ATmega Development Board & Program Adaptor – Tutorial #2

T.K. HAREENDRAN

AVR tutorial

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Yes, our own "breadboard compatible" 5VDC power supply is now ready for use! What is next? Next thing is the setting up of a simplest Atmega Development Board. There are many places where you can purchase a readymade development board.

But, in this part, I would like to help you to build your own Atmega8 development. If the idea of building your own development board has impressed you, then get ready to take your breadboard!

Below is a list of parts required:

- Atmega8 microcontroller – 1
- Breadboard – 1
- Reset Button Switch – 1
- 10K 1/4W Resistor – 1
- 6 Pin Male Header – 1
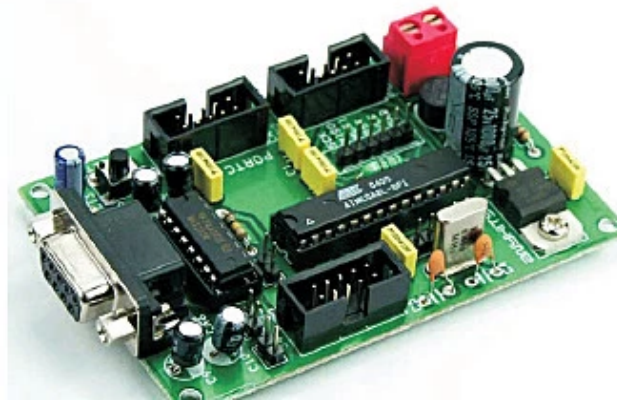
Now carefully connect all components , as indicated in the circuit diagram. After finishing the construction, insert our breadboard power supply board into the breadboard. Do not power up the circuit at this time.

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What is the role of the 6 pin male header? Here a different approach is used by me, and hence, initially the finished circuit is used as a "Program Adaptor" (don't worry if you don't understand this yet). Just note that a microcontroller programmer helps you to transfer code files from your computer to the microcontroller. Literally, microcontroller (to be programmed) is placed in the program adaptor, which is suitably interfaced with the output of the microcontroller programmer.
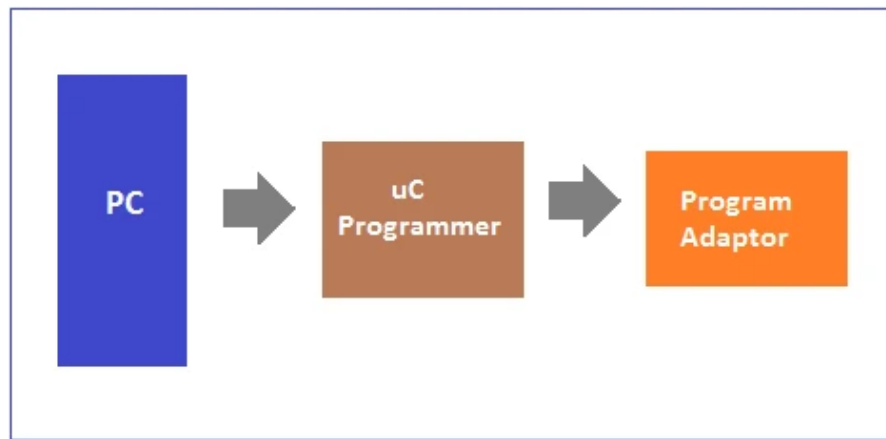
Construction of the circuit on a piece of breadboard is very simple. At first, place all required components (Atmega8, 10K Resistor, Reset switch & 6 pin male header) in the breadboard. Next, interconnect them as indicated in the circuit diagram. You can use short-length breadboard wires or "male-to-male" jumper wires for this interconnection work. Suggested breadboard component layout is also given here for your convenience.
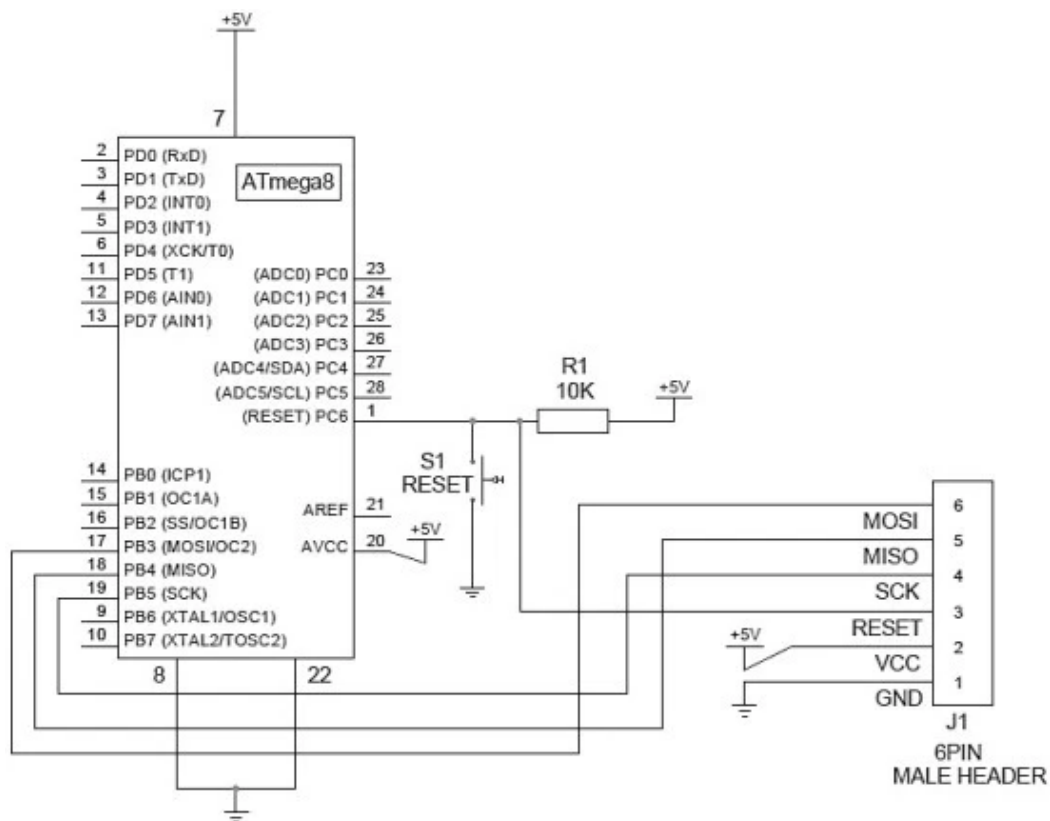
As stated earlier, the 6 pin male header is used to connect the programmer to this board. The pinout of the header is shown below:

1. GND(Ground /0V)
2. VCC (Digital Supply Voltage/5V)
3. RESET(Reset)
4. SCK (Serial Clock)
5. MISO(Master In Slave Out)
6. MOSI (Master Out Slave In)
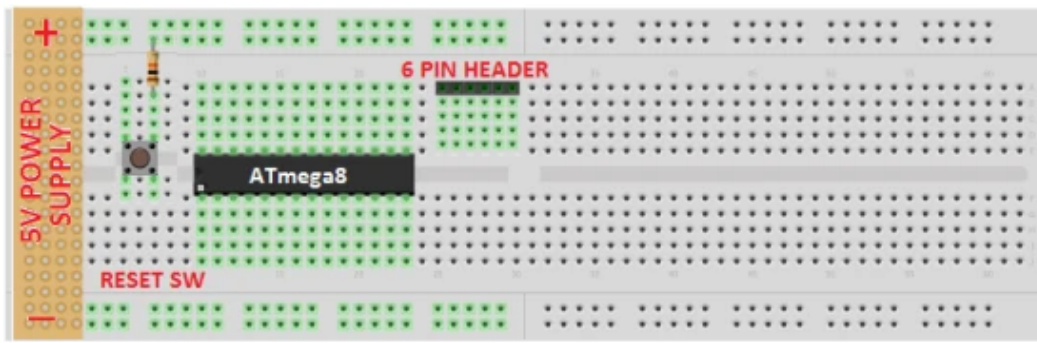
We are almost one-half done. Yes, we build a small power supply for the breadboard, prepared the ATmega8 microcontroller, and wired a simple interface to allow it to be programmed. What next?
You can plan for a "Programmer".

The USB ASP PROGRAMMER!

Many modern computers and almost all laptops/notebooks doesn't have a serial or parallel port. USB ASP programmer is a USB-Based in-circuit programmer for Atmel AVR controllers. The programmer uses a firmware-only USB driver, no special USB controller is needed. This programmer can be used with simple ATmega development boards for quick and economical startup with AVR microcontrollers.

Moderately priced USB ASP programmers are now widely available. The pacakge usually contains one USB ASP Programmer, one 6PIN Programming Cable and a Software CD. The programmer is compatible with Windows XP, Windows Vista and Windows 7 (32bit and 64bit versions) Operating Systems.