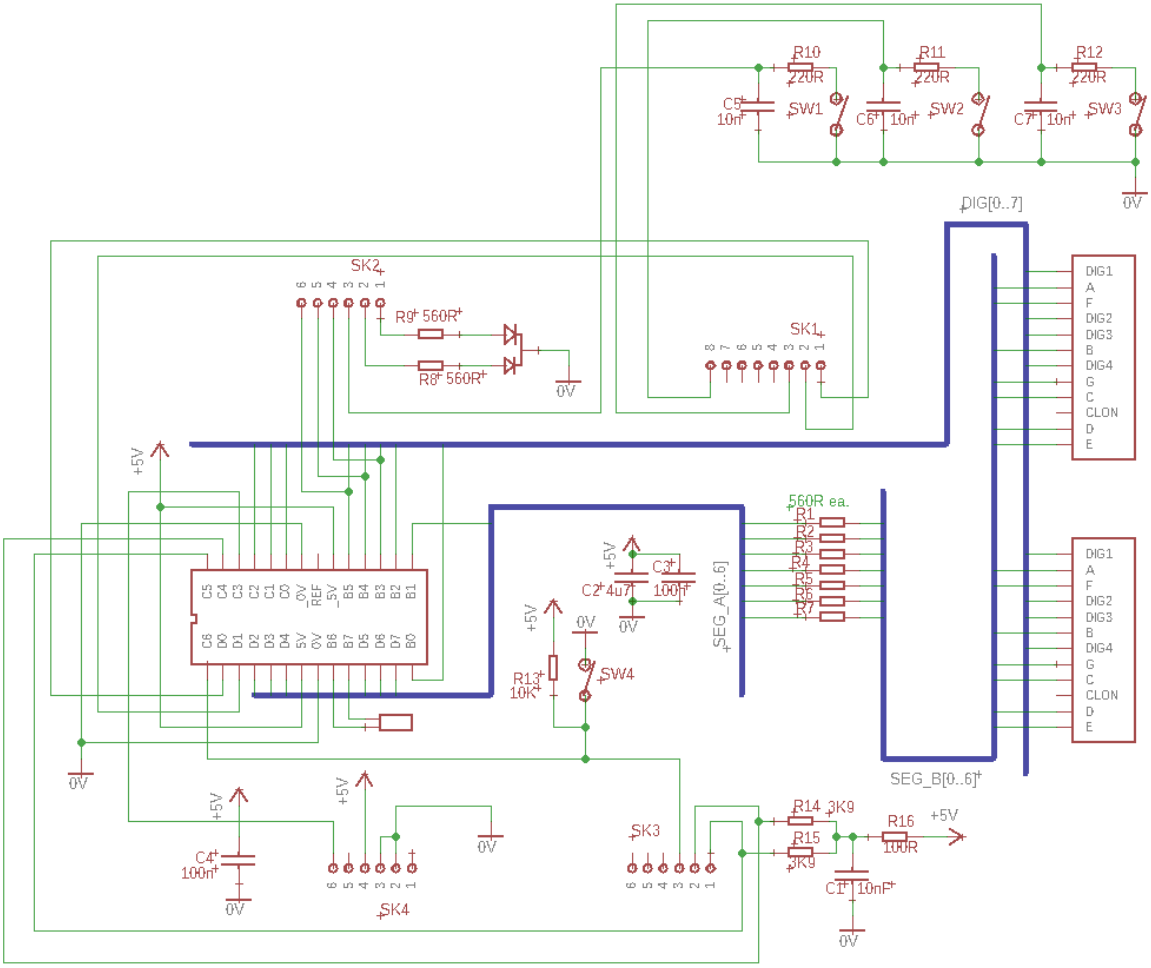
PCB111000_UNO

What is it
It is a simplified version of PCB111000 designed to plug onto an Arduino UNO pcb.
It contains the display, the OS device (an Atmega 328 loaded with the mini-OS), user switches and the dual led.
Note: The OS consists of the display driver and PCB bootloader.

The UNO supplies the USB bridge, power and sockets and the user device (an Atmega 328 that hosts an Atmega bootloader and the user projects).

Circuit diagram (note: A watch crystal is connected between B6 and B7)



ARDUINO UNO connections

SK1		SK2		SK3		SK4	
1	D0 RXD	1	B0	1	C5 SCL	1	
2	D1 TXD	2	B1	2	C4 SDA	2	0V
3	D2	3	B2	3	C3	3	0V
4	D3	4	B3 MOSI	4	C2	4	5V
5	D4	5	B4 MISO	5	C1	5	3V3
6	D5	6	B5 SCK	6	C0	6	C6 RESET
7	D6						
8	D7						

PCB111000/Arduino interconnections

Note:
The Arduino_UNO (to be k/a the UNO) contains the user IC, the one that hosts user projects.
PCB111000_UNO (to be k/a PCB111000_1) contains the IC that hosts the mini-OS and programmer.

	PCB111000_1	UNO	
	SW1	B2	User switches
	SW2	D7	
	SW3	D2	
	SW4 C6 RESET	C3	Resets mini-OS/programmer IC
	R8	B0	Dual LED driver
	R9	B1	
	R14	C4 SDA	I2C bus
	R15	C5 SCL	
	B3	B3 MOSI	Bi directional programming interface
	B4	B4 MISO	
	B5	B5 SCK	
	C3	C6 Reset	Resets the user IC

PCB111000_1 Display connections

	Segments	Port	Digits	Port
	A	B1	1	B5
	B	D2	2	C0
	C	D3	3	C1
	D	D4	4	C2
	E	D5	5	B0
	F	D6	6	B2
	G	D7	7	B3
			8	B4

Project applications

1. Hex/text bootloader. This resides in the boot partition of the user device and programmes its flash with hex and text files.

2. On-chip EEPROM programmer. This is hosted by the user device so that its EEPROM can be programmed (usually with strings required by the system programmer).

3. Atmega 328 system programmer. When hosted by the user device this programs the OS device with the mini-OS. It also programs the EEPROM of the OS device with strings. When residing on the OS device it can be used to update or reinstall the hex/text programmer.

4. PCB bootloader. This resides in the boot partition of the OS device. It is anticipated that it will only be used rarely. It should not be used in place of the hex/text bootloader because it will completely re-initialise the flash of user device.