#### Summary

#### Why this?

This is a case for my programmer breakout board I made because i got tired of using breadboards to program my chips. :) Nice weekend project.

#### **Updates**

2017.03.04:

Now with a button and a switch

2017.03.05:

Tutorial! scroll down

2017.03.06:

Additional tray (optional expansion) to store your chips, some nuts and bolts.

What a coincidence! ATmega328 fits really tight left to right, I repeat, I did NOT measure the chip before designing the tray! :D

## Other projects

Tamaguino

http://www.thingiverse.com/thing:2120692 https://alojzjakob.github.io/Tamaguino/

Website traffic / Like monitor with NodeMcu http://www.thingiverse.com/thing:2286288

#### **Print Settings**

Wanhao

Printer:

#### Wanhao Duplicator i3 V2

Rafts:

Doesn't Matter

**Supports:** 

Doesn't Matter

**Resolution:** 

0.1

Infill:

50

## Overview and Background

Did you recently get a skill to "shrinkify" your Arduino project?

If so, you probably wired your ATtiny or ATmega chip using breadboard and used your standard Arduino as ISP programmer to flash these chips.

Now you can create your own chip programming breakout board, which also has a mini breadboard, so you can do some initial testing of your chips, i.e. does the chip work, does it run blink sketch etc.

## Lesson Plan and Activity

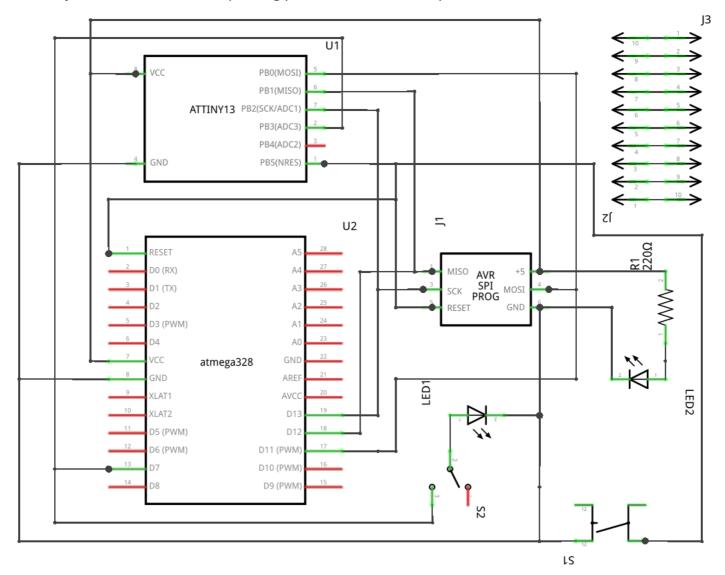
#### Required skills

For this project to succeed, only soldering skills and basic Arduino knowledge are required.

Below is the circuit schematic.

Note that you are not soldering chips, but sockets. I decided in my case that chip sockets should be oriented top to bottom (pin 1 goes top left).

Also note that on schematic additional 2 rows of female headers are not shown for simplicity. You will basically connect these to corresponding pins on each side of chip sockets.

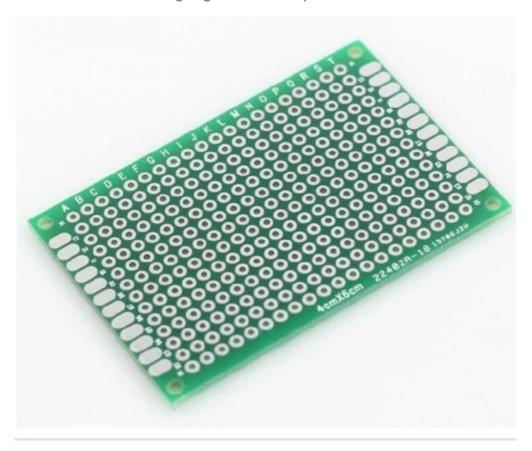


fritzing

#### Materials Needed

# Double sided prototype board 4x6cm

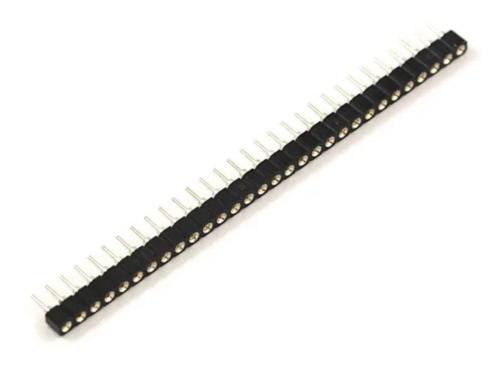
This is the board we are going to solder components onto.



#### Female headers

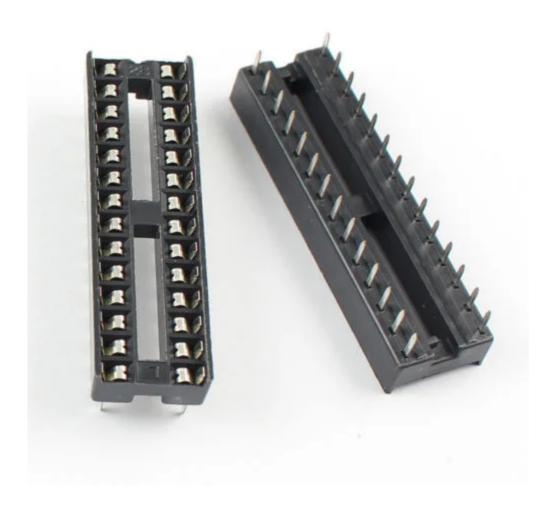
You can cut these at any number of pins that are required





## 28-pin and 8-pin DIP sockets

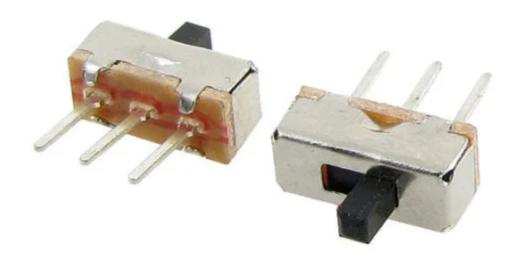
I used round hole female headers to solder to the board, and then sockets can sit on top of it, so both combined match the height of square female headers, which will be soldered alongside for extra pin access points





A vertical sliding Switch

This one is used to optionally disconnect pin 13 (ATmega) and pin 3 (ATtiny) from the LED on this board



Push button

Used to reset the chip, connects reset line to ground when pressed



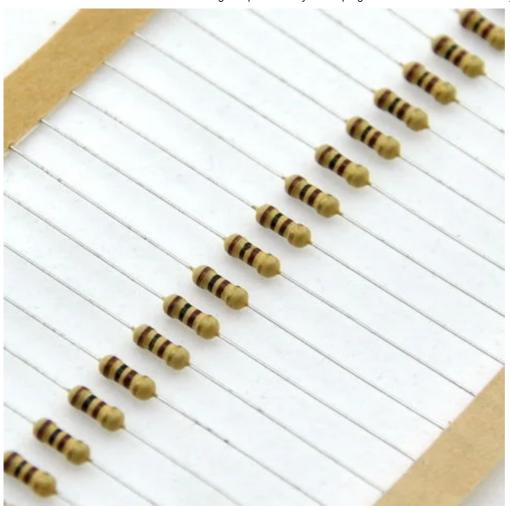
2 LEDs

One for power indication, one for pin13/pin3



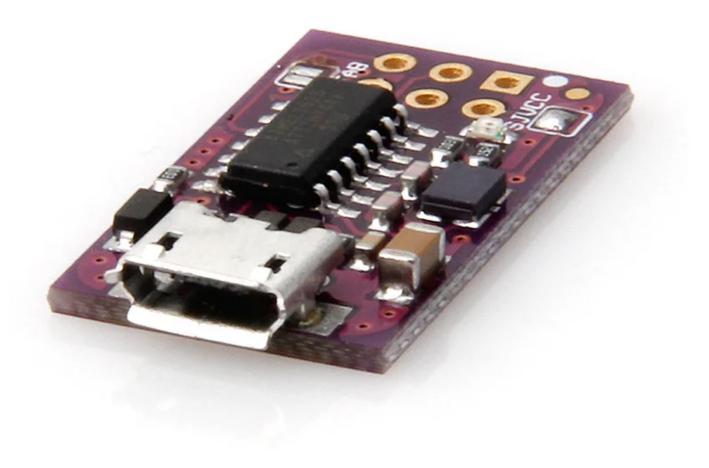
#### Resistor(s)

We need one resistor for the power indicator LED to limit the current through it. I did not use the resistor for pin13/pin3 LED because chips have internal resistors.



**USB TinyISP programmer or similar** 

In this project I used this programmer to connect to 6-pin header.



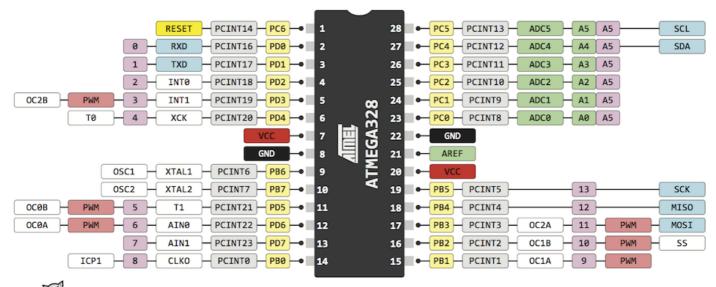
# References

# **Pinout diagrams**

Below you can find pinout diagrams for ATmega328 and ATtiny85









#### Pinout ATtiny25/45/85

