

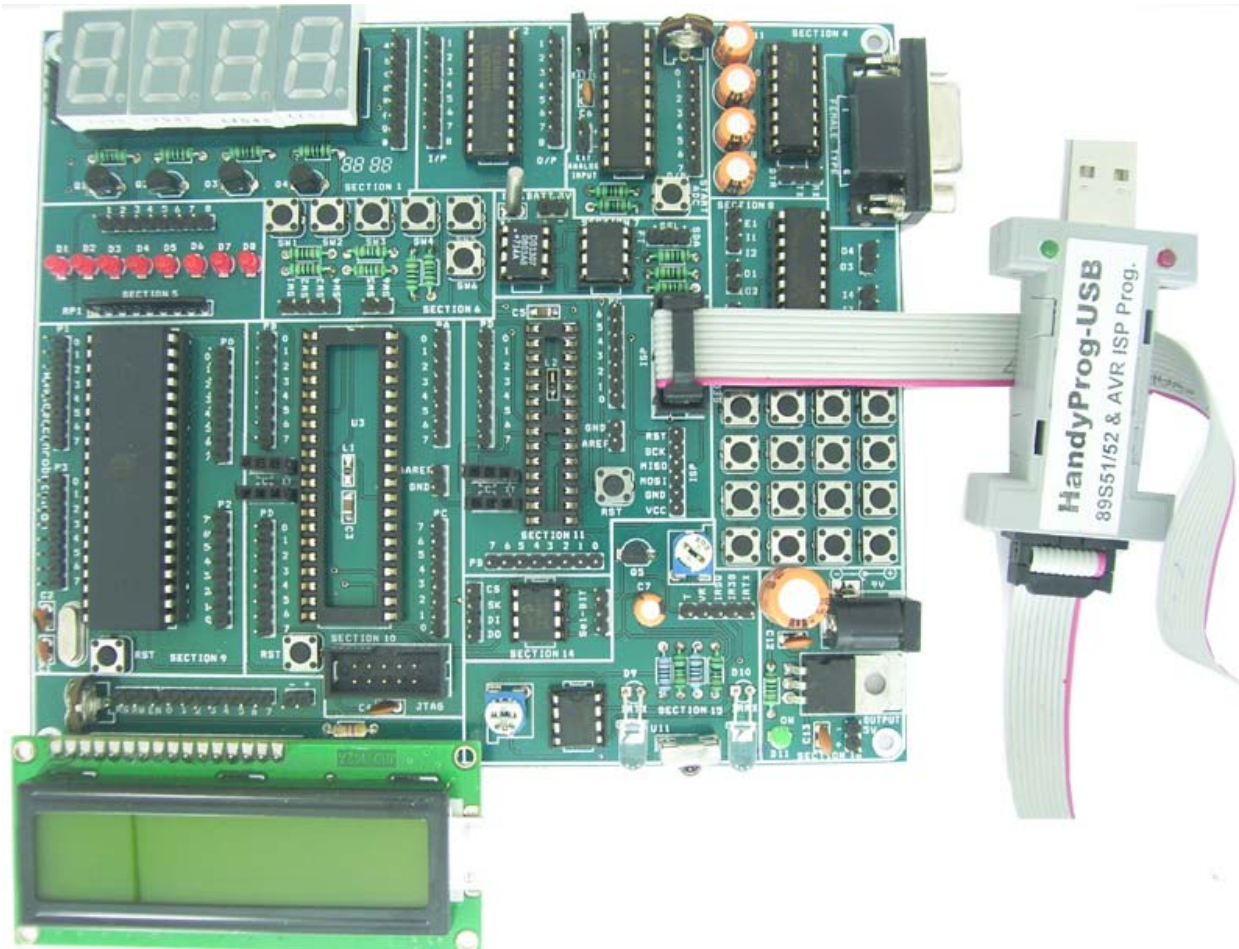
Practical Course For ATMEL Microcontrollers

Hardware Version

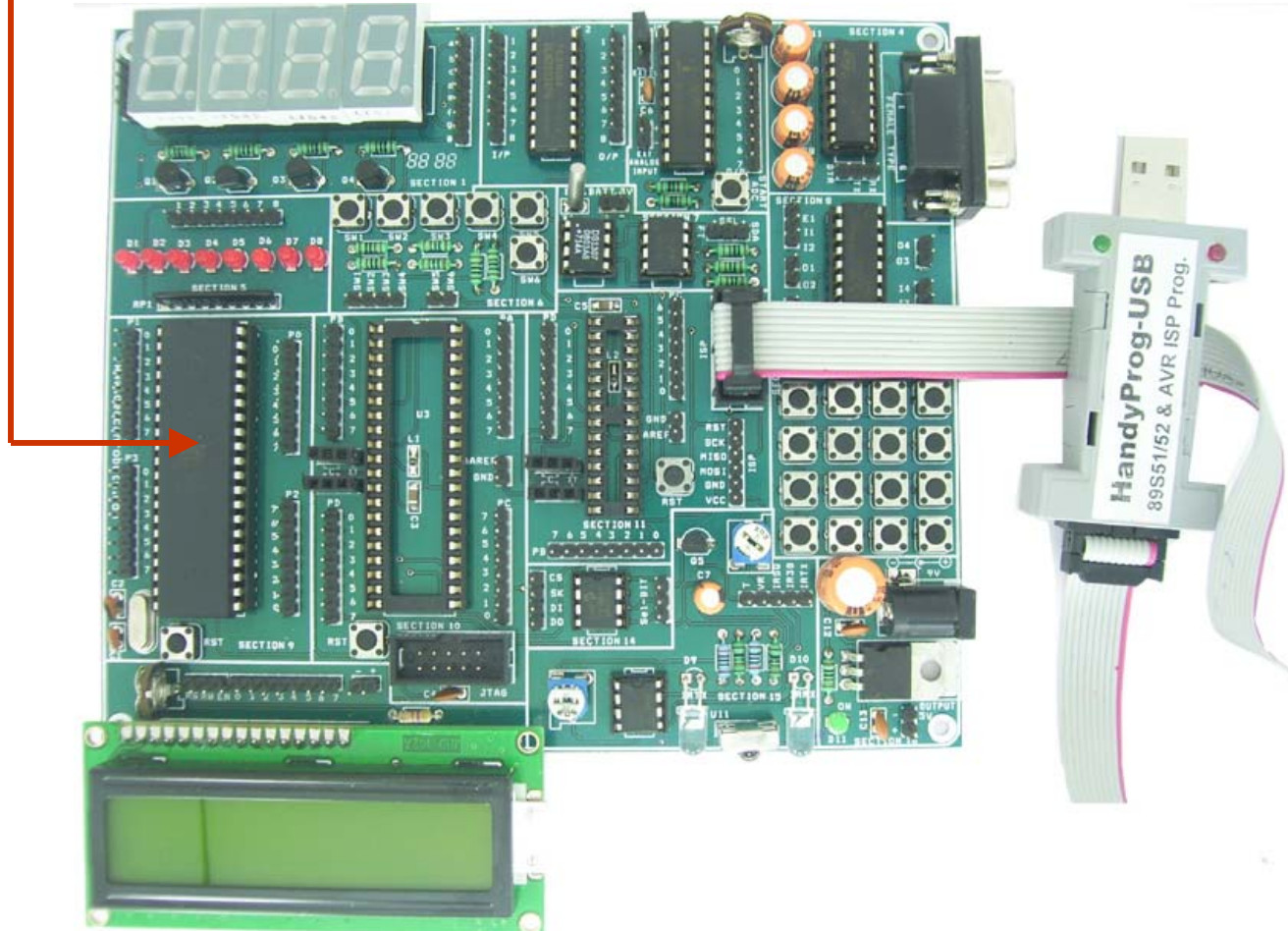
EEDT4.0-LF-2.0

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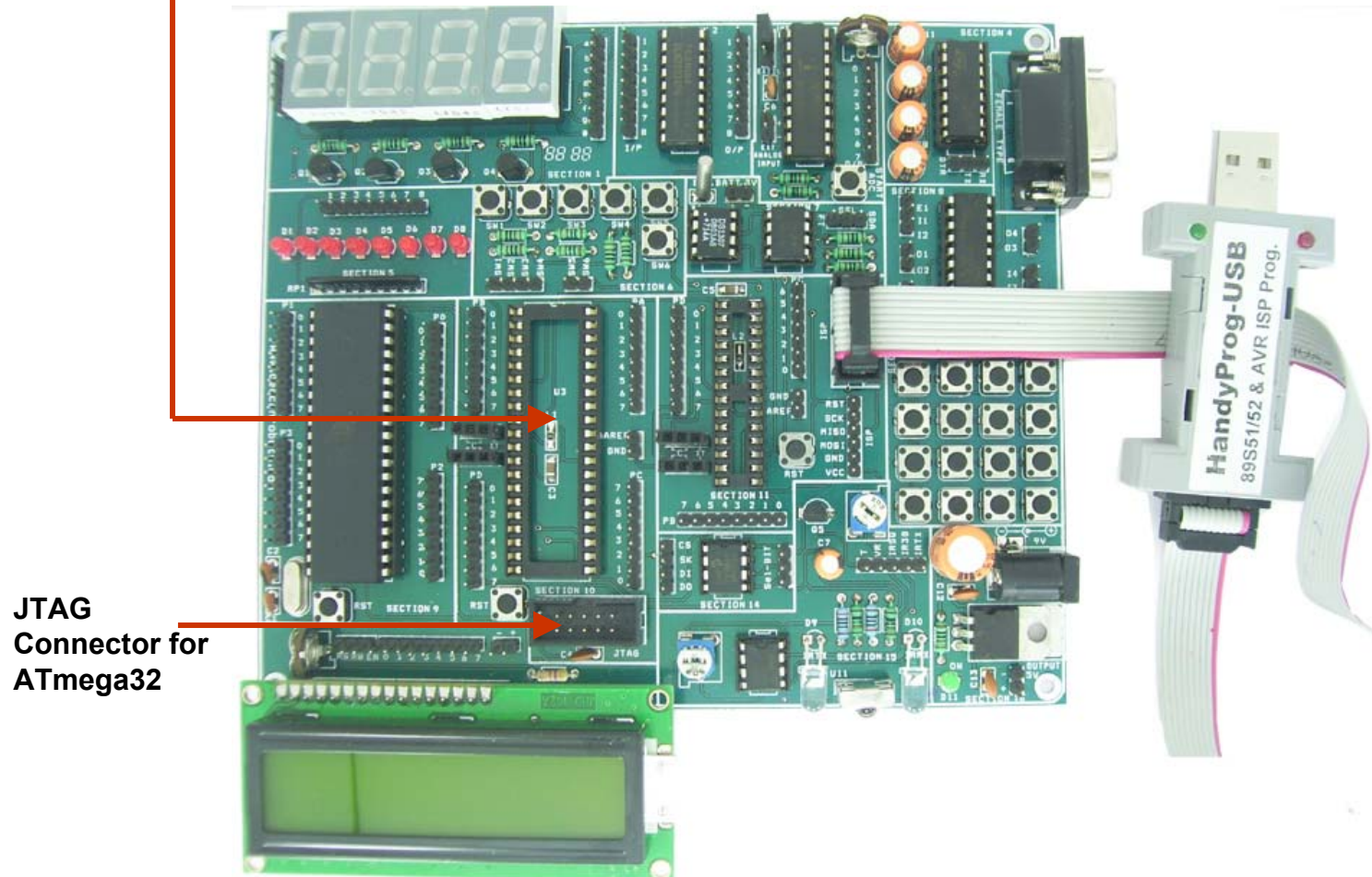
Know your Hardware



89S51/89S52/ATmega8515 Target Section

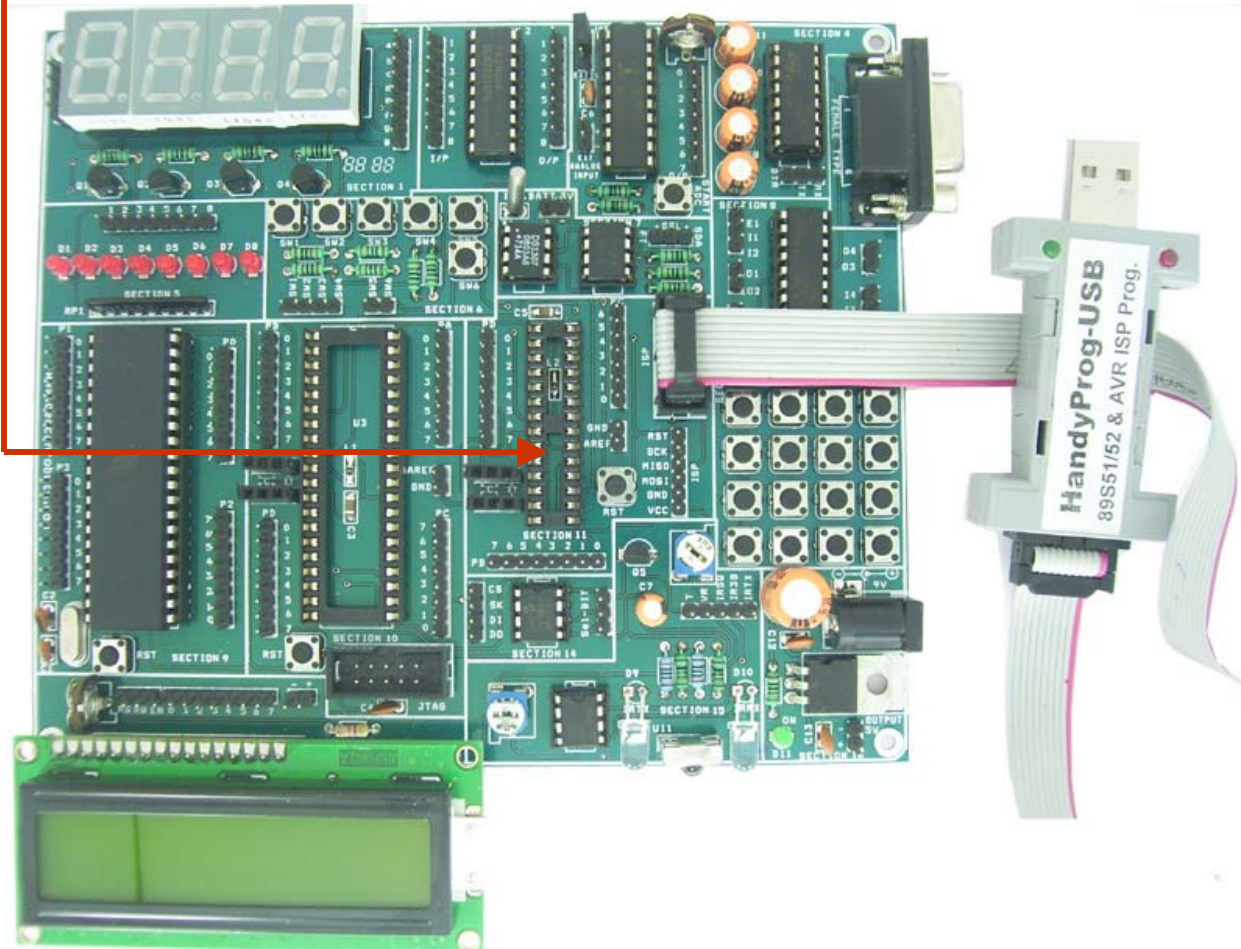


ATmega16 / ATmega32 / ATmega8535 Target Section

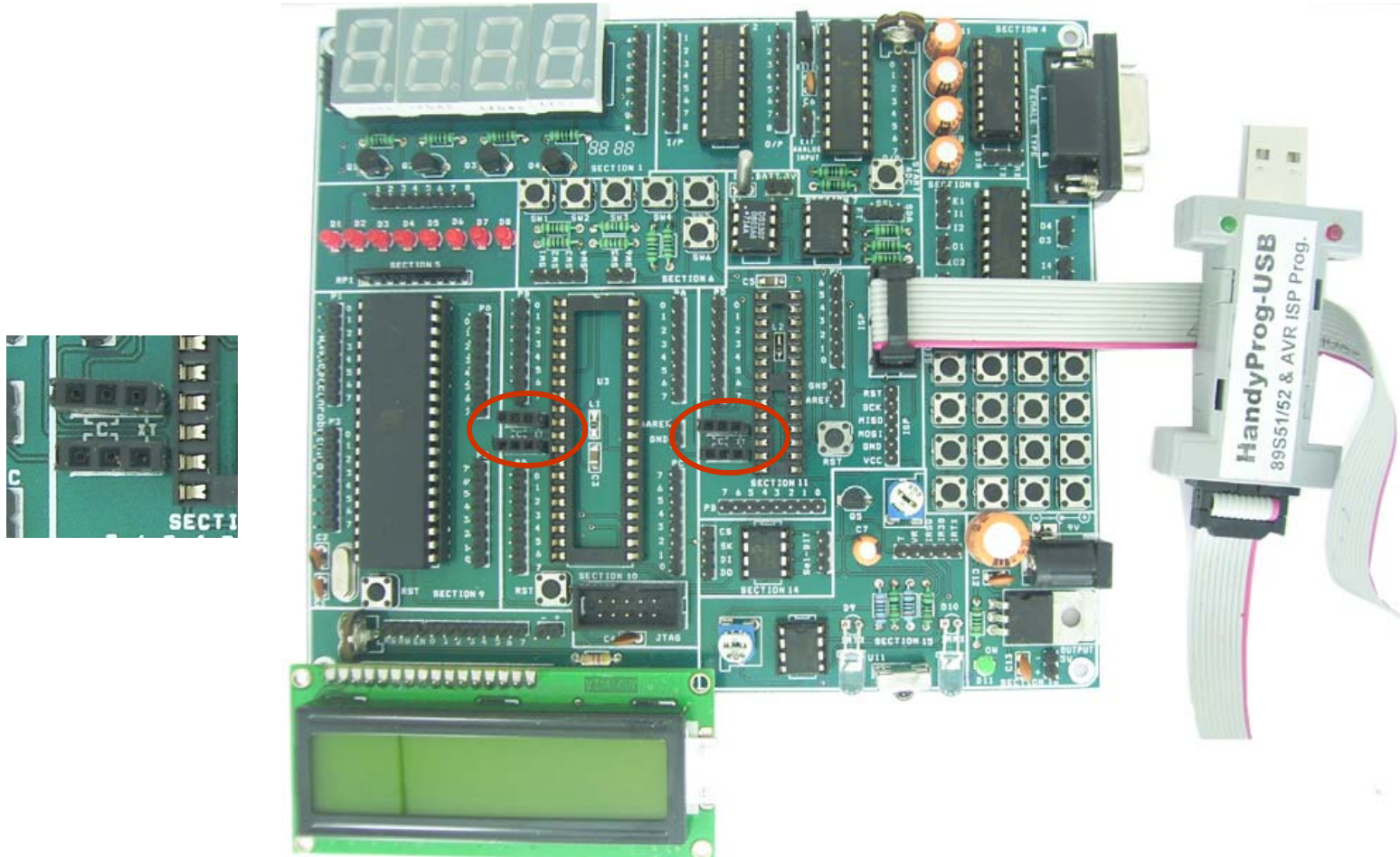


JTAG
Connector for
ATmega32

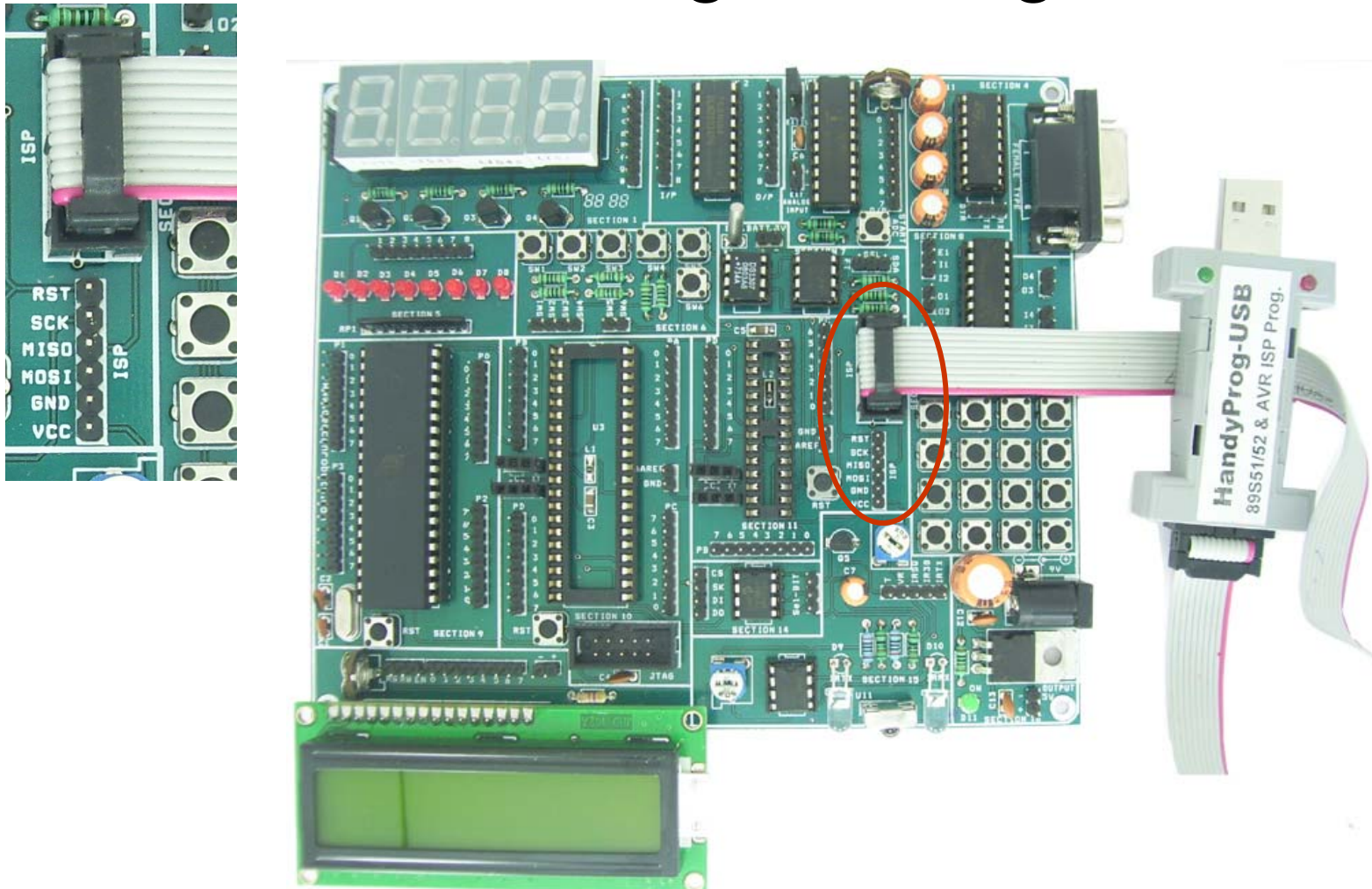
ATmega8 Target Section



Provision to add External Crystal for AVR target sections

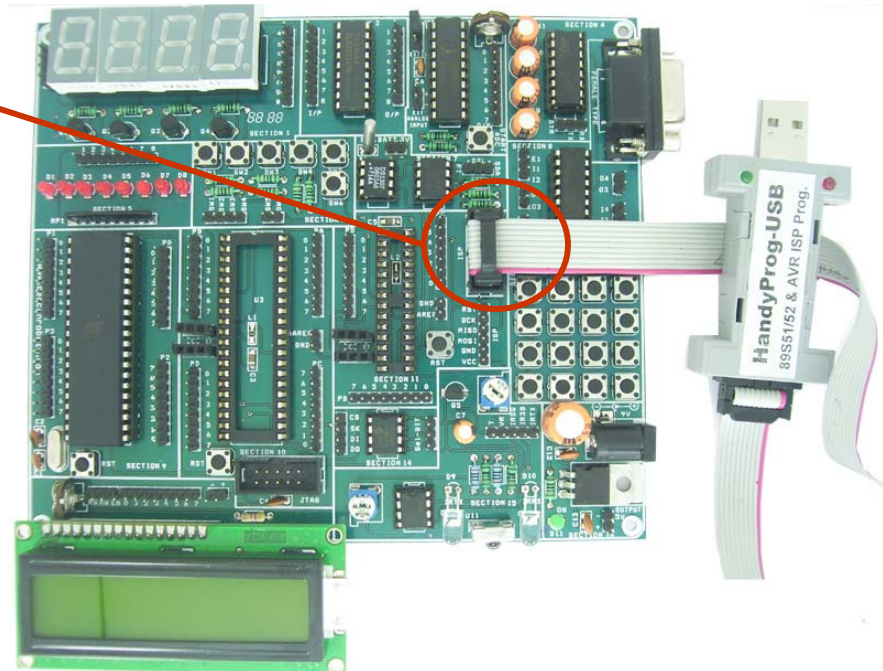
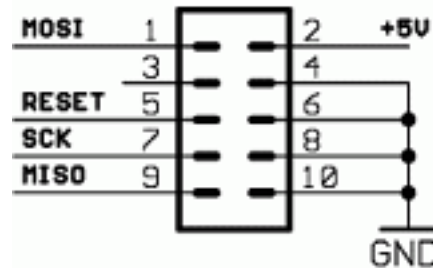


Dual ISP Programming Header



5x2 pin ISP Programming Header

GND	10	9	MISO
GND	8	7	SCK
GND	6	5	Reset
GND	4	3	
+5V	2	1	MOSI

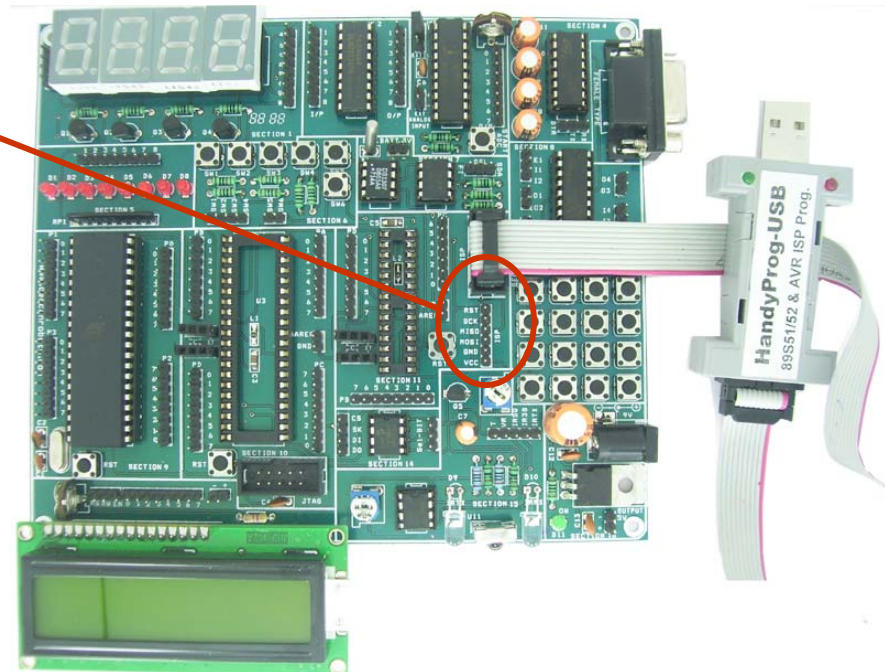


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6 Pin ISP Programming Header

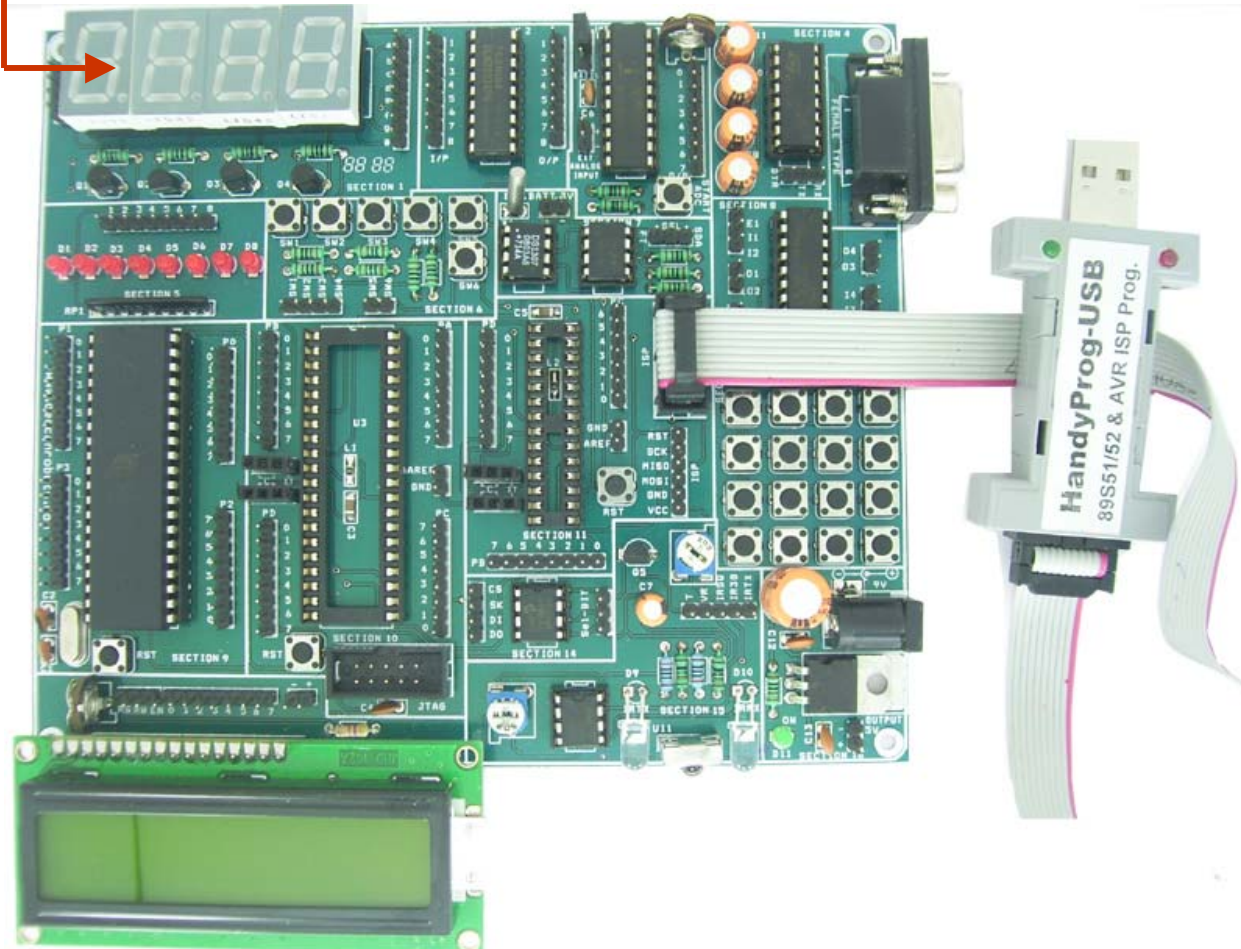
6	RST
5	SCK
4	MISO
3	MOSI
2	GND
1	VCC

ISP

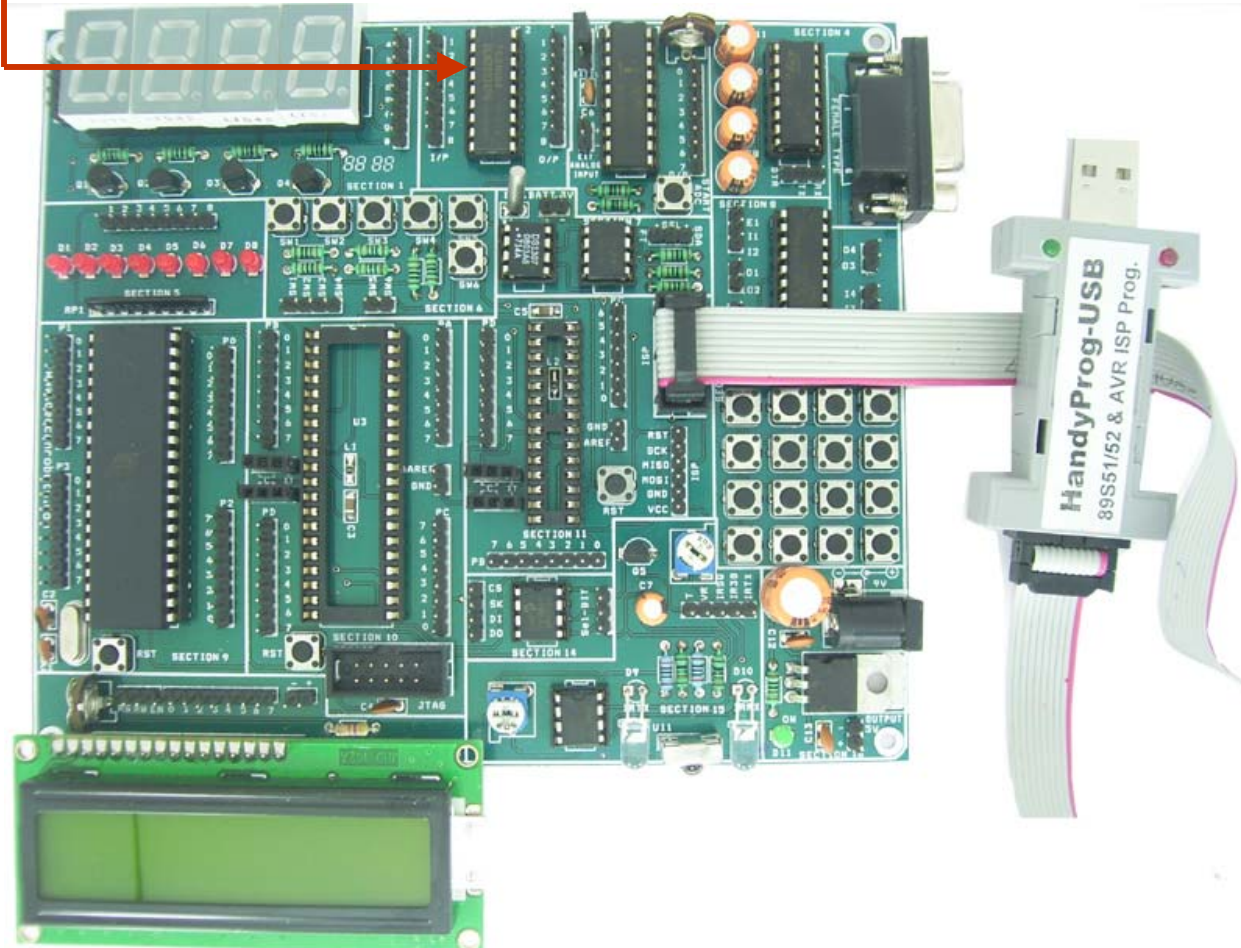


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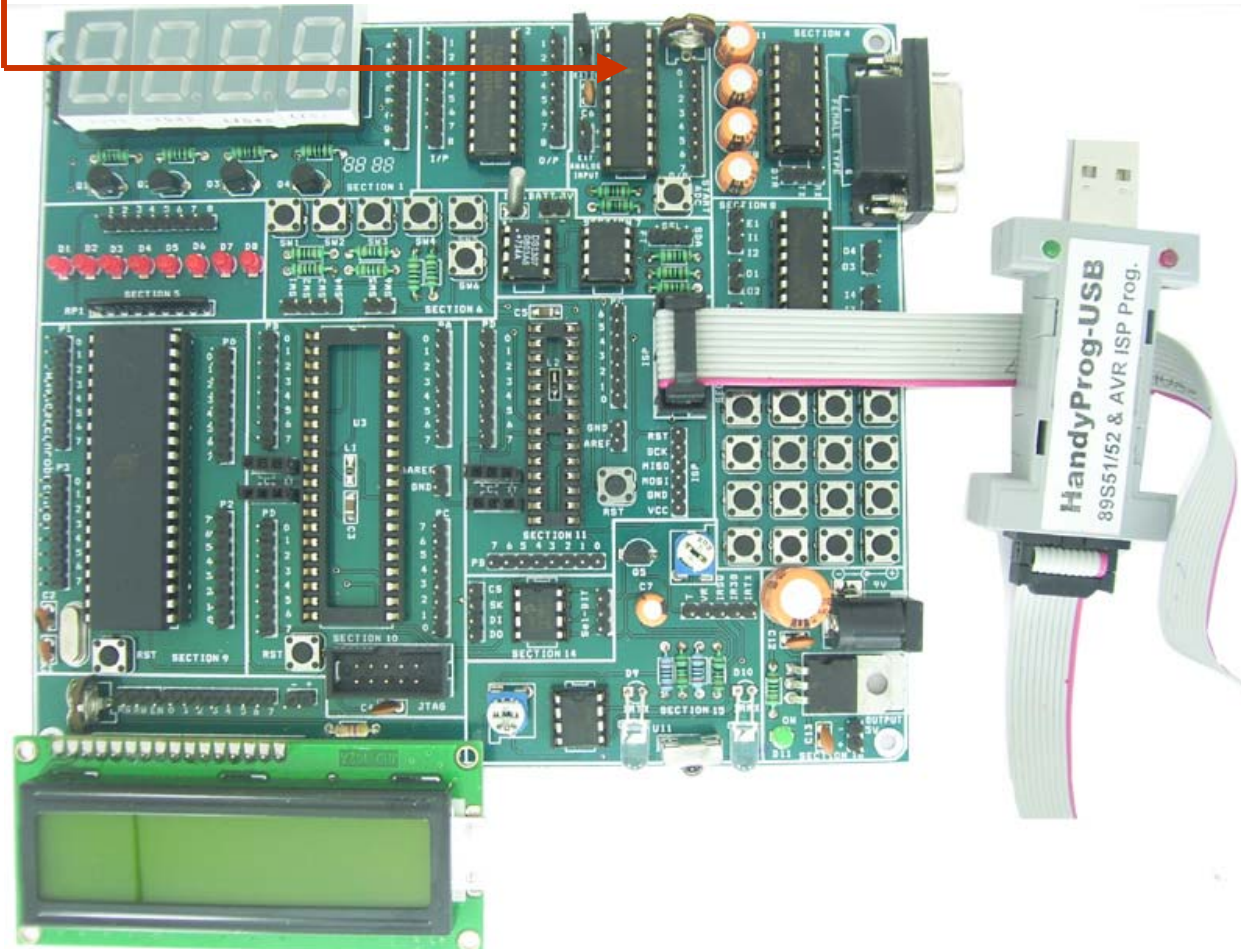
7-segment Interfacing Section



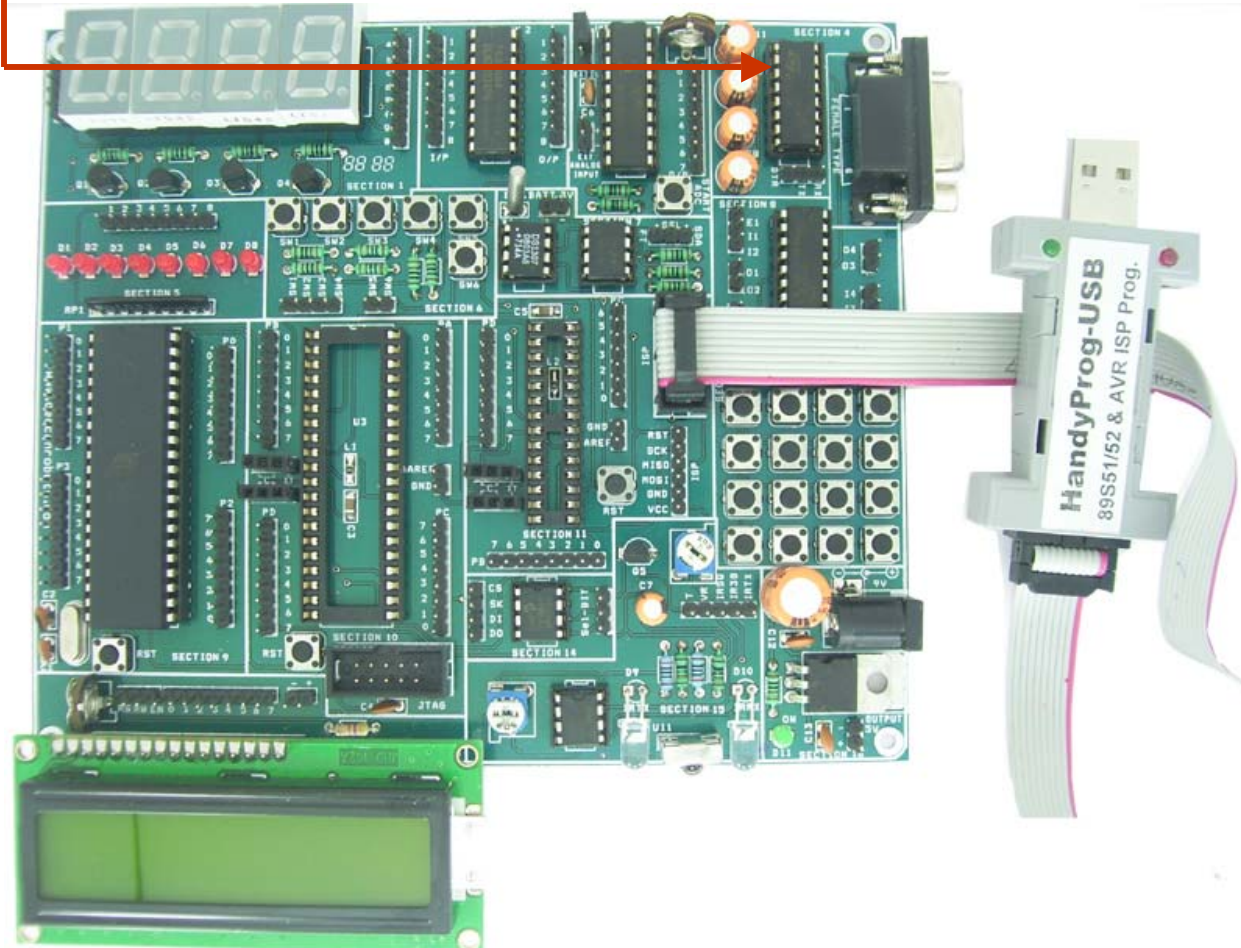
Stepper Motor Driver Interfacing Section



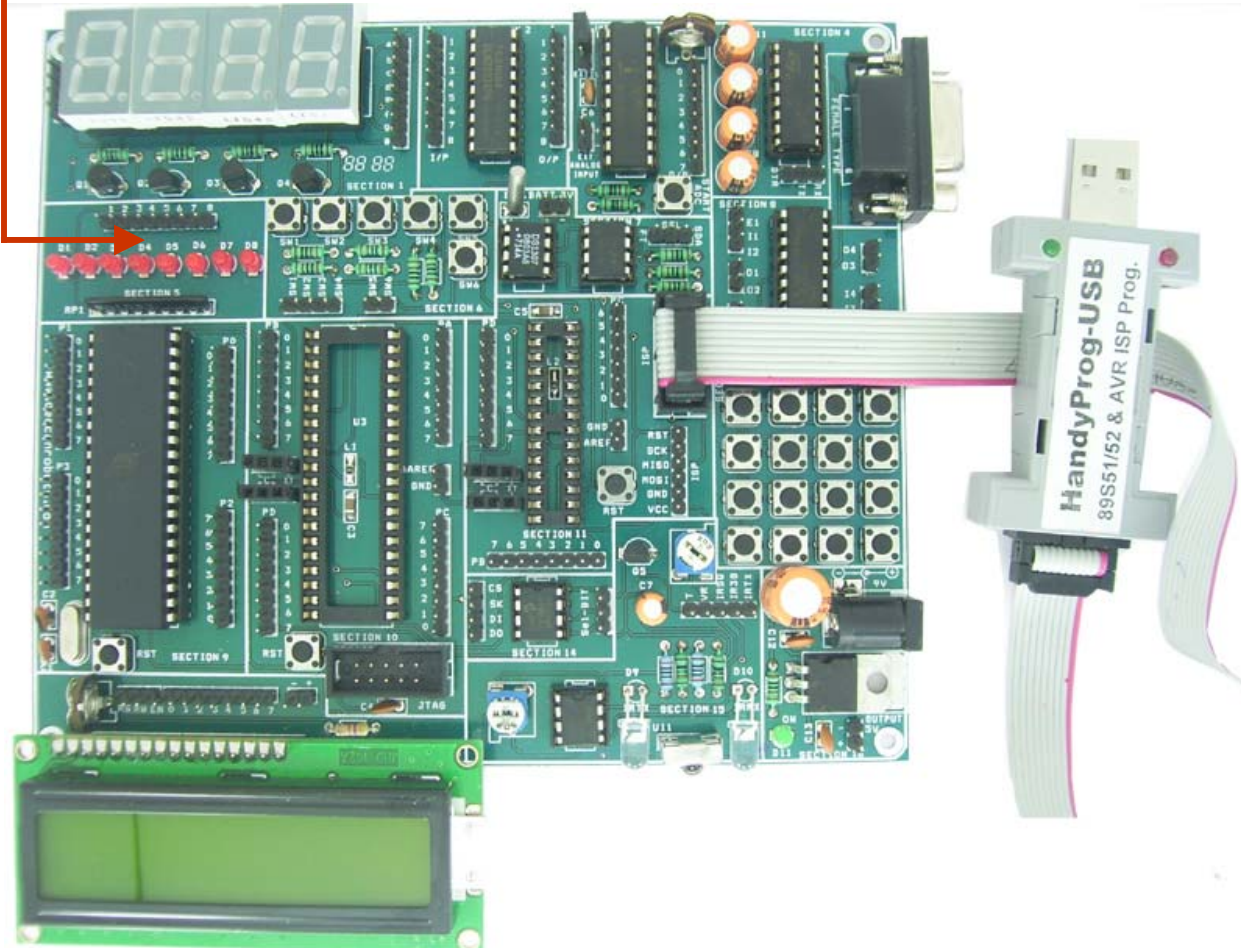
8 Bit Analog to Digital Converter Interfacing Section



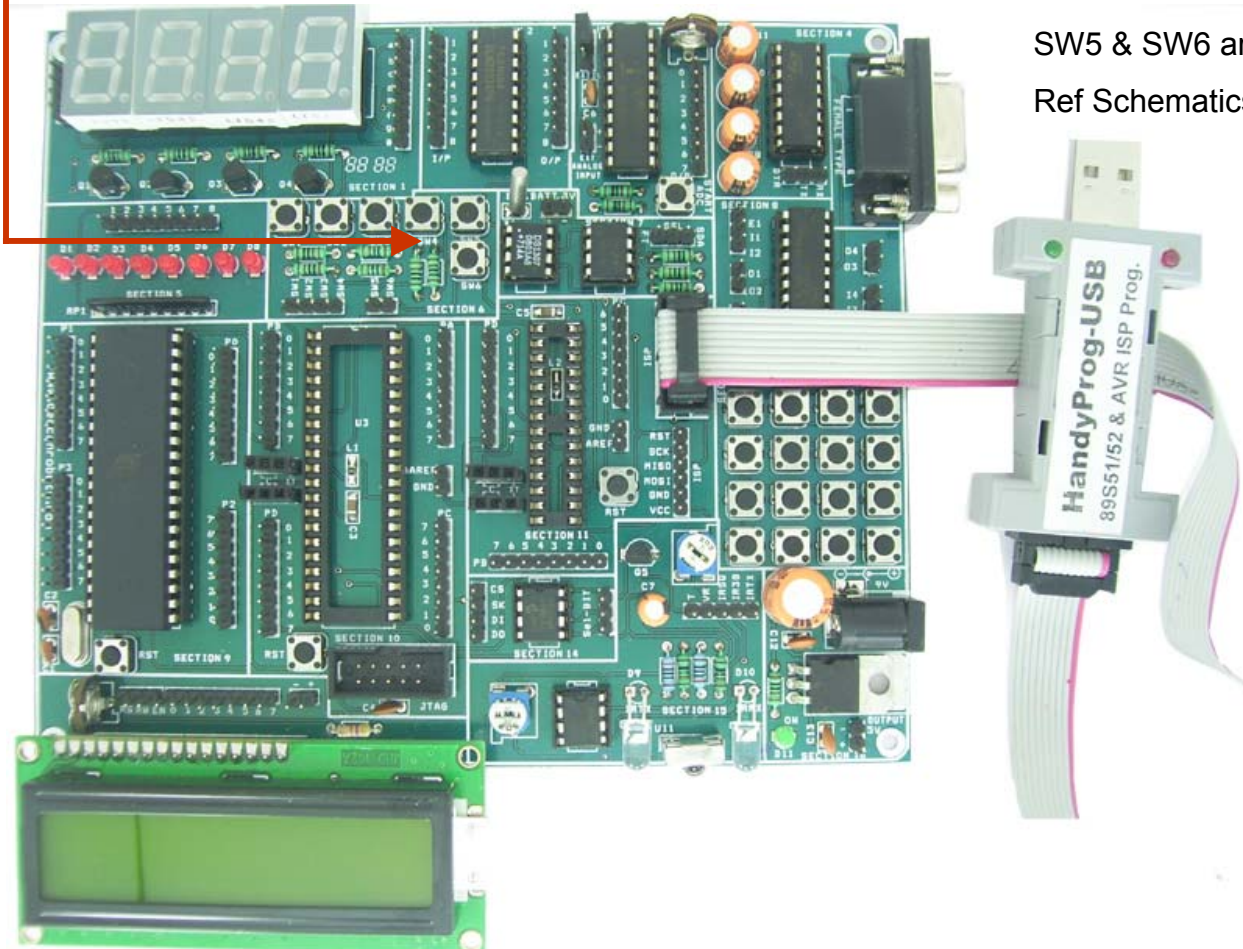
RS232 Interfacing Section



LED Interfacing Section

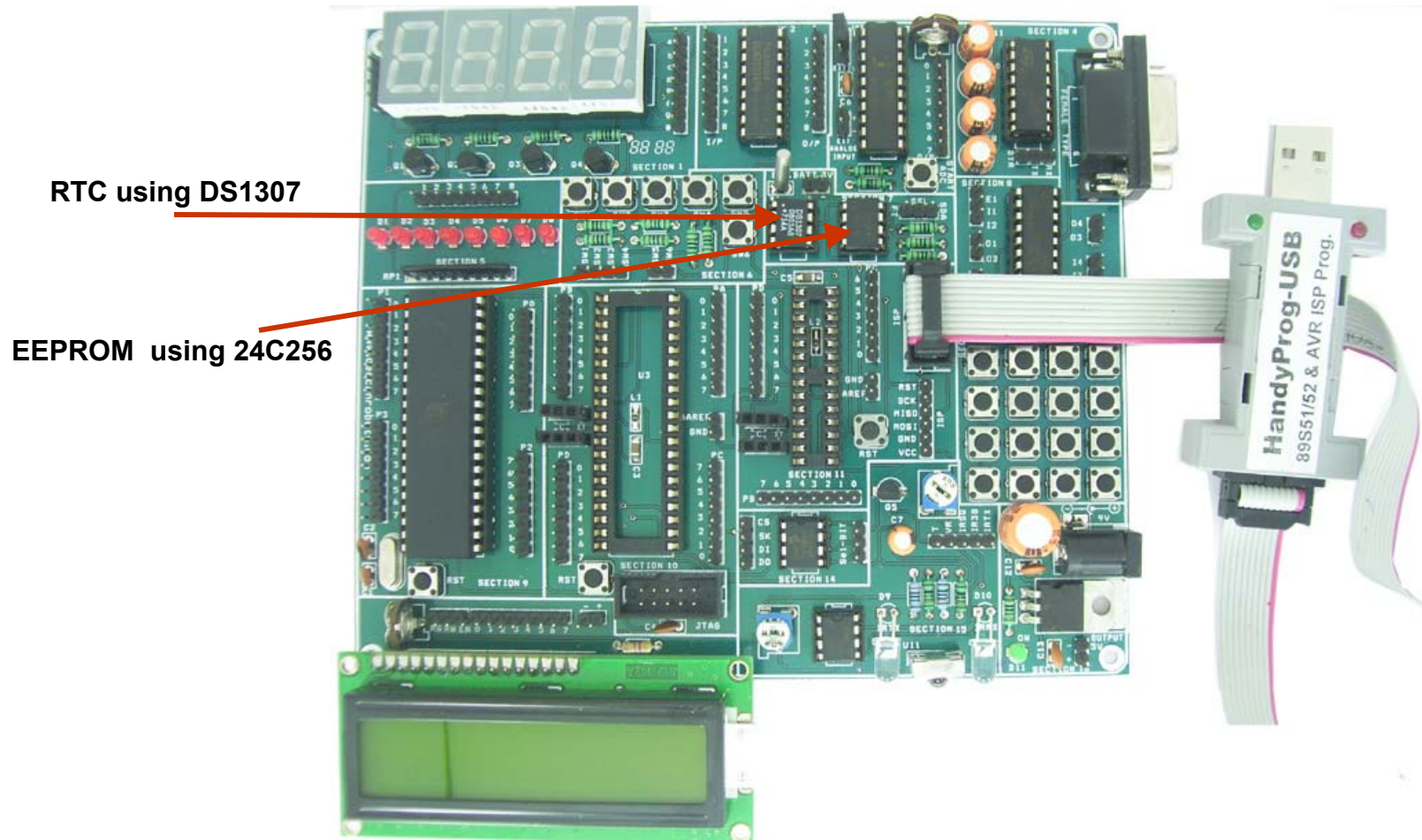


Switch Interfacing Section

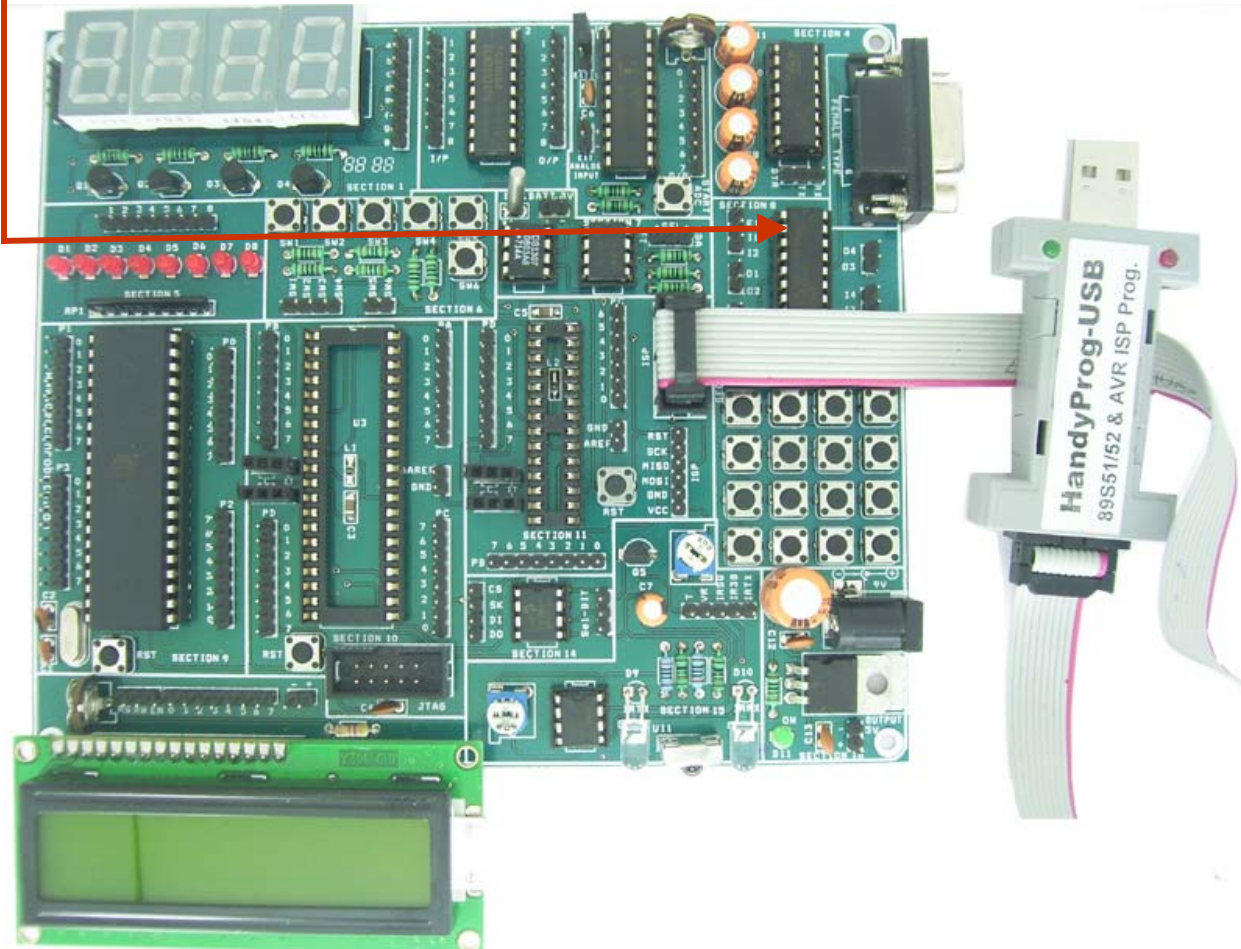


SW1 to SW4 are pulled up
SW5 & SW6 are pulled down
Ref Schematics for details

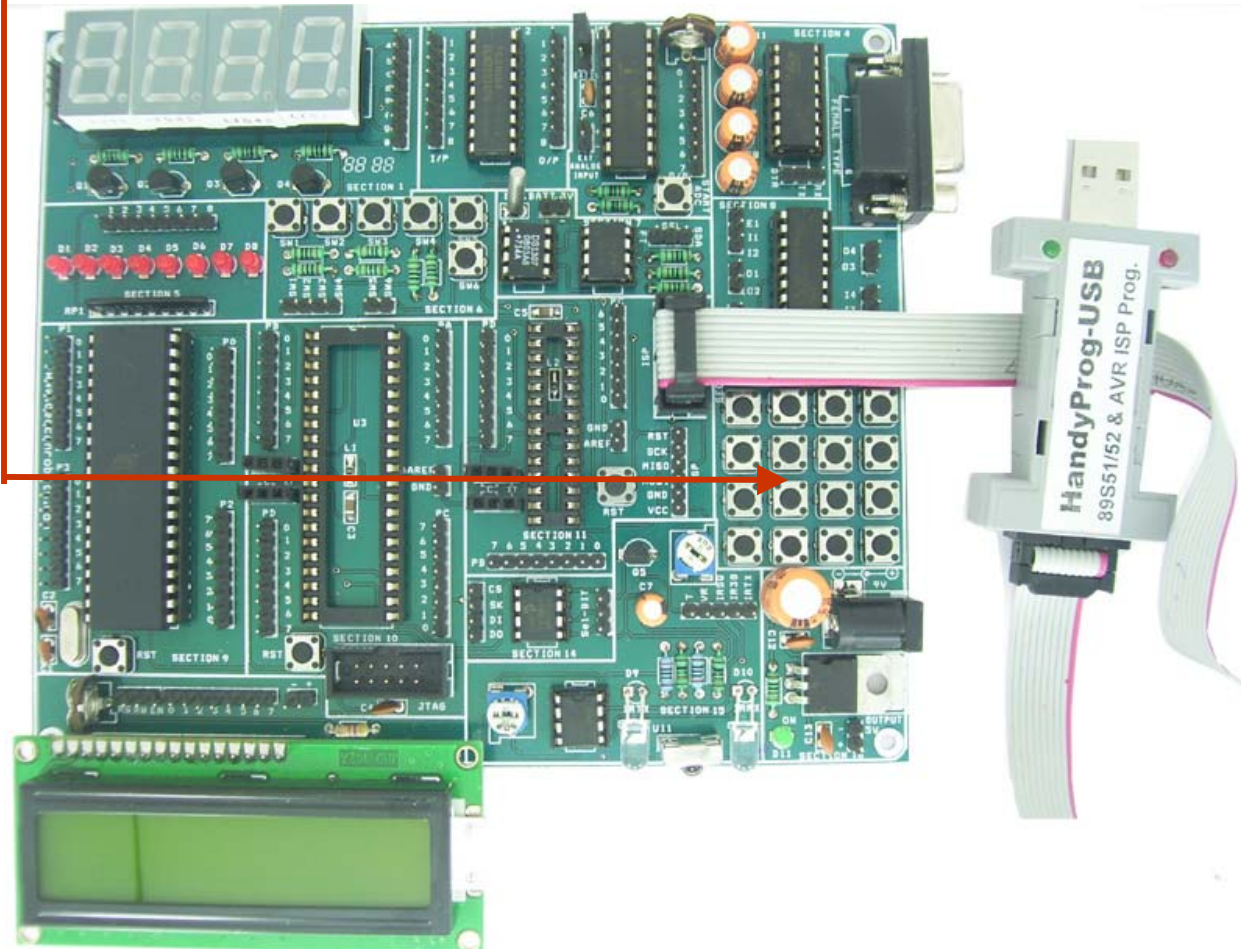
TWI / I²C Interfacing Section



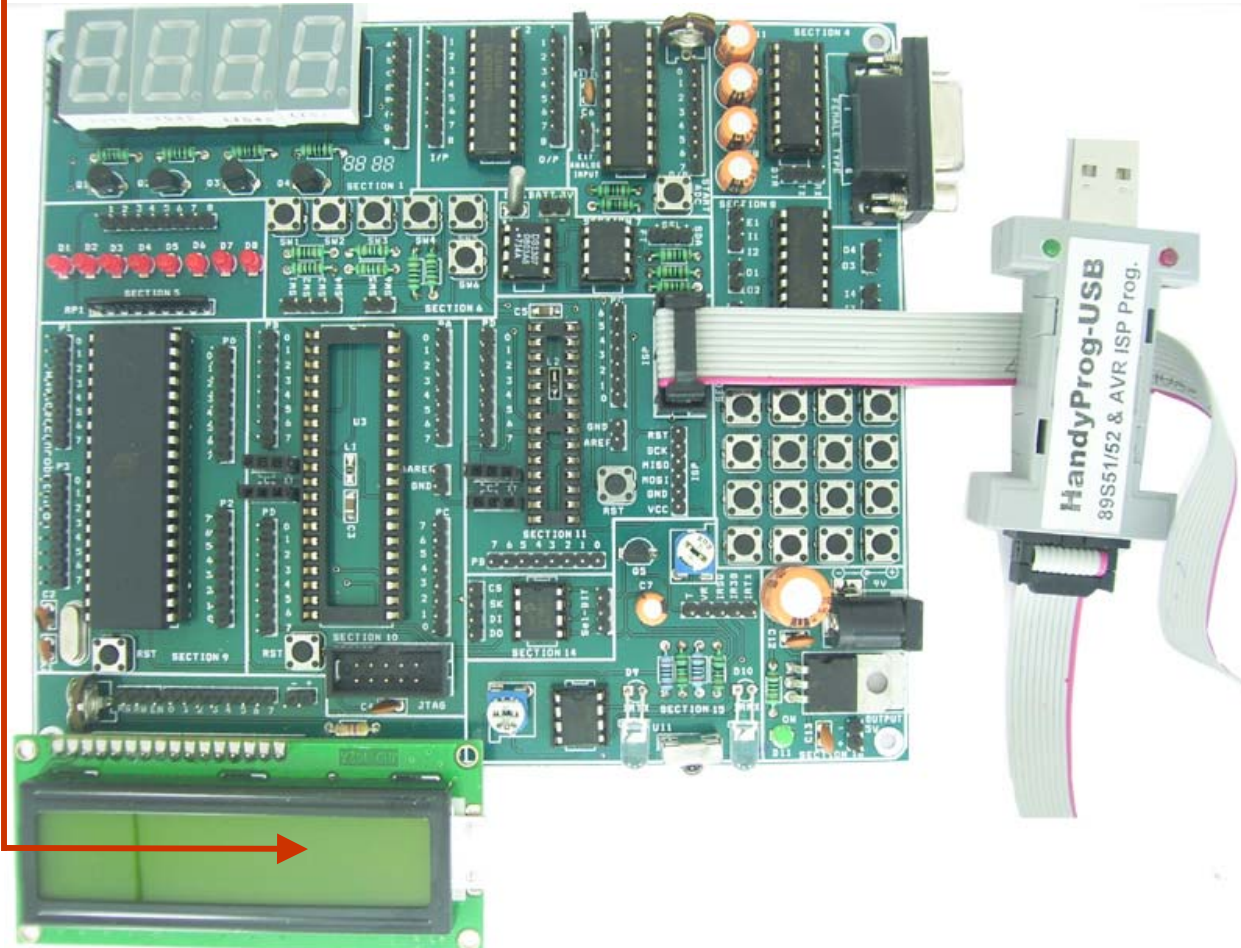
DC Motor Driver Interfacing Section



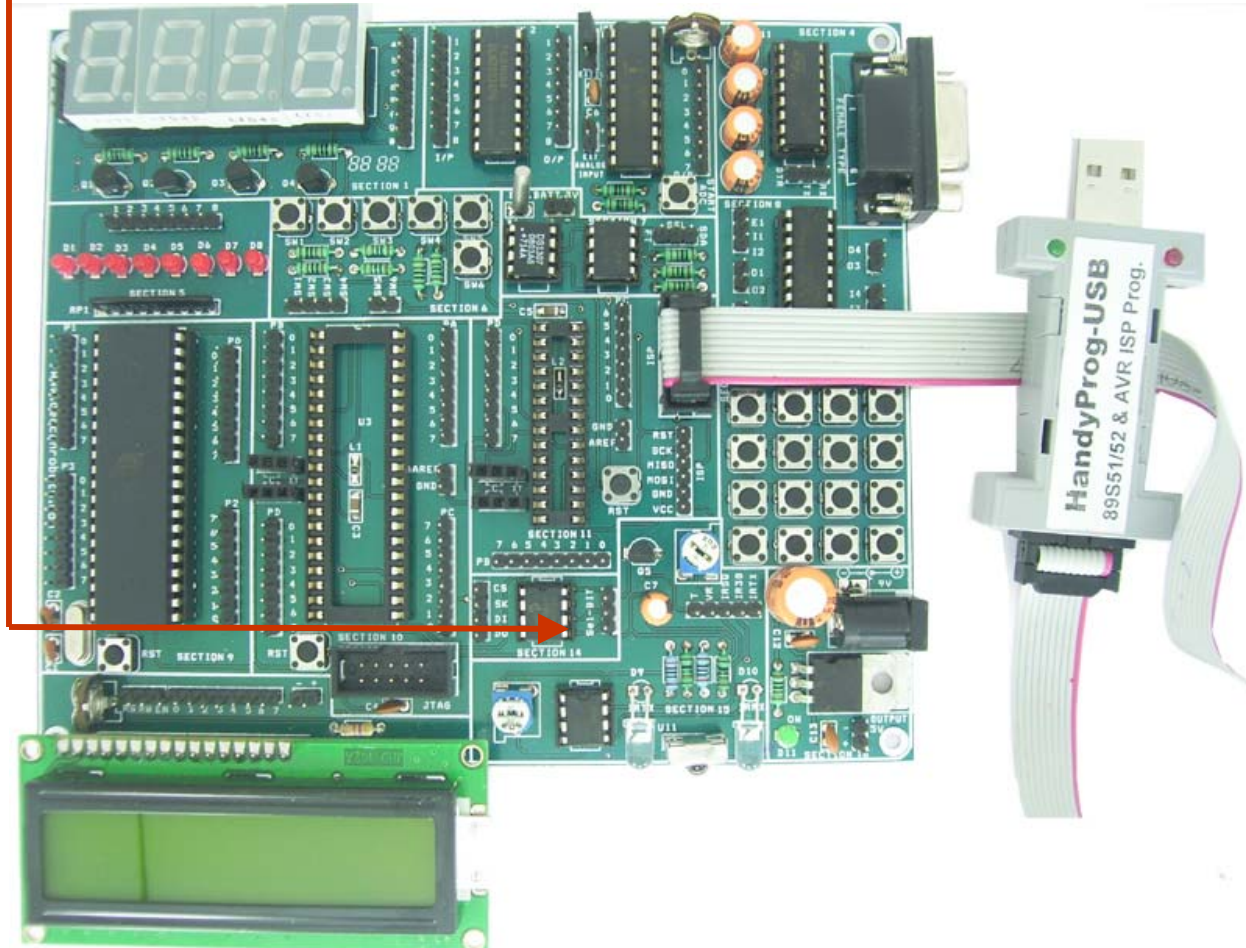
4x4 Keypad Interfacing Section



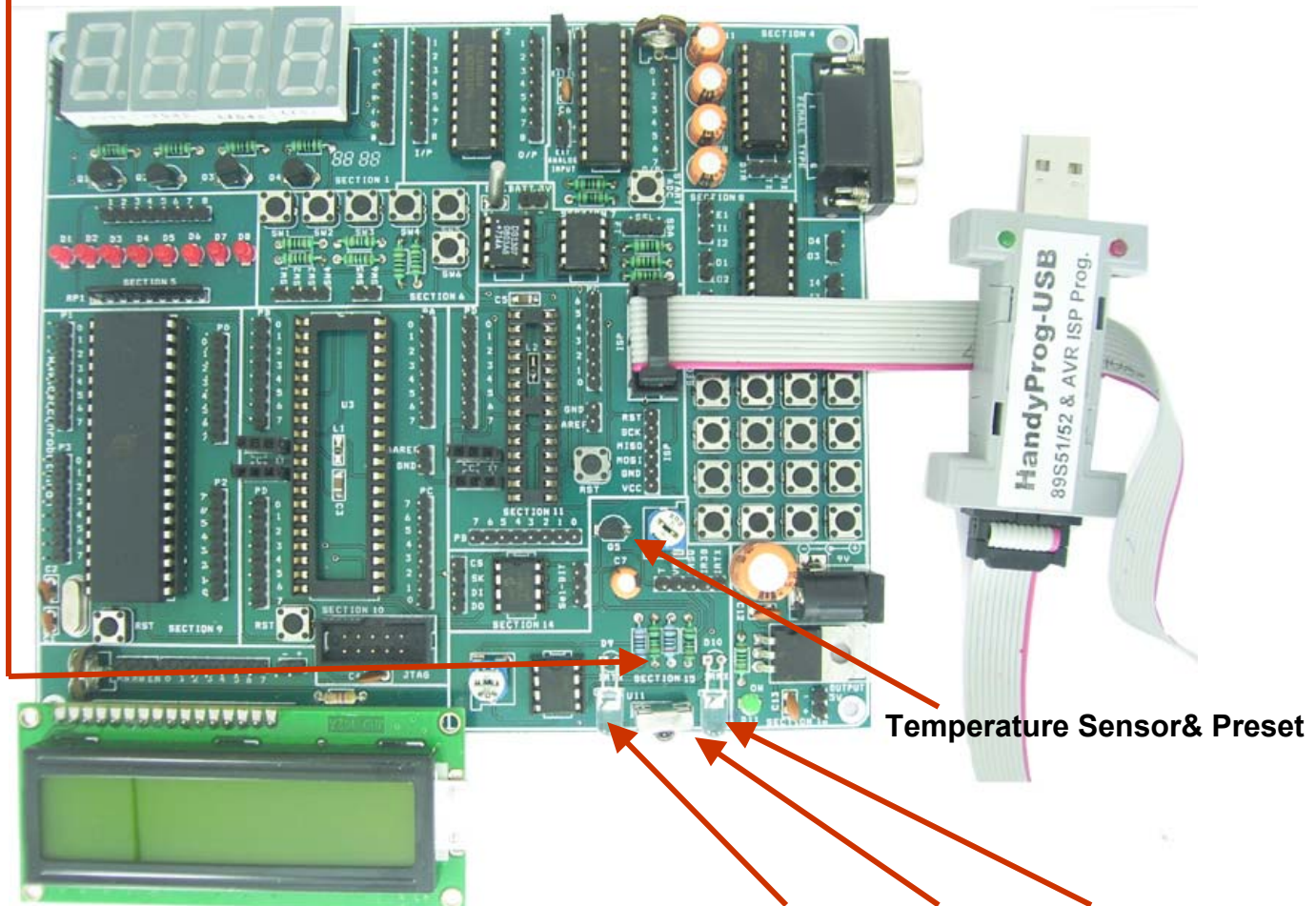
16x2 LCD Interfacing Section



93C46 SPI EEPROM Interfacing Section



IR, Temperature & Preset Interfacing Section

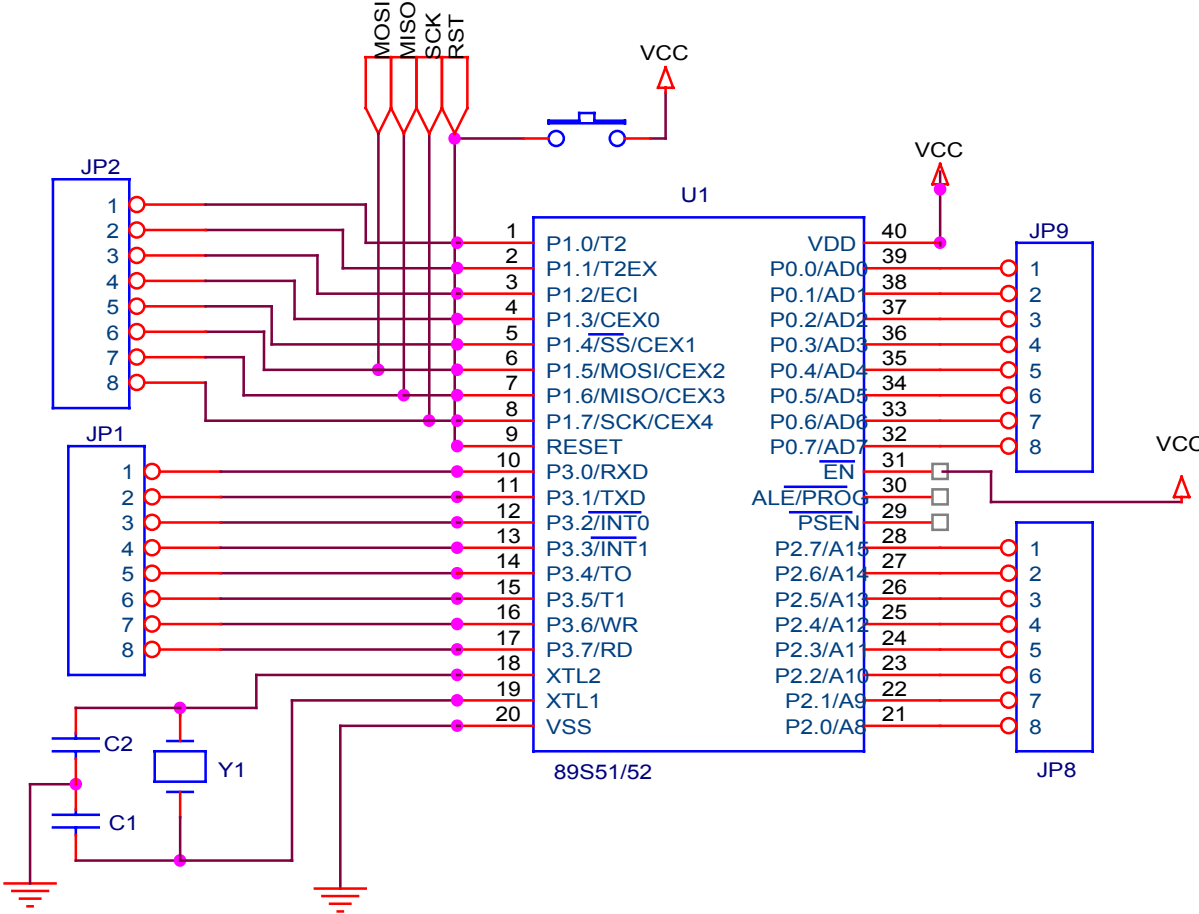


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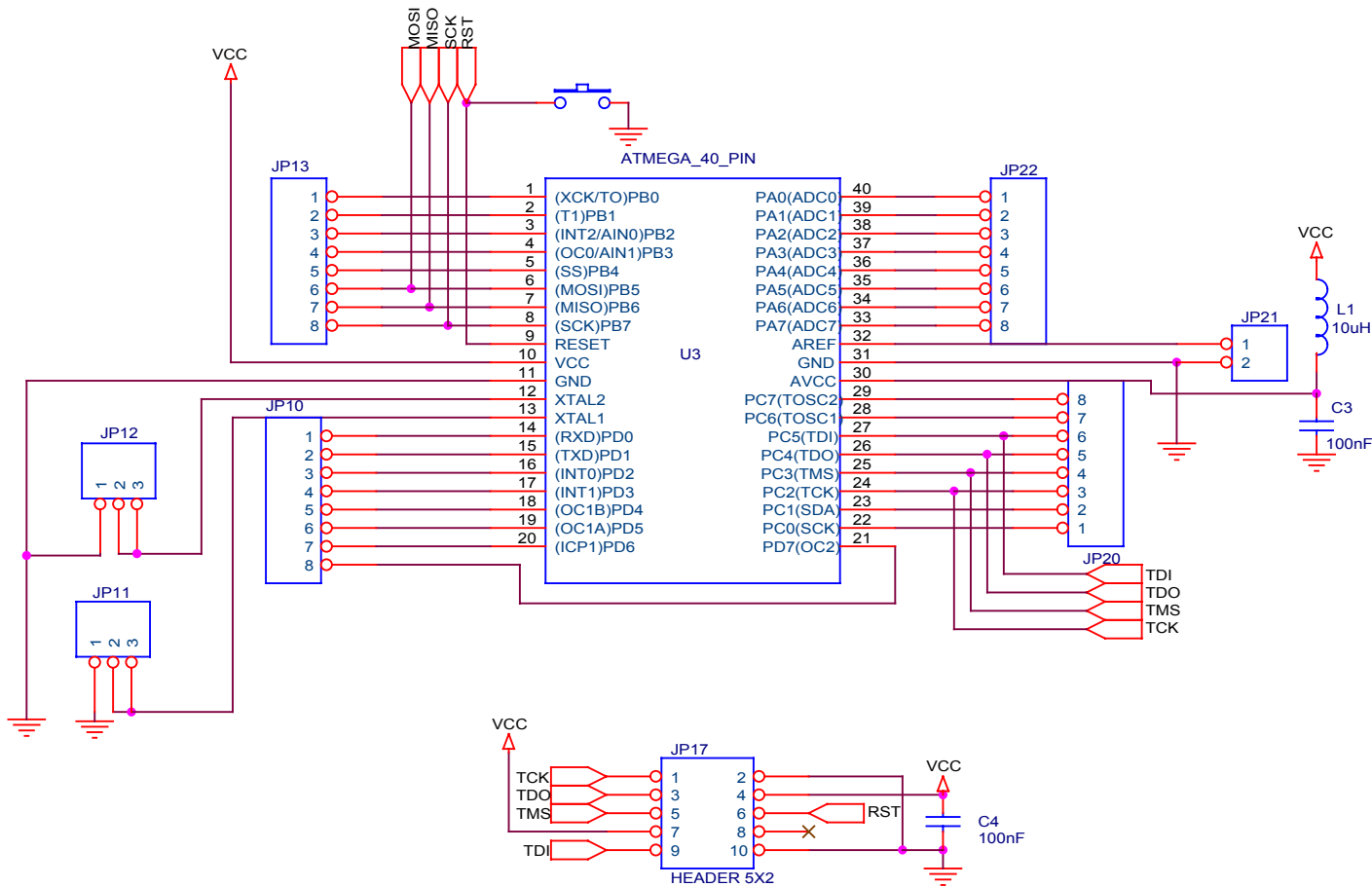
IR LED, TSOP1738, IR Receiver

Schematics – 89S52

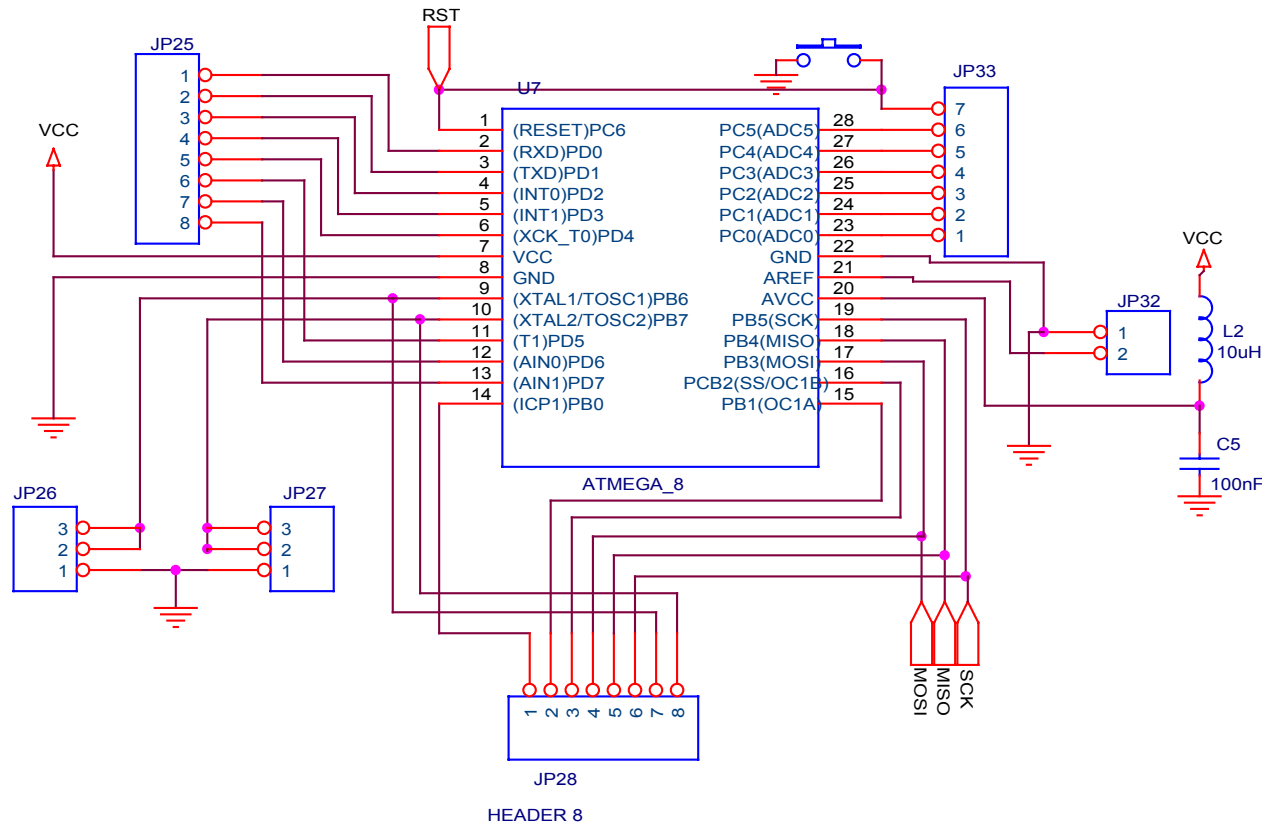
Target Section



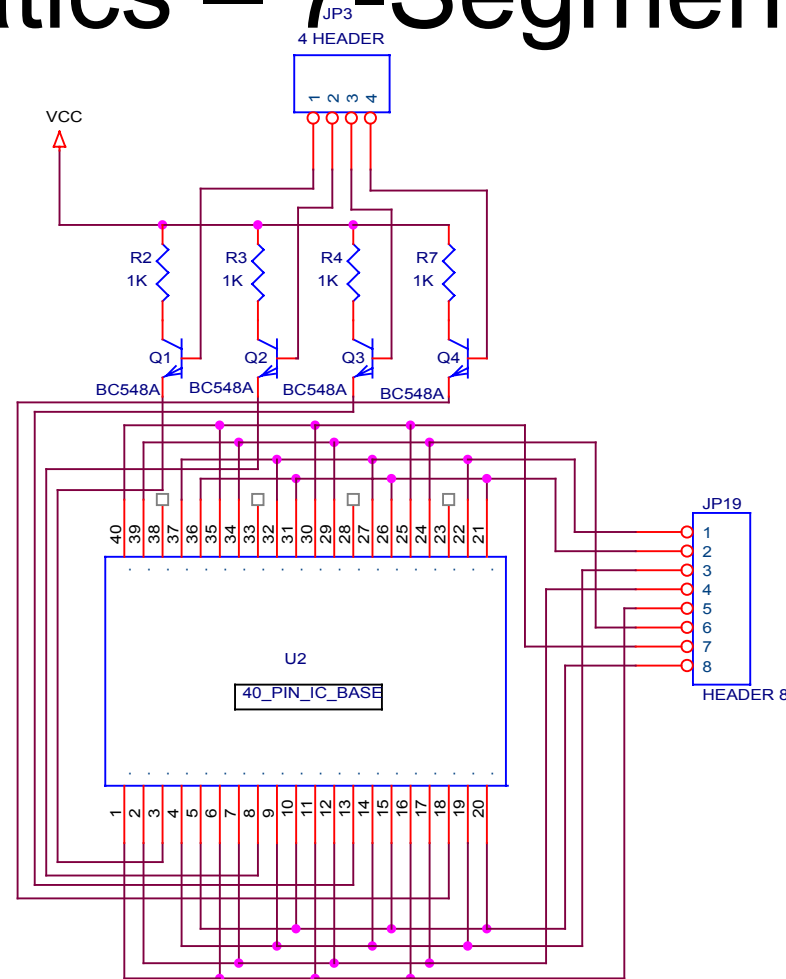
Schematics – ATmega32 Target Section



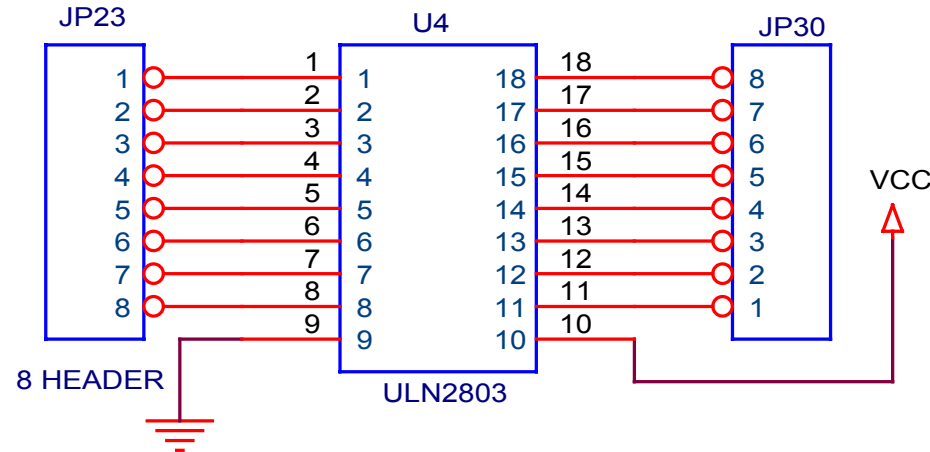
Schematics – ATmega8 Target Section



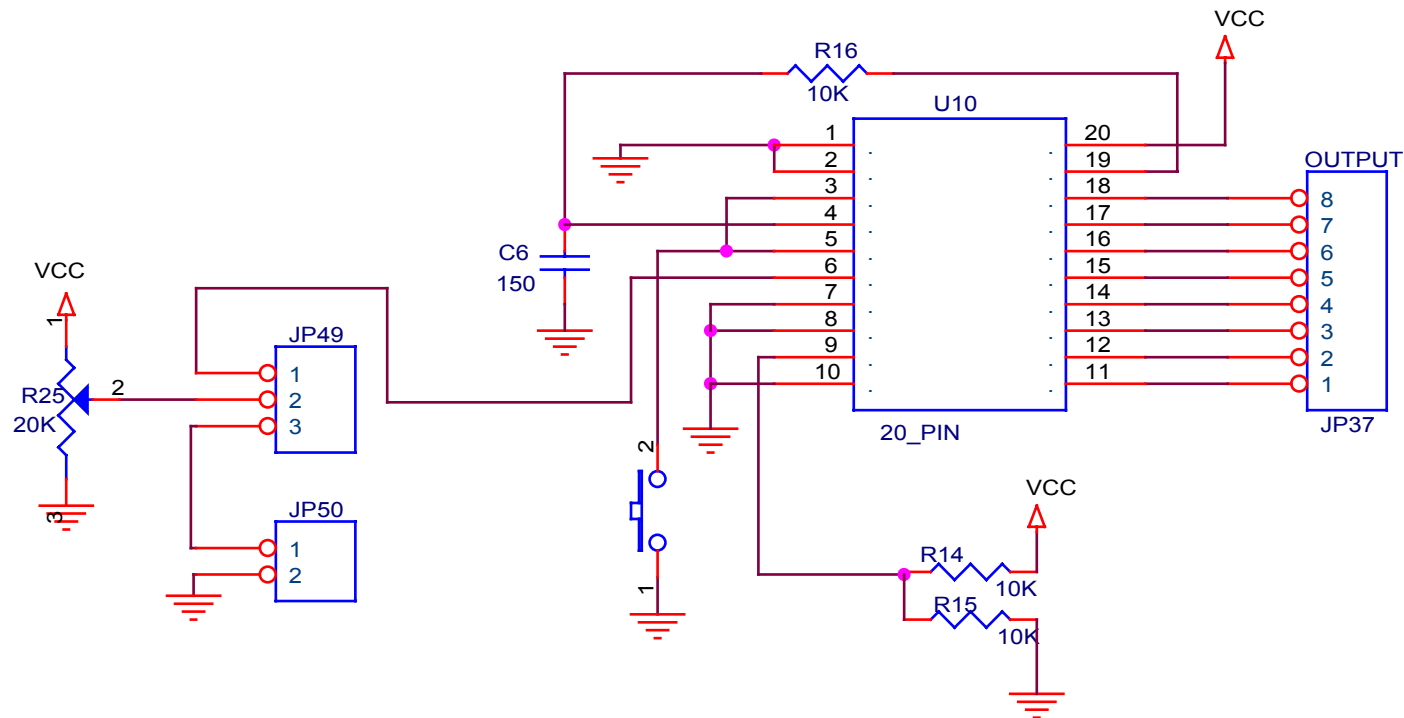
Schematics – 7-Segment Display



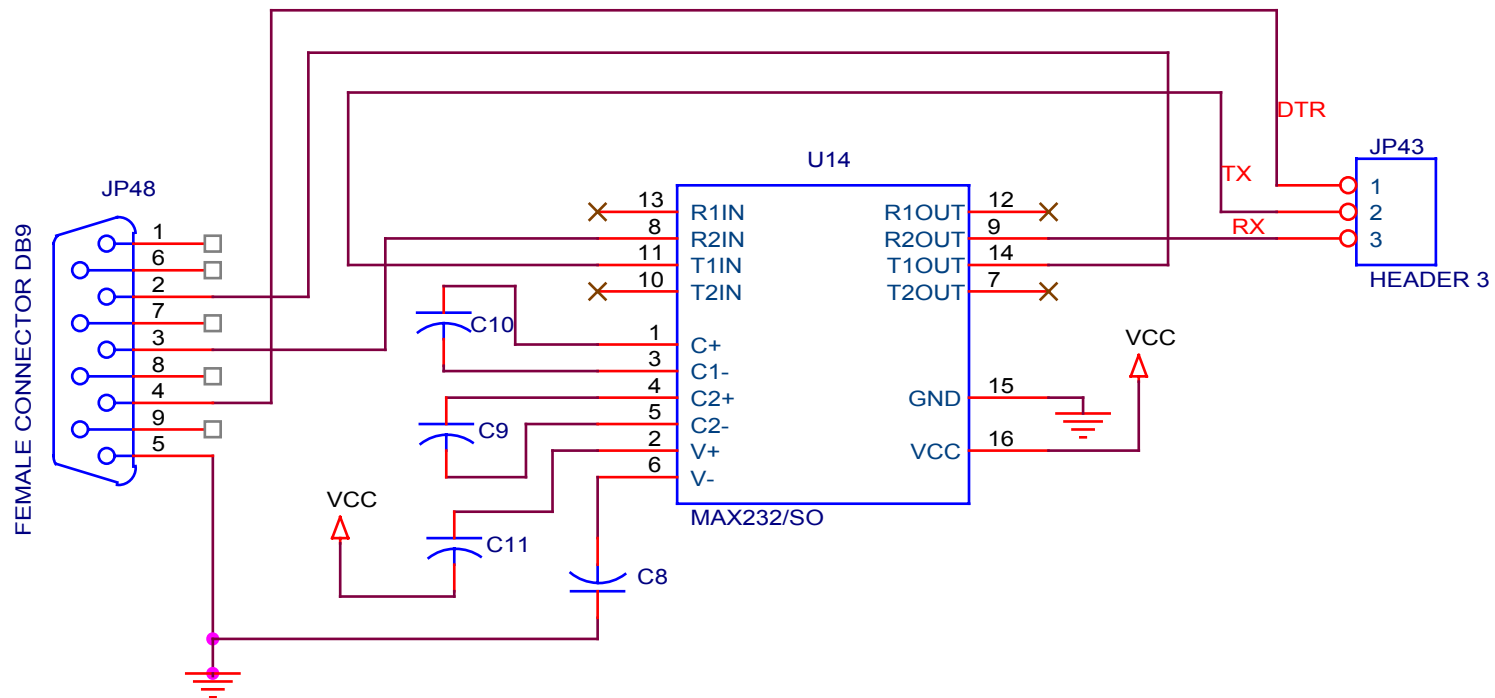
Schematics – ULN2803 Stepper Motor Driver



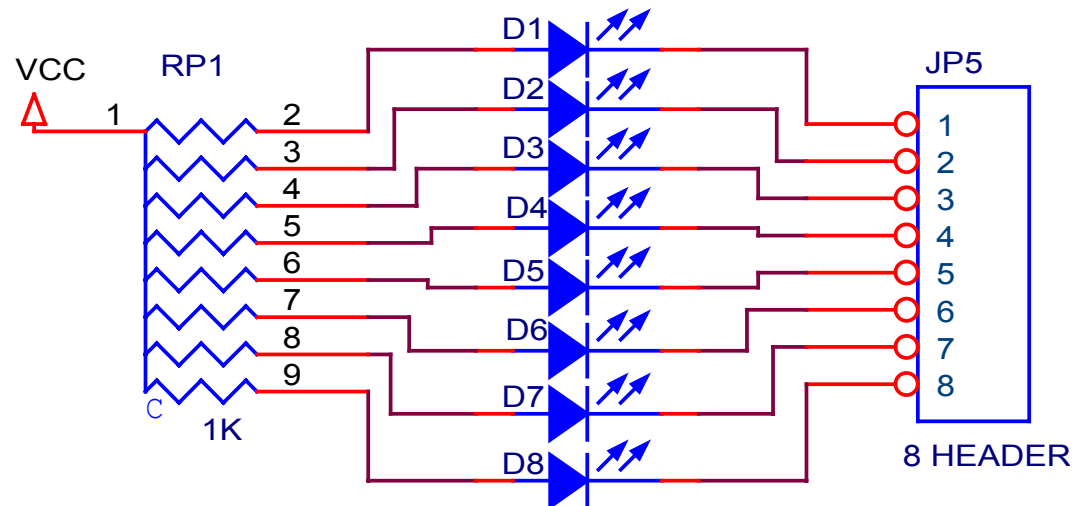
Schematics – 8 Bit ADC



Schematics – RS232

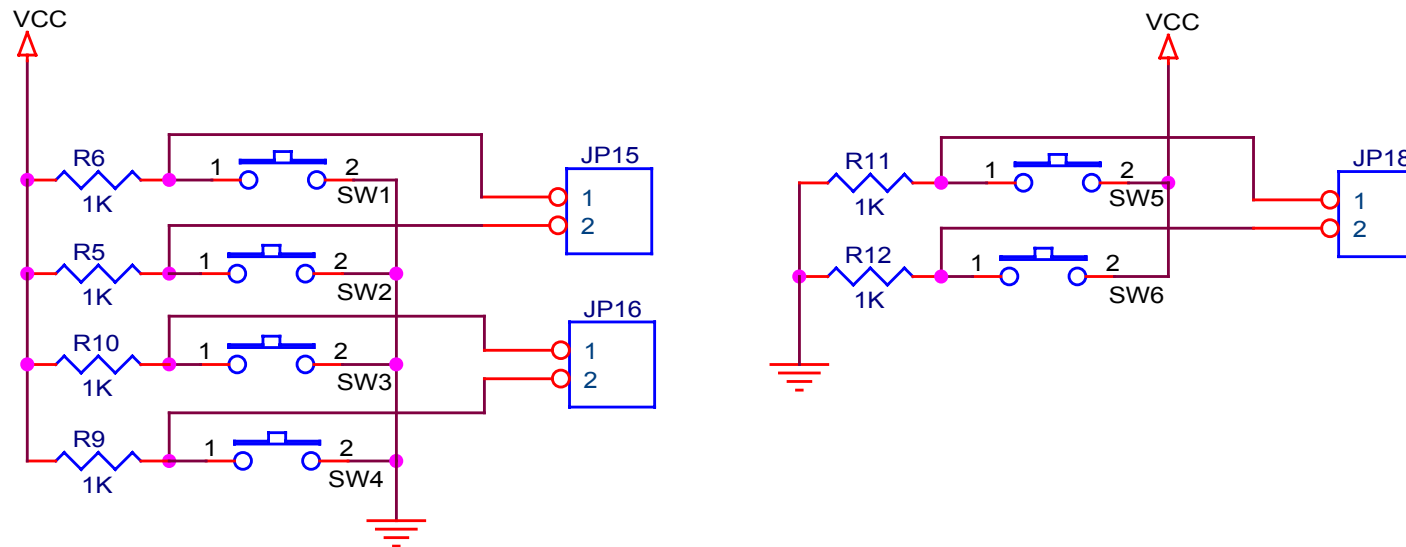


Schematics – LED

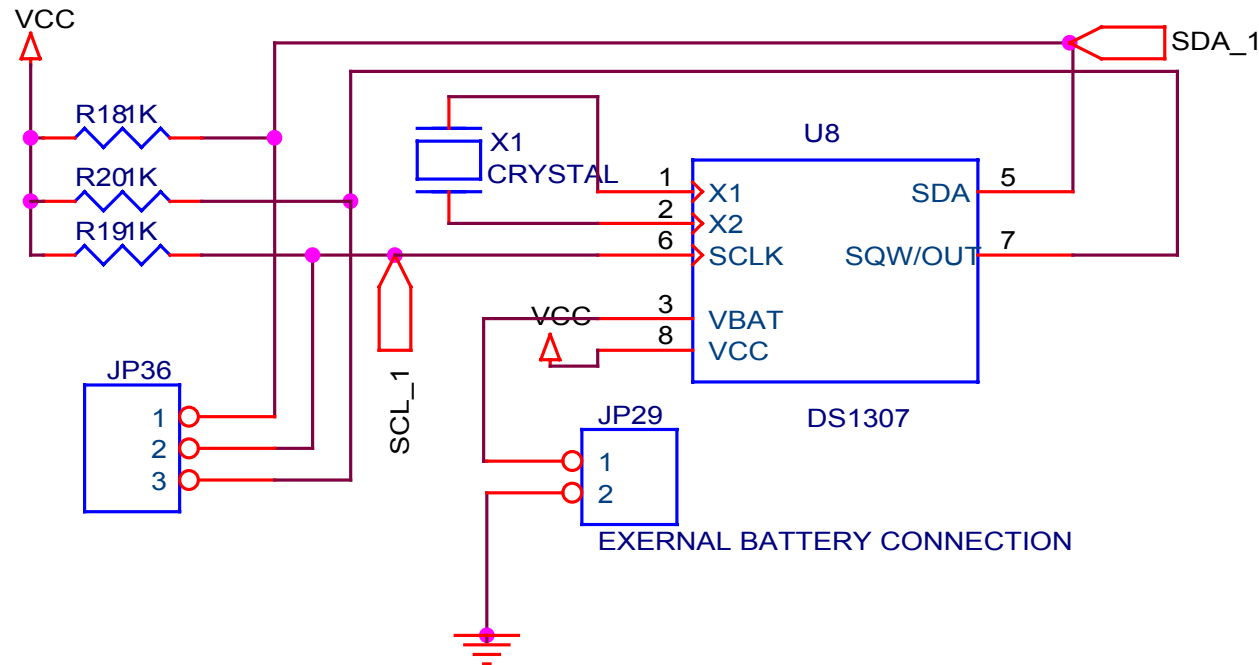


Schematics – Switches

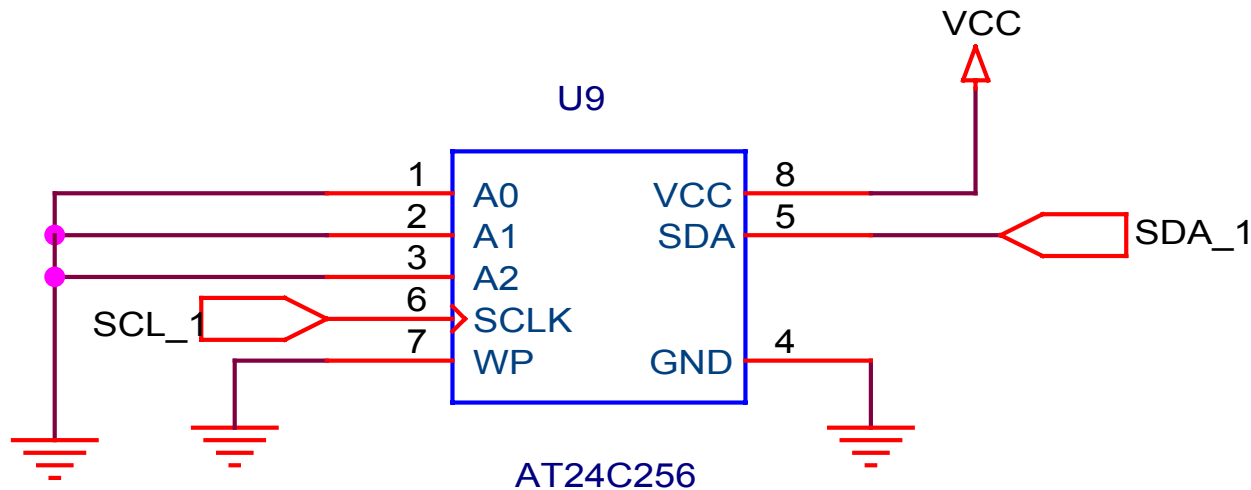
- 4 x Pulled up & 2 x pulled down switches



Schematics – Real Time Clock DS1307

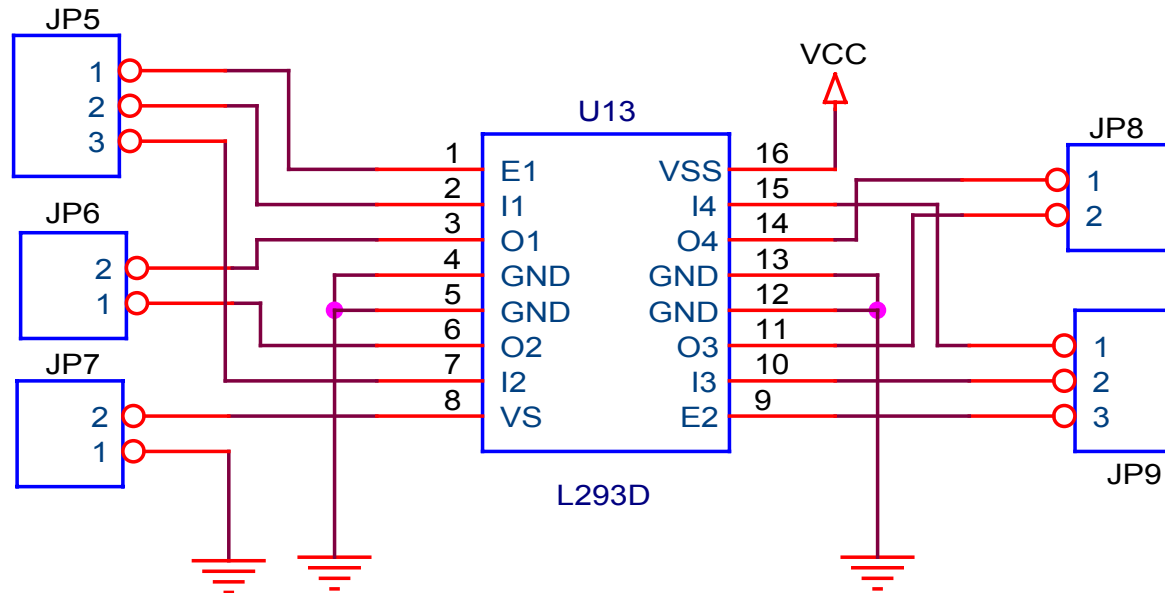


Schematics – EEPROM 24C256

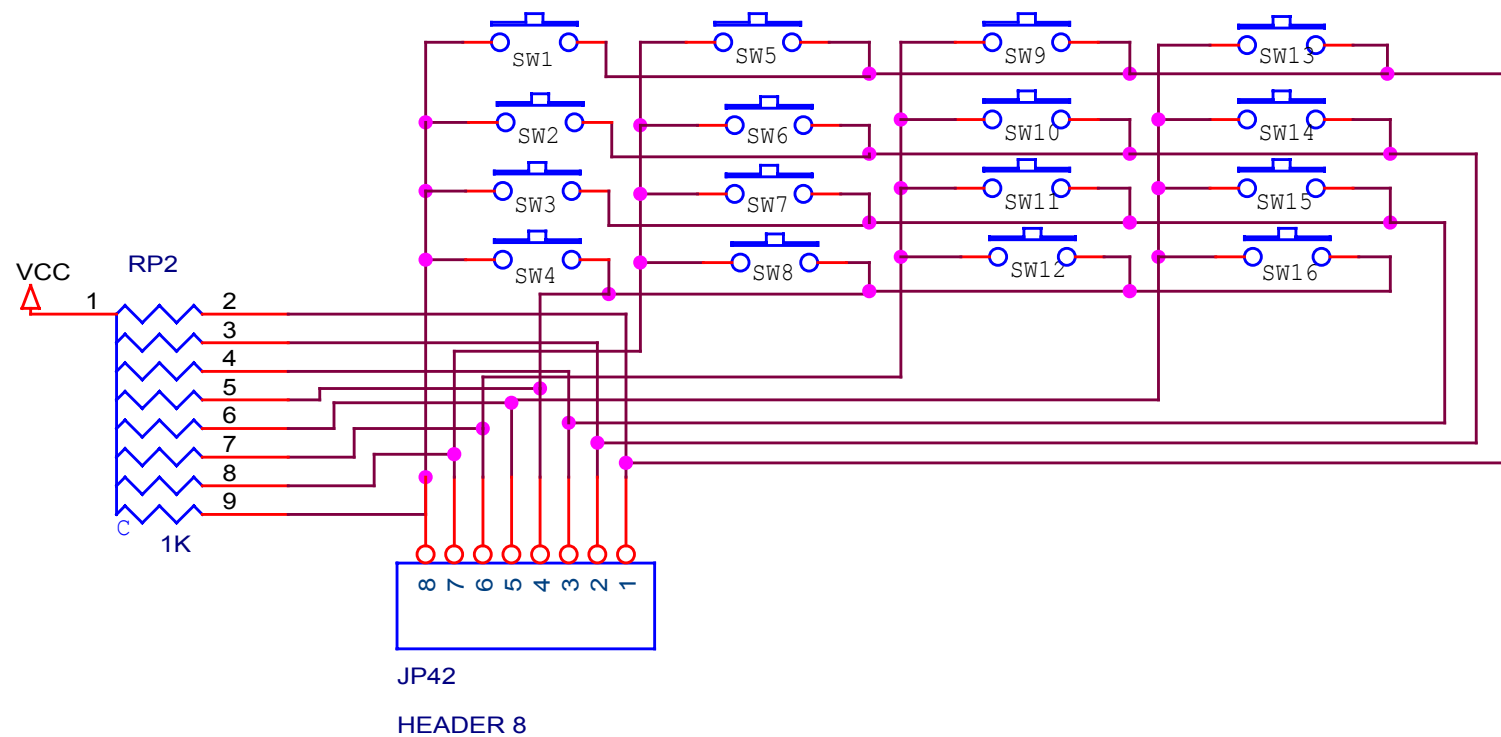


Schematics – L293D

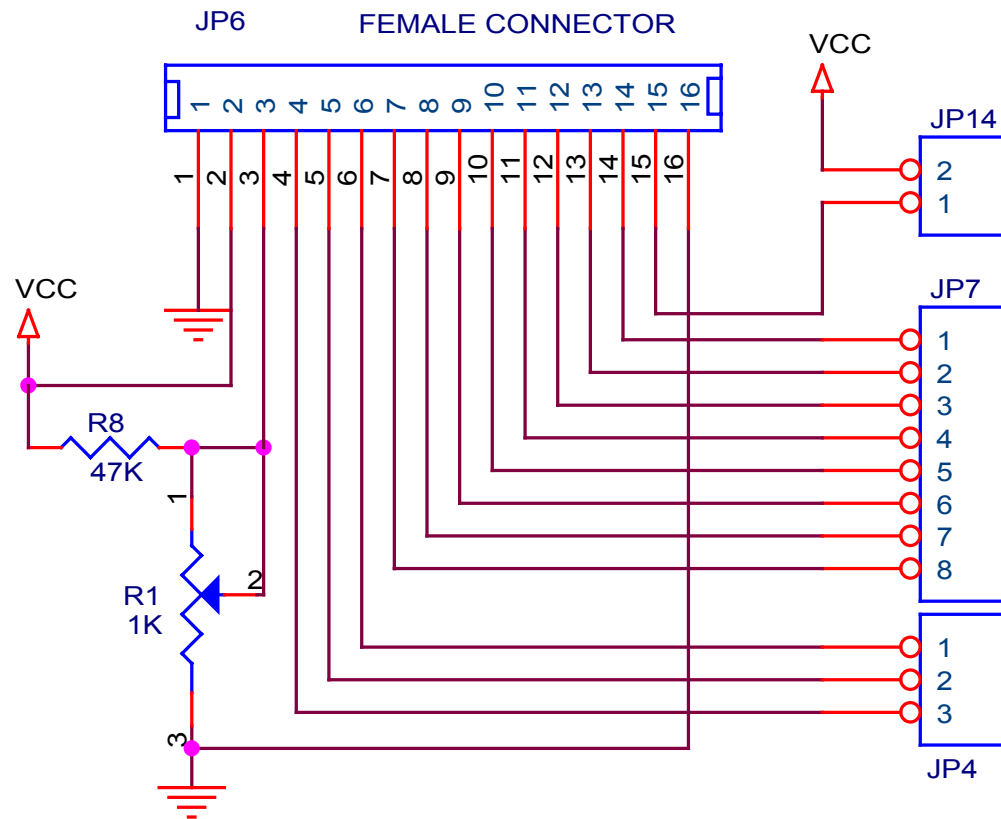
DC Motor Driver



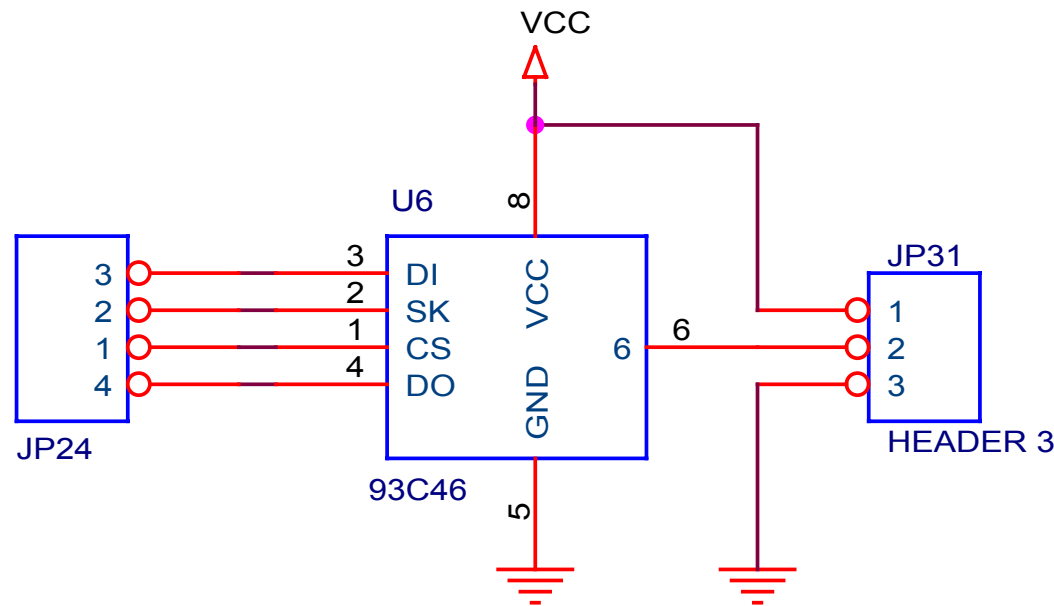
Schematics – 4x4 Keypad



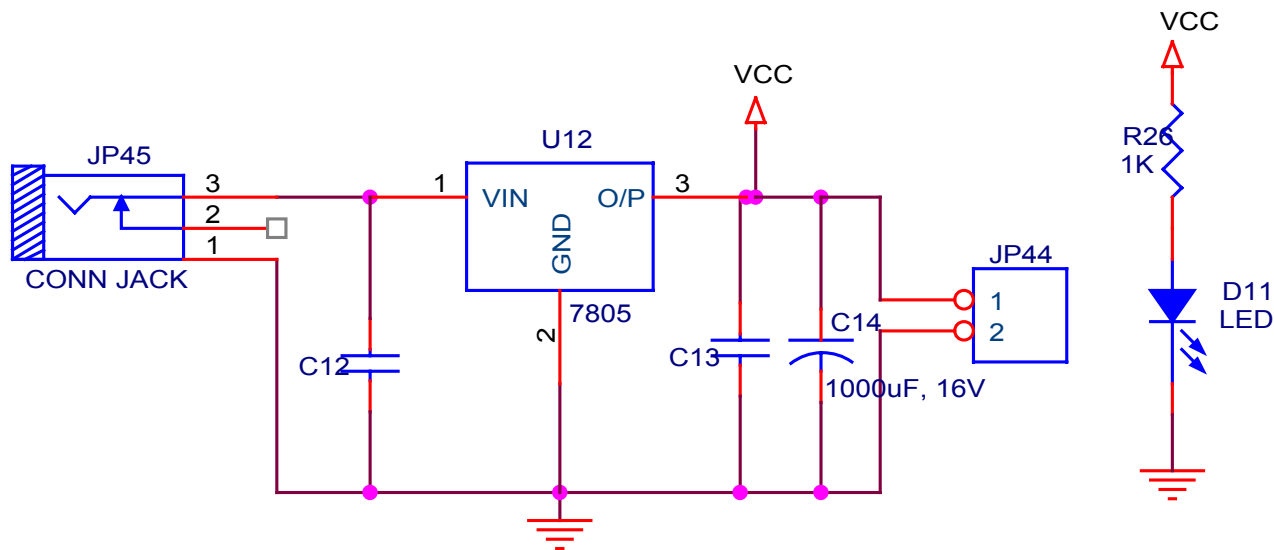
Schematics – 16x2 LCD



Schematics – 93C46 EEPROM



Schematics – Power Supply



For First Time Users

- Connect 9 to 12V DC power to the hardware.
- Green LED should glow with power on.
- By default, 89S52 microcontroller is mounted on the board.
- To use AVR microcontroller with this hardware, remove 89S52 using IC Extractor or with the help of small tip screw driver. Place AVR microcontroller in appropriate socket (Refer previous pages of this user manual for AVR Sockets).

Programming the Microcontroller

- Use HandyProgUSB ISP programmer to program the target microcontroller. Connect HandyProgUSB ISP to the board as shown on page 2. Other end of the HandyProgUSB ISP Programmer can be directly inserted to USB Port or to the USB extension cable.
- Install & use HandyProgUSB Software to program the target microcontroller.
- A detailed procedure for HandyProgUSB Software is described on next page.

HandyProgUSB Software

1

Select Target Microcontroller

2

Select Actions

4

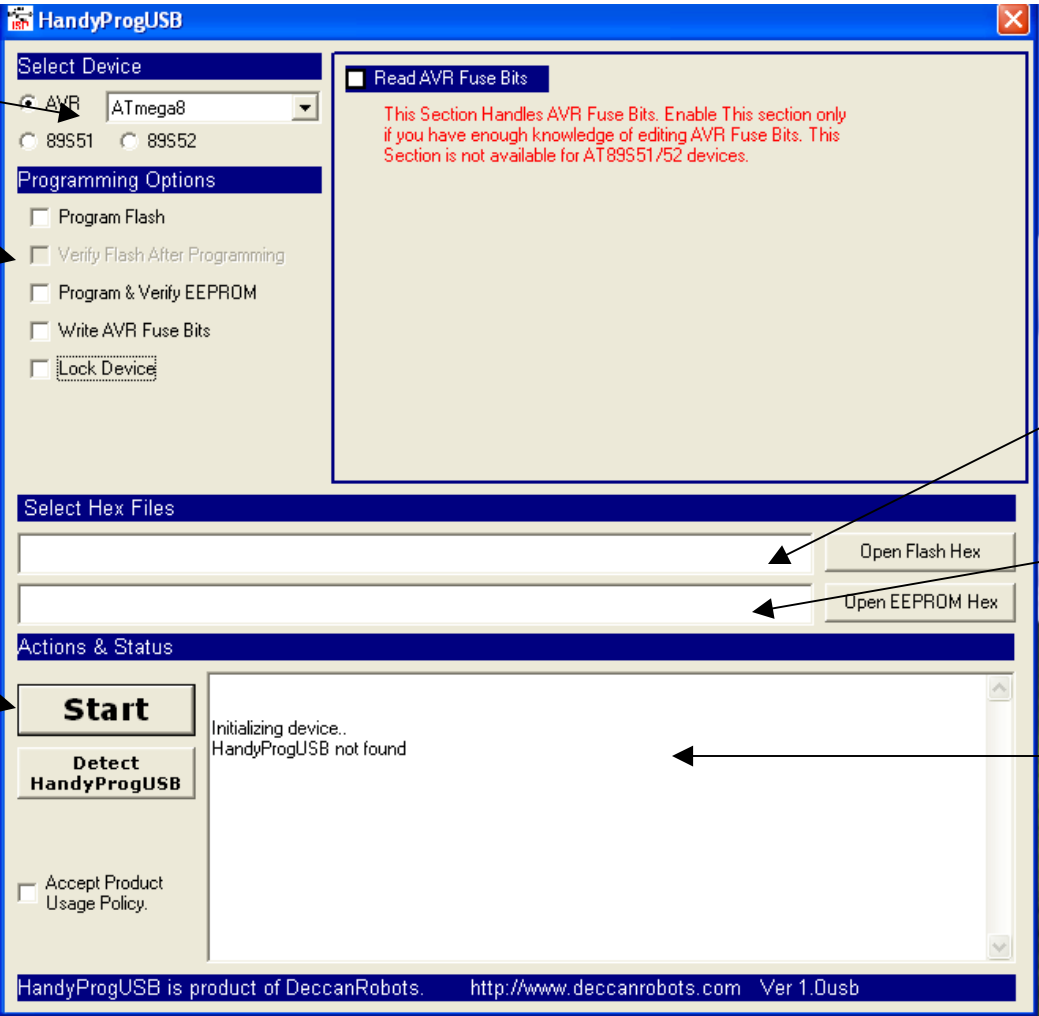
Start Programming

3

Select Flash Hex File

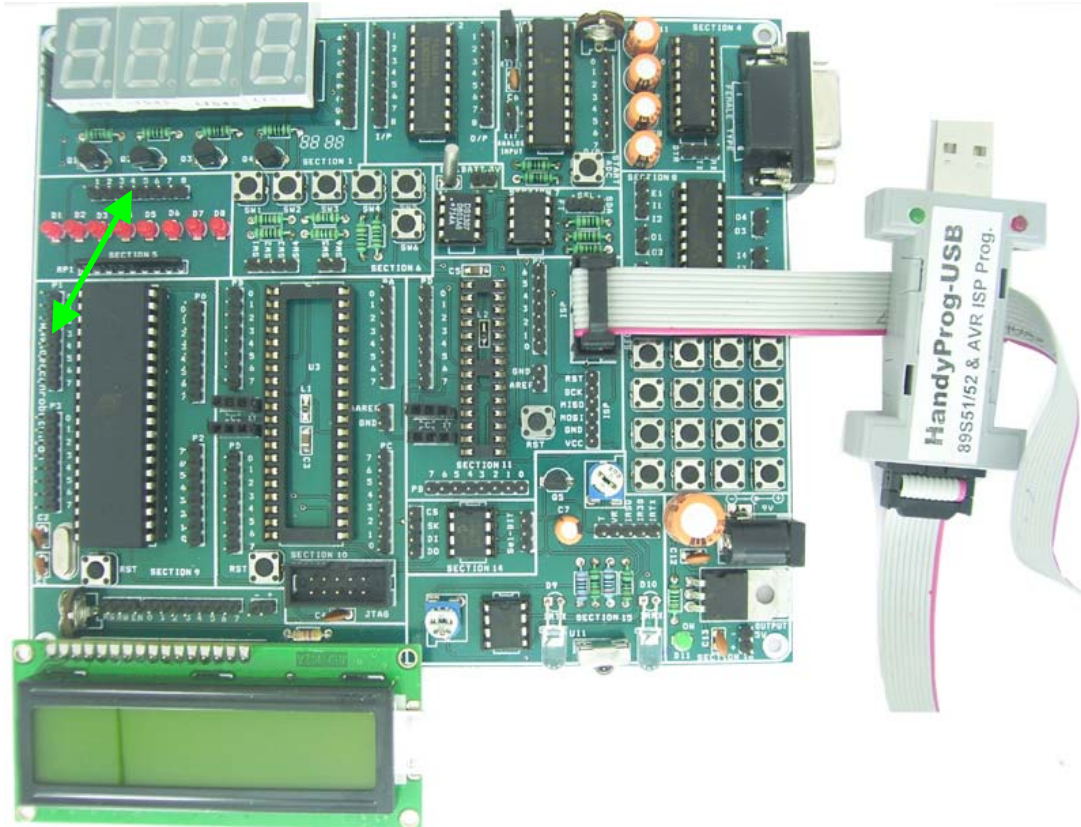
Select EEPROM Hex File (Only for AVR)

Status messages will appear here.



Interfacing Microcontroller with the Interfacing circuits – Step 1

Use the female to female connectors provided with the product to connect microcontroller's port to the interface circuits.



Interfacing Microcontroller with the Interfacing circuits – Step 2

- Write the firmware program using 8051IDE for 89S52 and WinAVR for AVR microcontrollers.
- Assemble / Compile the program to generate Hex file.
- Load the Hex file into HandyProgUSB Software.
- Connect HandyProgUSB Programmer to the kit and Program your hex file into the target microcontroller.
- Once the programming gets over, target microcontroller is put in Run mode automatically.

Information

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Ph: +91 20 24228818 (Not for support)

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support@deccanrobots.com

Send your support query only via email.

Disclaimer:

PCAM (Practical Course For ATMEL Microcontroller) is designed only for learning and experiments. This product is not designed for mission critical applications and industrial product development.