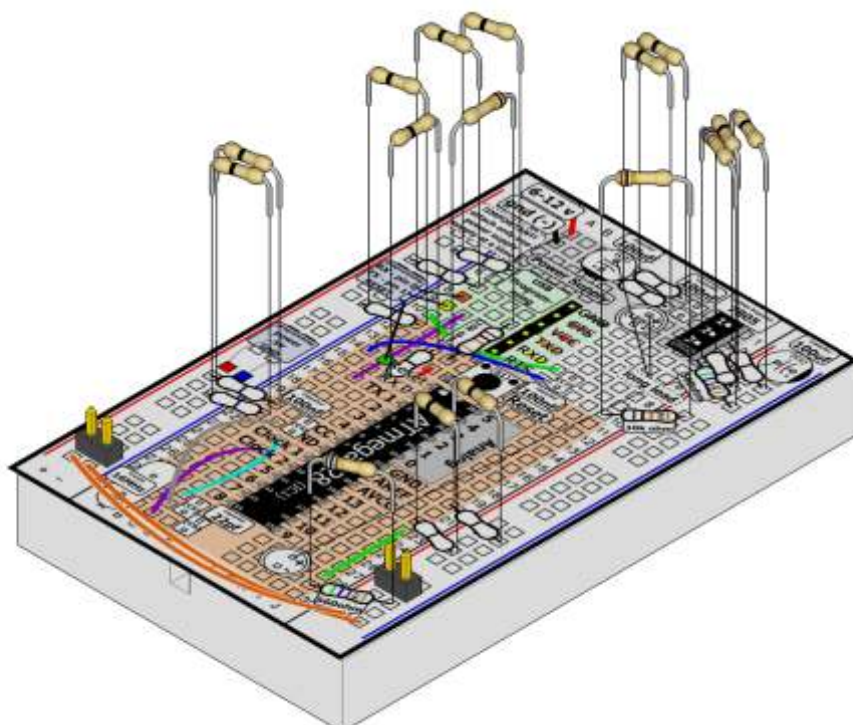
0 ohm resistor  
(black)  
x12



560 ohm resistor  
(green-blue-brown)  
x2



10k ohm resistor  
(brown-black-orange)  
x2



# 2

# 05

# 04 ASEM assembly

## Parts:



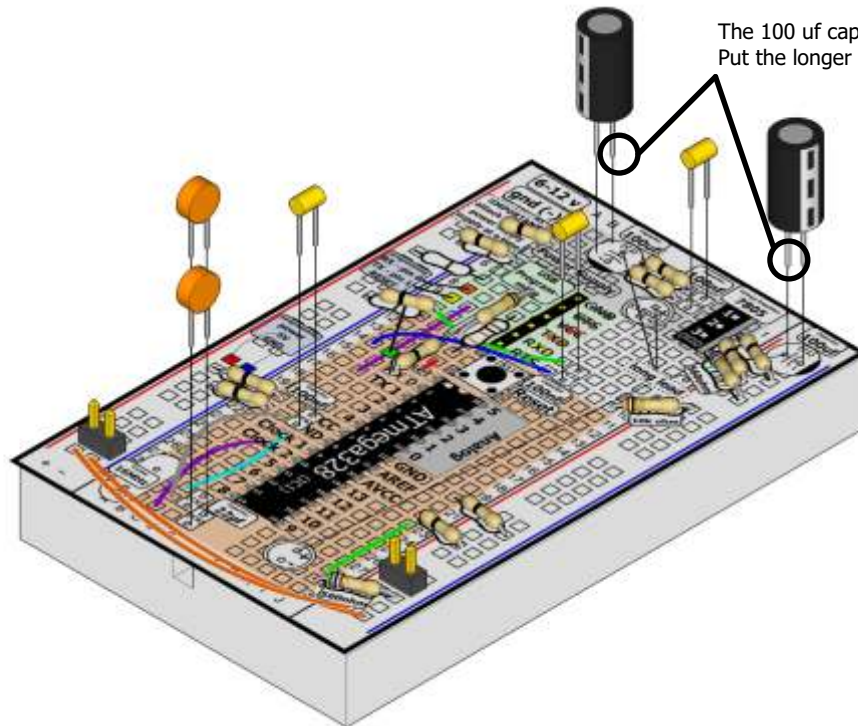
Capacitor  
100 uf  
x2



Capacitor  
100 nf  
x3



Capacitor  
22 pf  
x2



The 100 uf capacitors are polarized.  
Put the longer lead in the indicated hole

# 3

## Parts:



Pushbutton  
x1



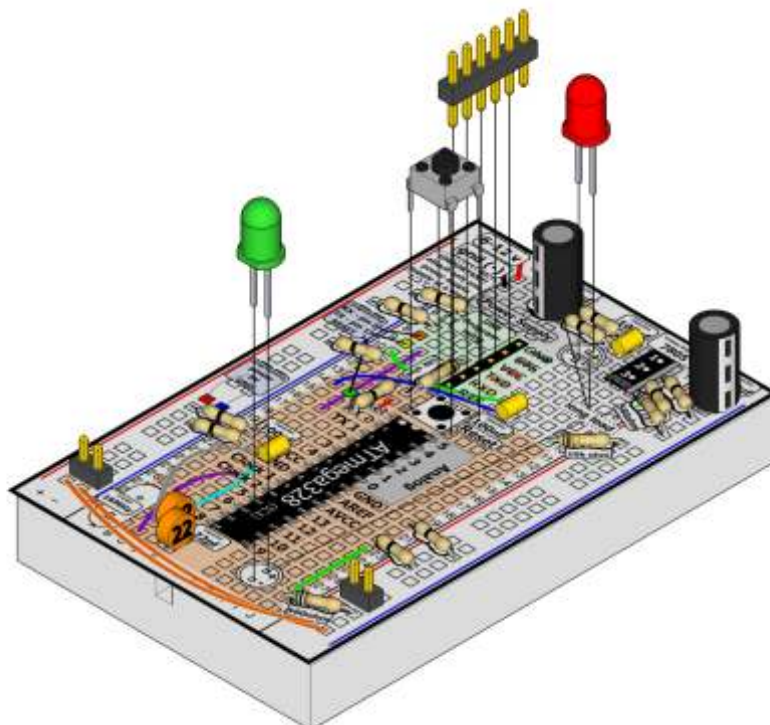
Header (6 pin)  
x1



Red LED  
x1



Green LED  
x1



# 4



### Parts:



**Microcontroller**  
ATmega328  
x1

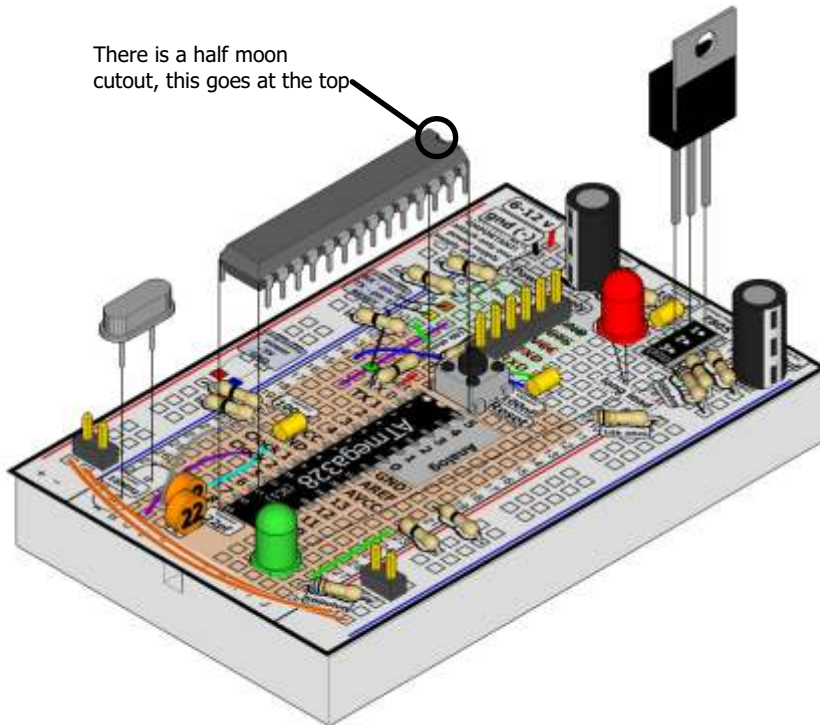


**Crystal**  
(16 MHz)  
x1



**Voltage Regulator**  
(7805)  
x1

There is a half moon cutout, this goes at the top



# 5

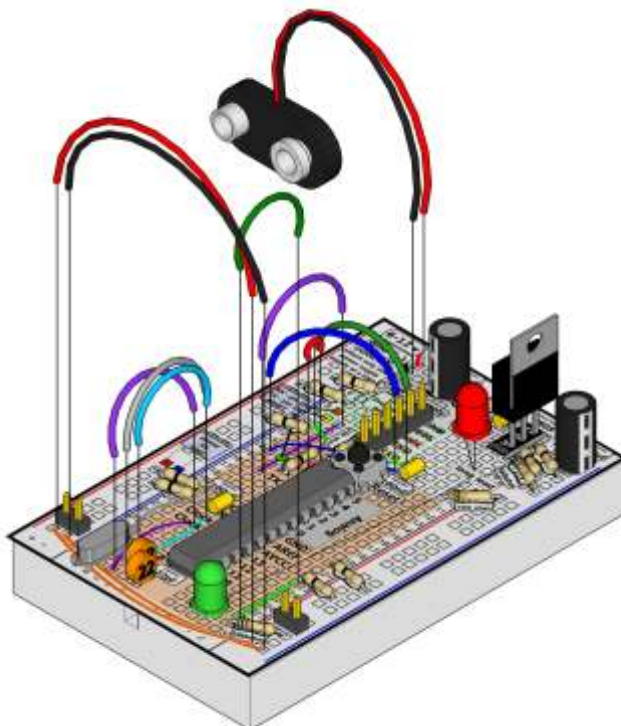
### Parts:



**Wire**



**Battery Clip**  
x1



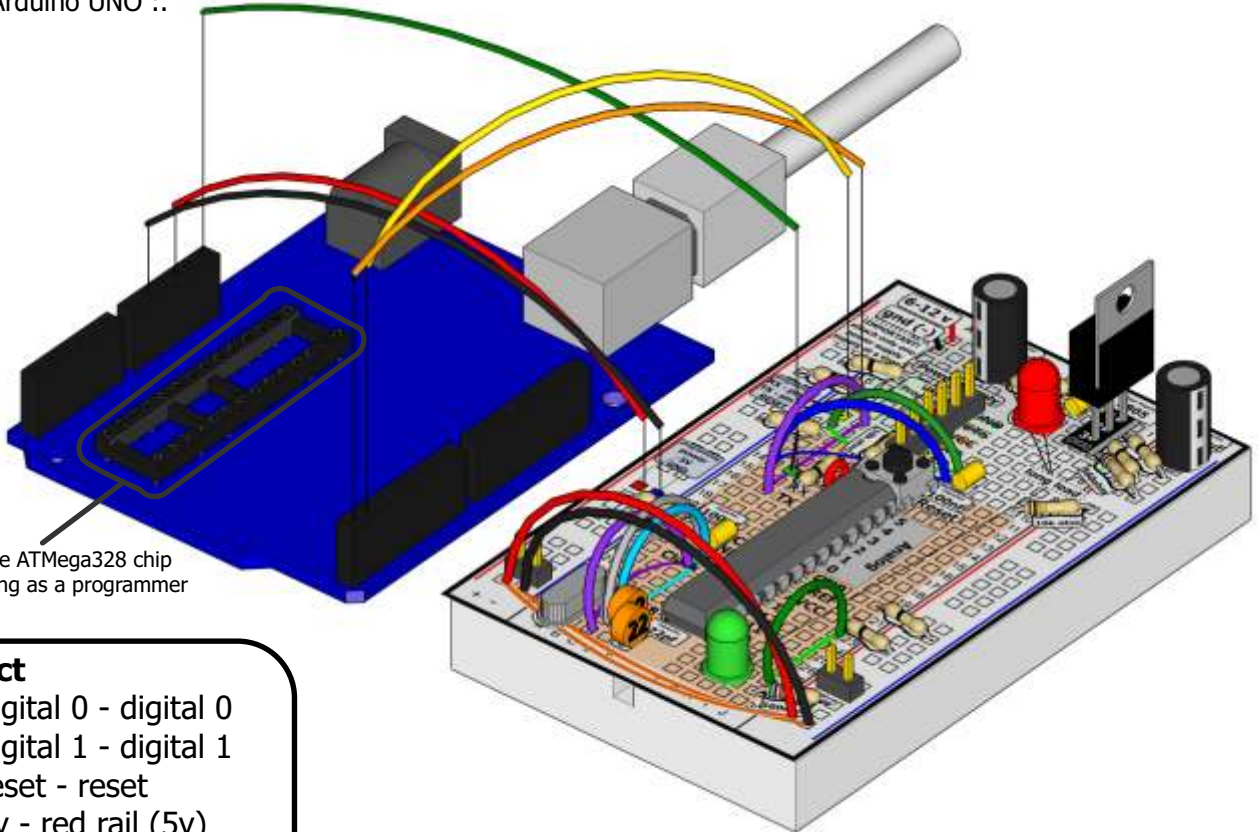
# 6

# 07

## :: Programming Your Arduino Compatible:. (you can either use an Arduino board or a USB-Serial cable to program your BBAC)

### Using an Arduino USB Board

.:In tools>board> menu select:.  
.:Arduino UNO :.



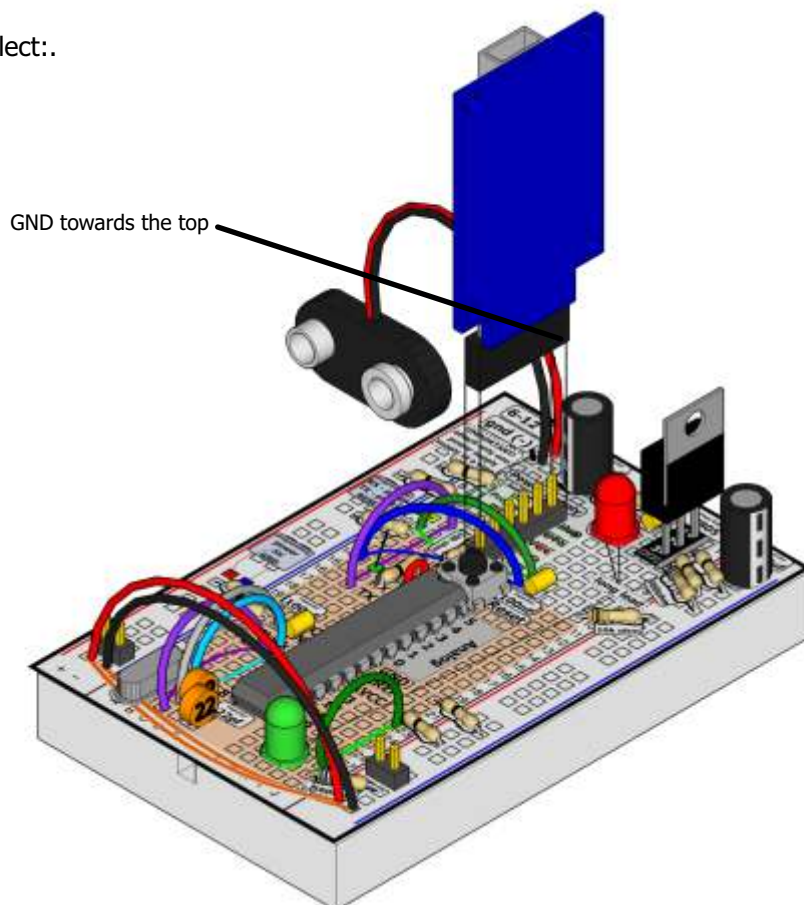
remove the ATmega328 chip  
before using as a programmer

#### connect

1. digital 0 - digital 0
2. digital 1 - digital 1
3. reset - reset
4. 5v - red rail (5v)
5. gnd - black rail (gnd)

### Using an FTDI USB - Serial Cable

.:In tools>board> menu select:.  
.:Arduino UNO :.



GND towards the top

**∴ Notes∴**

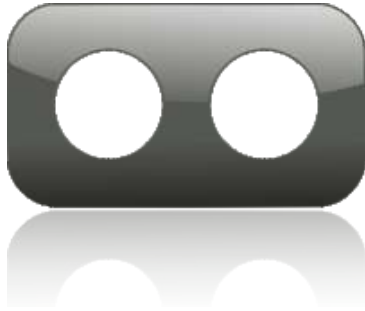
**∴Room for a Few Notes∴**

**06 NOTE**  
notes

A large rectangular area with rounded corners, filled with horizontal lines for writing notes. The lines are evenly spaced and extend across the width of the page, leaving a small margin at the top and bottom.

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breadboard arduino  
compatible

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