ATMEL AVR Microcontroller

At a glance

- The Atmel 8-bit AVR is a family of general purpose RISC-based microcontrollers that come in a wide variety of configurations to suit your application needs.

- All Atmel AVR microcontrollers feature a universal set of instructions to simplify upgrade paths with little modification if needed. Most of these instructions execute in a single clock cycle. Executing at up to 1 cycle per instruction @ 8 Mhz, it is possible to achieve 8 MIPS.

Features

- Flash Memory
- EEPROM
- RAM
- 10-bit Analog to Digital Converter
- Programmable UART
- Master/Slave SPI Serial Interface
- 8/16-bit Timer/Counters with Input Capture and Output Compare
- 8/9/10-bit PWM

Features (cont.)

- External Interrupts
- Programmable Watchdog Timer with On-chip oscillator
- Analog Comparator
- Variety of Package Sizes
- Low Operating Voltages
- Different Speed Grades
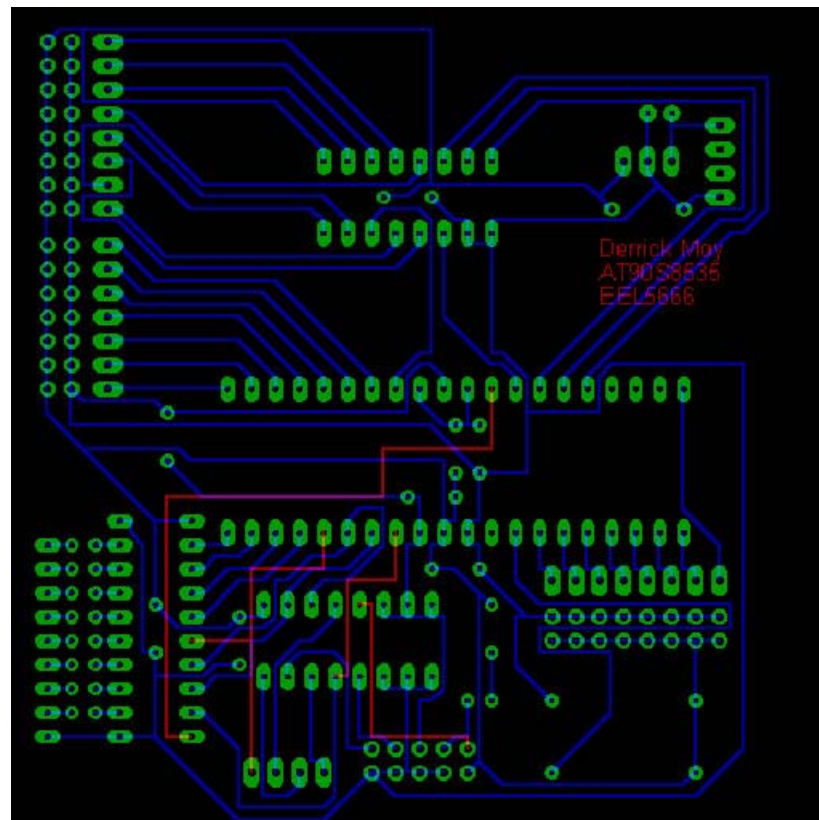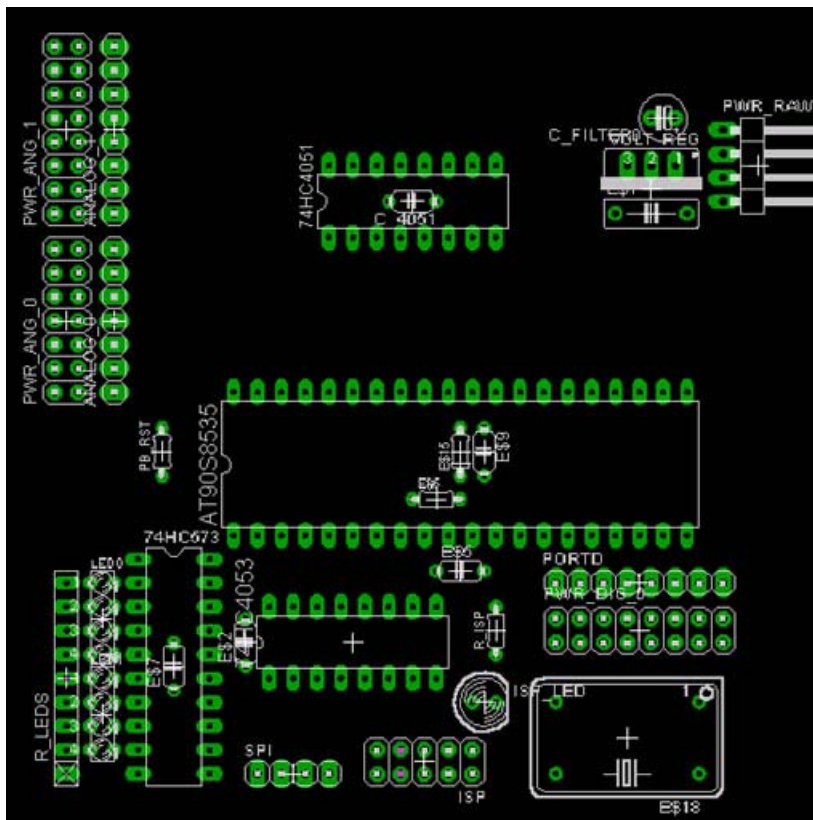- Low overhead to get it up and running

In System Programming

- Utilizes the SPI Serial Interface to allow it to be programmed while in-circuit
- Requires an ISP compatible dongle
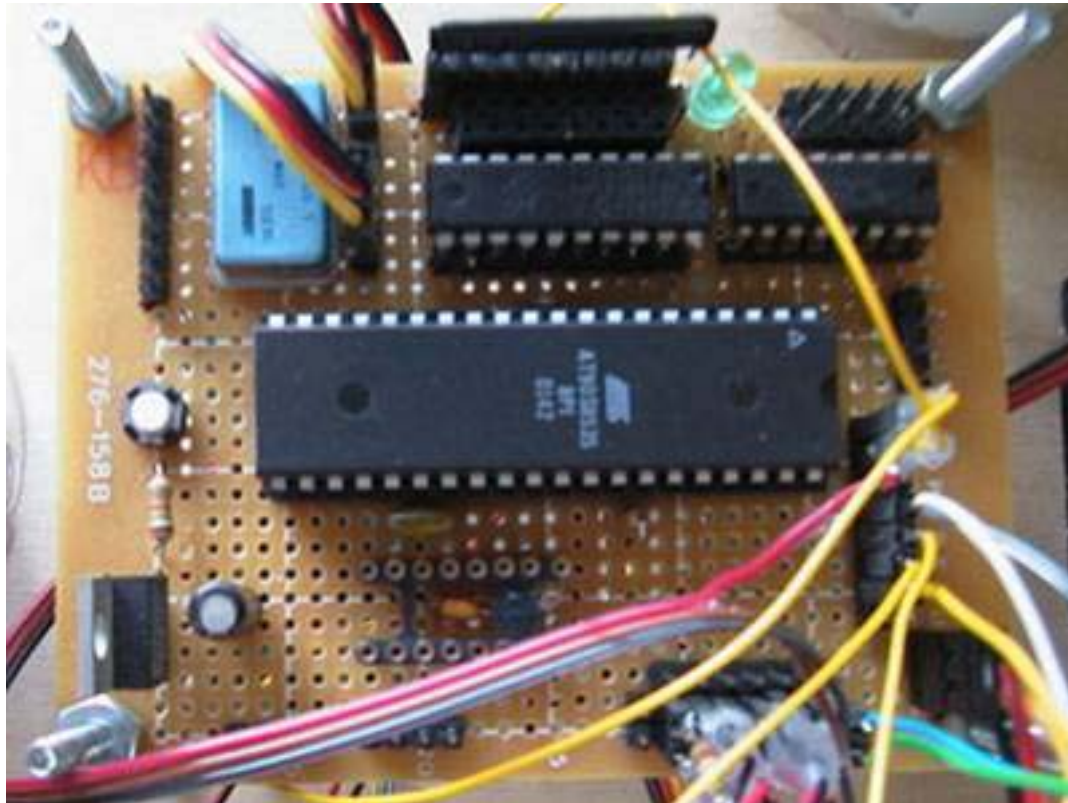- Easy to Build
- Free Programming Software

ISP – Interfacing
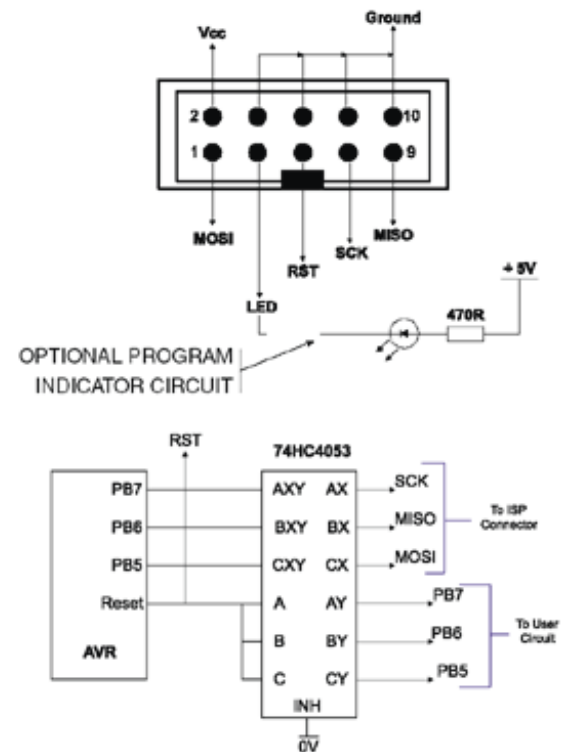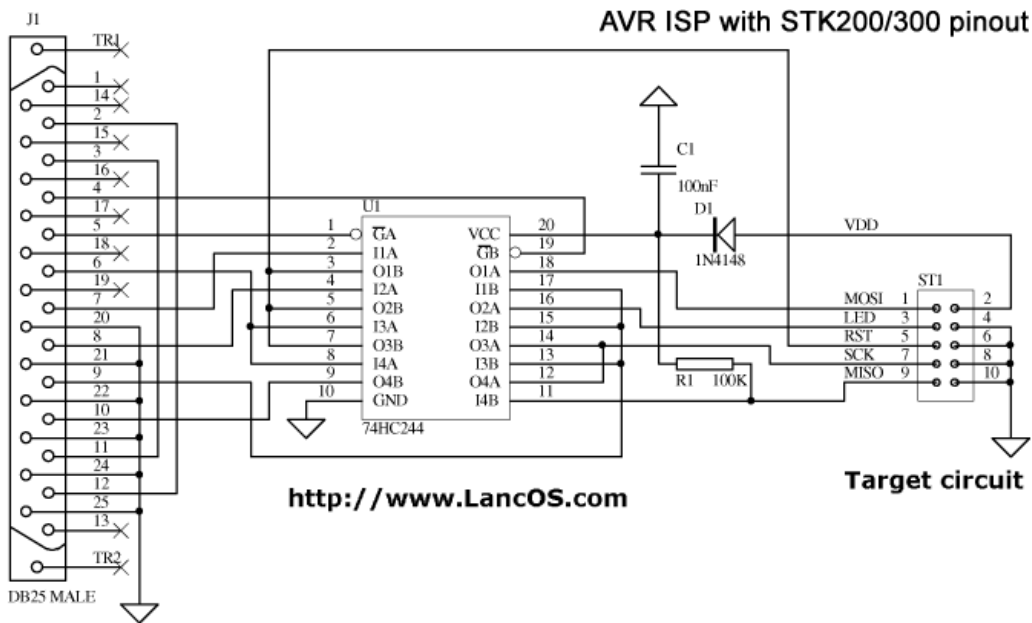
Sample Circuit

Wirewrapped

Components

- 74'4051 – Analog Mux for A/D expansion
- 74'4053 – Analog Mux for ISP/SPI switching
- 8 Mhz External Oscillator
- LM2940 Voltage Regulator
- 74'573 – Latch for LED output

Optional Components

- MAX232 – For converting ttl serial to rs232 communications for interfacing with the computer