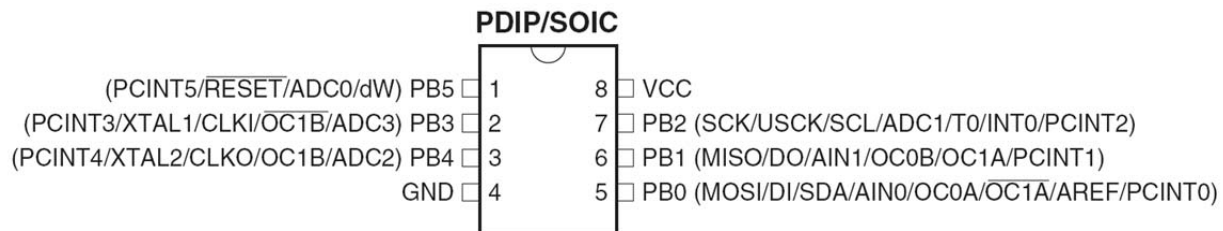# ATtiny45 Development Board
55:036 Embedded Systems, Spring 2014

The ATtiny45 board is a versatile entry level prototype board for 8-pin AVR microcontrollers. It has a power supply circuit, crystal oscillator circuit, and STK 10 pin ICSP port.

- Green solder mask and white silkscreen component print
- ICSP 5×2 pin connector for in-circuit programming with AVR Programmers
- +5 V voltage regulator (LM7805) and filtering capacitors
- 10 MHz quartz crystal oscillator circuit available
- DIL8 microcontroller socket
- I/O-pin connectors
- GND and Vcc busses

Microcontroller

In this class we will use the ATtiny45 8-pin microcontroller.

PDIP/SOIC

|	
(PCINT5/$\overline{\text{RESET}}$/ADC0/dW) PB5 ▢ 1	8 ▢ VCC
(PCINT3/XTAL1/CLKI/$\overline{\text{OC1B}}$/ADC3) PB3 ▢ 2	7 ▢ PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)
(PCINT4/XTAL2/CLKO/OC1B/ADC2) PB4 ▢ 3	6 ▢ PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)
GND ▢ 4	5 ▢ PB0 (MOSI/DI/SDA/AIN0/OC0A/$\overline{\text{OC1A}}$/AREF/PCINT0)

Power Supply

The switching wall wart power supply generates an output of 9 V DC and is capable of producing an output current of up to 1000 mA. It has a center-positive 5.5×2.1 mm barrel connector. The input voltage is 100–240 VAC.

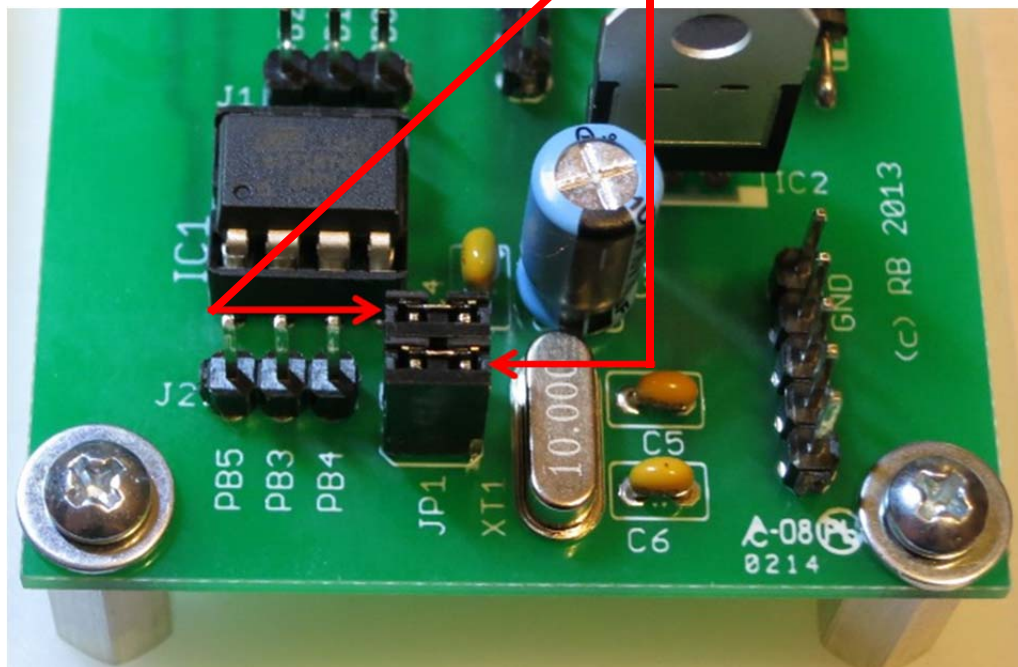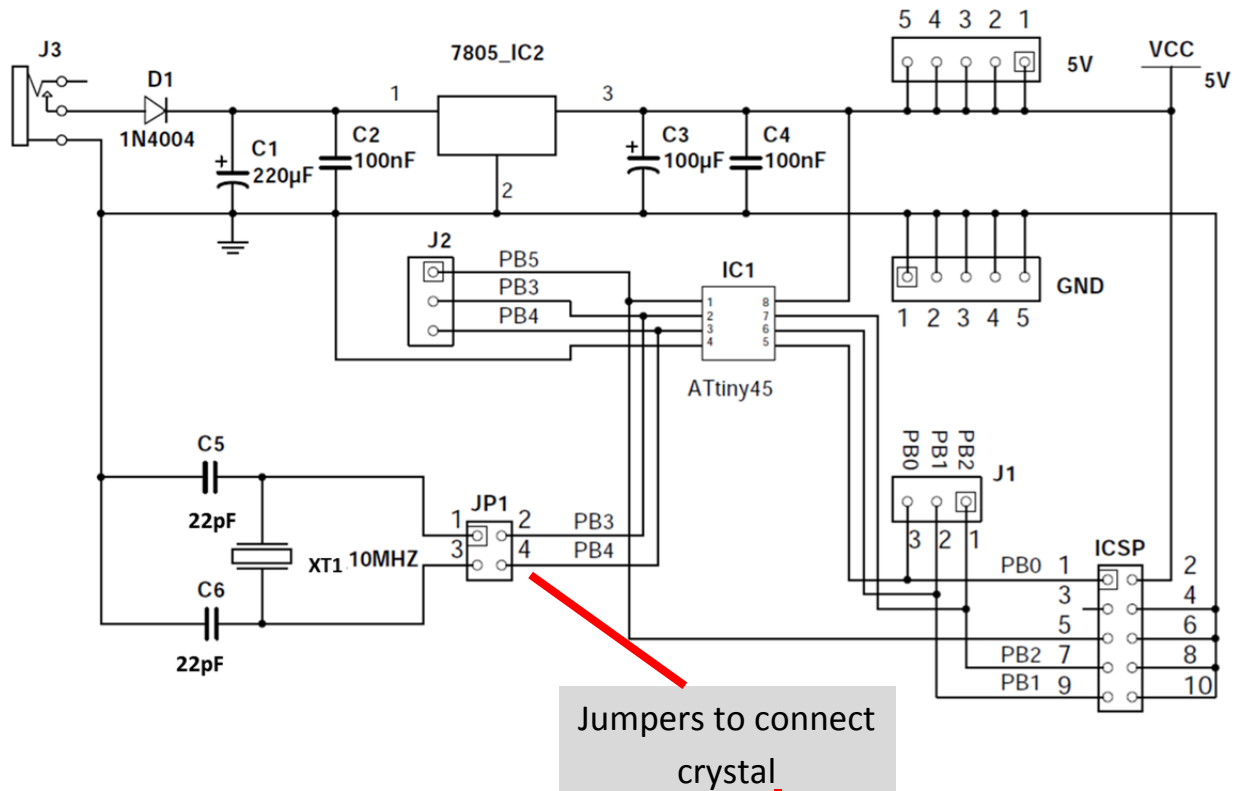RB Version 1.0

Microcontroller Board
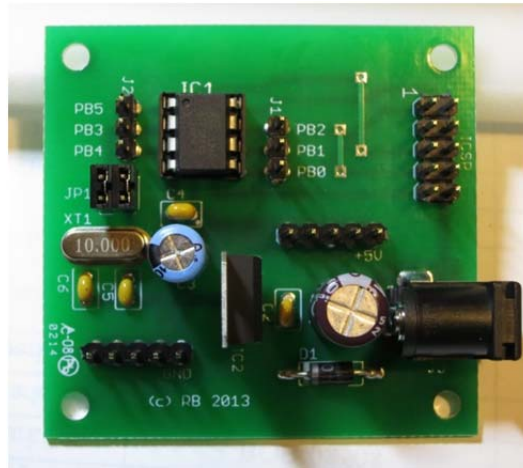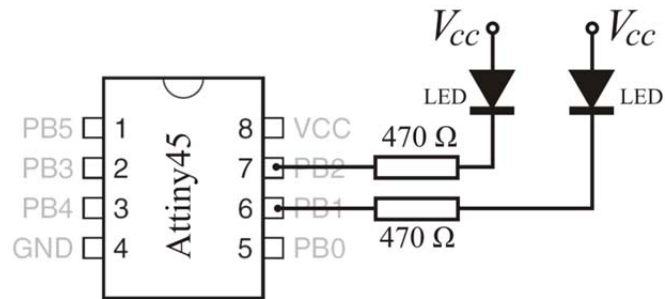

Assembled ATtiny45 board.
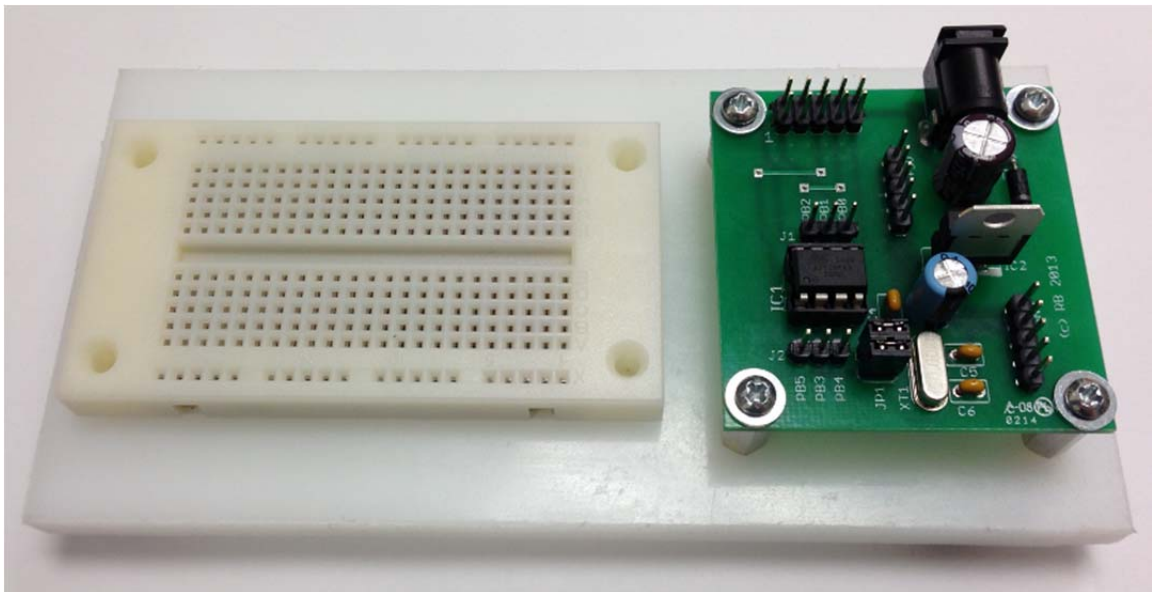
ATtiny45 board mounted on baseplate with bread board.

Schematic

Note that IC1 can use an internal or external clock source (see microcontroller manual). To use the crystal, install the jumpers as indicated below and program the fuses of IC1 accordingly.
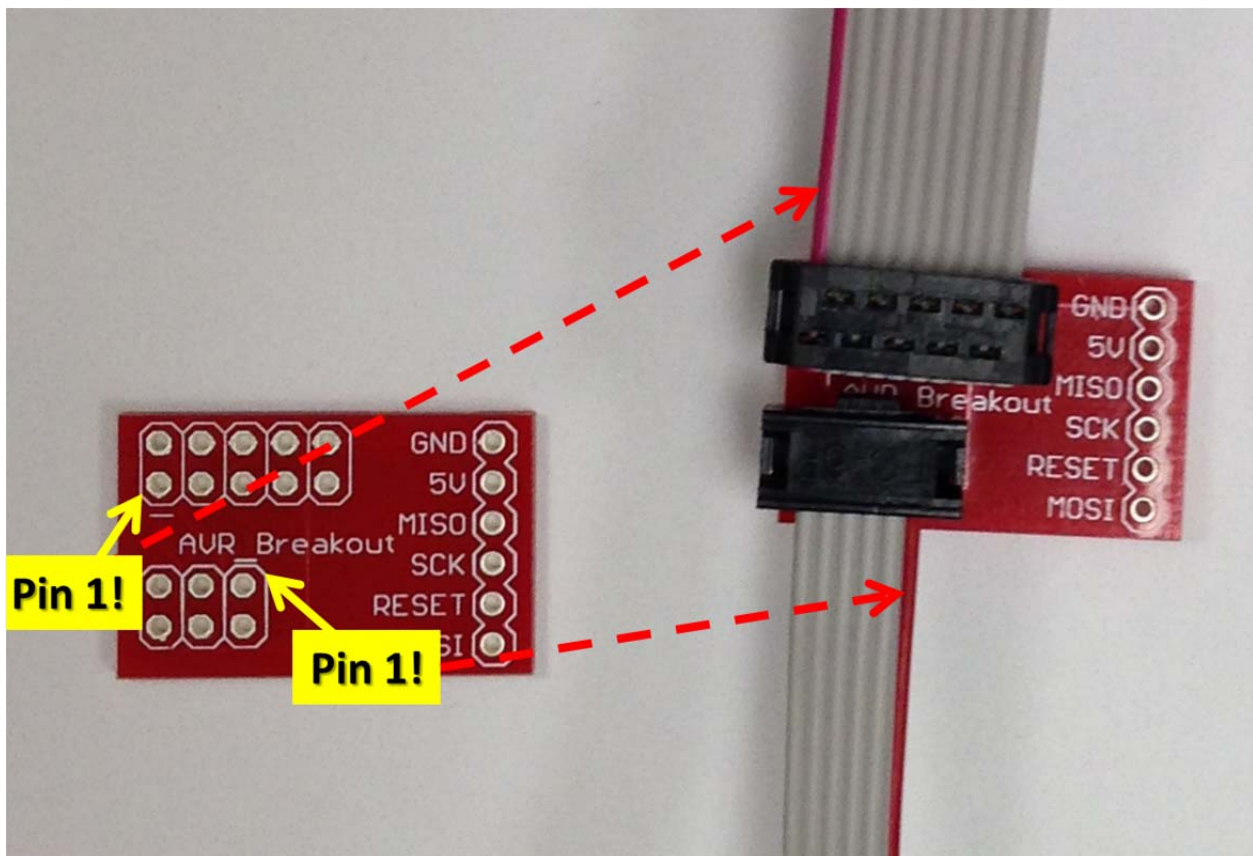

Jumpers to connect crystal
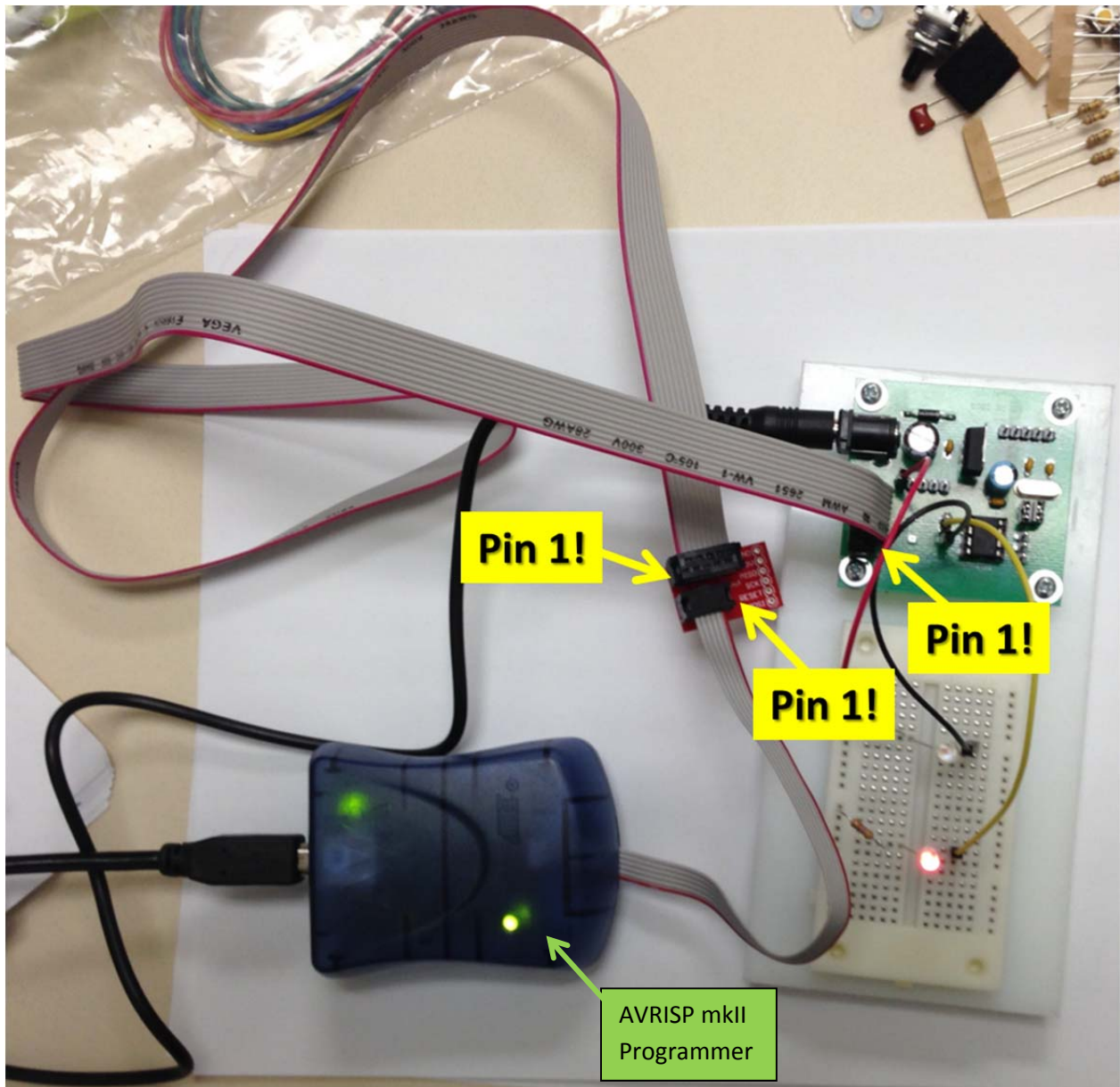
Circuit for First Lab

Programming

The programmers in the lab have 6-pin headers, while the ATtiny45 board uses a 10-pin header. A small breakout board provides the 6-pin to 10-pin conversion.

10-Pin to 6-Pin Programming Adapter.

Programming setup including AVRISP mkII programmer, programming adapter, and ATtiny45 board.

IMPORTANT: **If you plan connecting an oscilloscope to the programming setup shown in the image above (i.e., AVRISP connected to the ATtiny45 board and by USB interface to a PC), avoid short circuits through the ground connection of the oscilloscope! The ground lead of the oscilloscope probe MUST be connected to the GND header of the ATtiny45 board to avoid short circuits!**