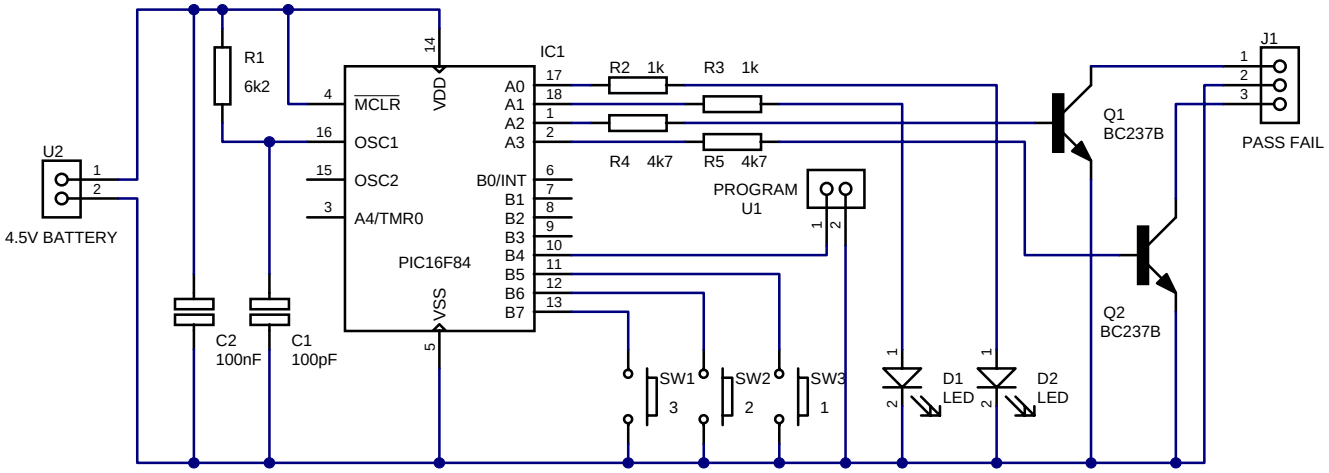
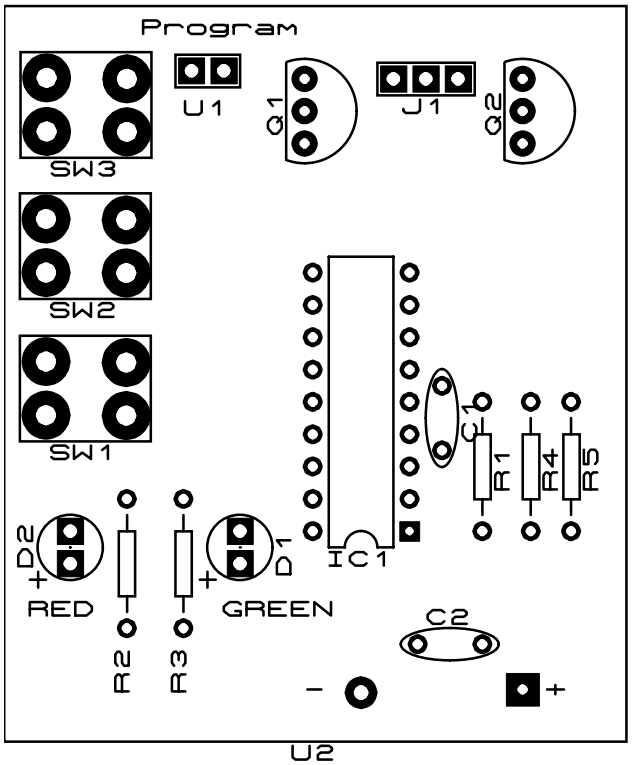
apPlICation's

AP5 – Electronic Lock
Farnell Order code 120-108

Circuit Diagram



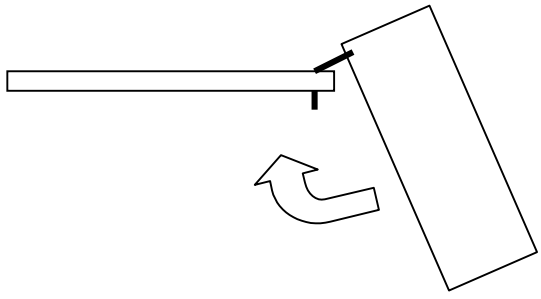
Board Layout



Assembly

Insert the components as shown, ensuring the PIC is correnctly inserted. Check the board for solder bridges and dry joints before applying power. Leds should be inserted with the longer lead to the + symbol on the drawing.

The battery holder is best inserted with the pins passed through the top of the board, soldered and then gently folded under the board and finally attached with the double-sided pad supplied.



J1 – Connections to customer circuit.

Operation

The Alarm has two modes of operation – program and run. Initial coding is achieved by placing the header link onto the 2 pins at (U1). This will activate the program mode. Remove the link before the digits are entrered. Six digits are required to be entered. This is acheived by depressing the the push buttons in a sequence, i.e. 1, 2, 3, 1, 2, 3; 1, 2, 3, 3, 2, 1, etc, or any combination you wish. As each digit is entered, the pass light will flash once. On completion of the 6th number, the pass light will flash for a few seconds. The PIC will move into a sleep mode and will be woken by a button press. If the user enters 6 correct digits, the green light will stay on for 2 seconds. If an incorrect code is entered, the red light will illuminate. The transistors can be used to drive electronic locks or alarms.

To change to code, replace the link header. Enter the new code. The red light will flash. (This indicates the original code has been removed). Enter the new code again. On completion the green light will flash. Remove the link header.

The software is self explanitory and should not be difficult to follow. Modifications to the code could be to change the number of codes, add a timeout delay or a lockout for greater than a preset consecutive errors.

Moving on from here

If you wish to learn more about the PIC, there are a number of books on the subject which will assist.

Beginners Guide the the PIC	Farnell order code AD31
PIC Cookbook Vol 1	Farnell order code DT76
PIC Cookbook Vol 2	Farnell order code VQ59

The minimum hardware needed to get started is the PIC Start Plus programmer (Farnell order code 704-740) which is supplied with it's own development environment – MPLAB. From there you could branch out to an ICEPIC In Circuit Emulator which speeds up development time. The software on the disk is in a text format which can be printed from any wordprocessor package or DOS EDIT.

Parts List

The kit should contain the following items. If there is a shortage, please contact your supplier in the first instance.

Part Description	Quantity	Circuit reference
Capacitor 100pF	1	C1
Capacitor 100nF 63v	1	C2
Single row header plug	1	U1
Miniature closed jump link	1	U1
Red LED	1	D2
Green LED	1	D1
Resistor - 1K	2	R2, R3
Resistor - 4K7	2	R4, R5
Resistor - 6K2	1	R1
Adhesive foam pad	1	- -
Push buttons	3	SW1 - SW3
BC237B Transitor	2	Q1, Q2
PCB mounted battery box	1	U2
Diskette	1	- -
IC	1	IC1
Printed circuit board	1	- -

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