70-9116 4 Siren Sound Generator & Flashing Lights Kit
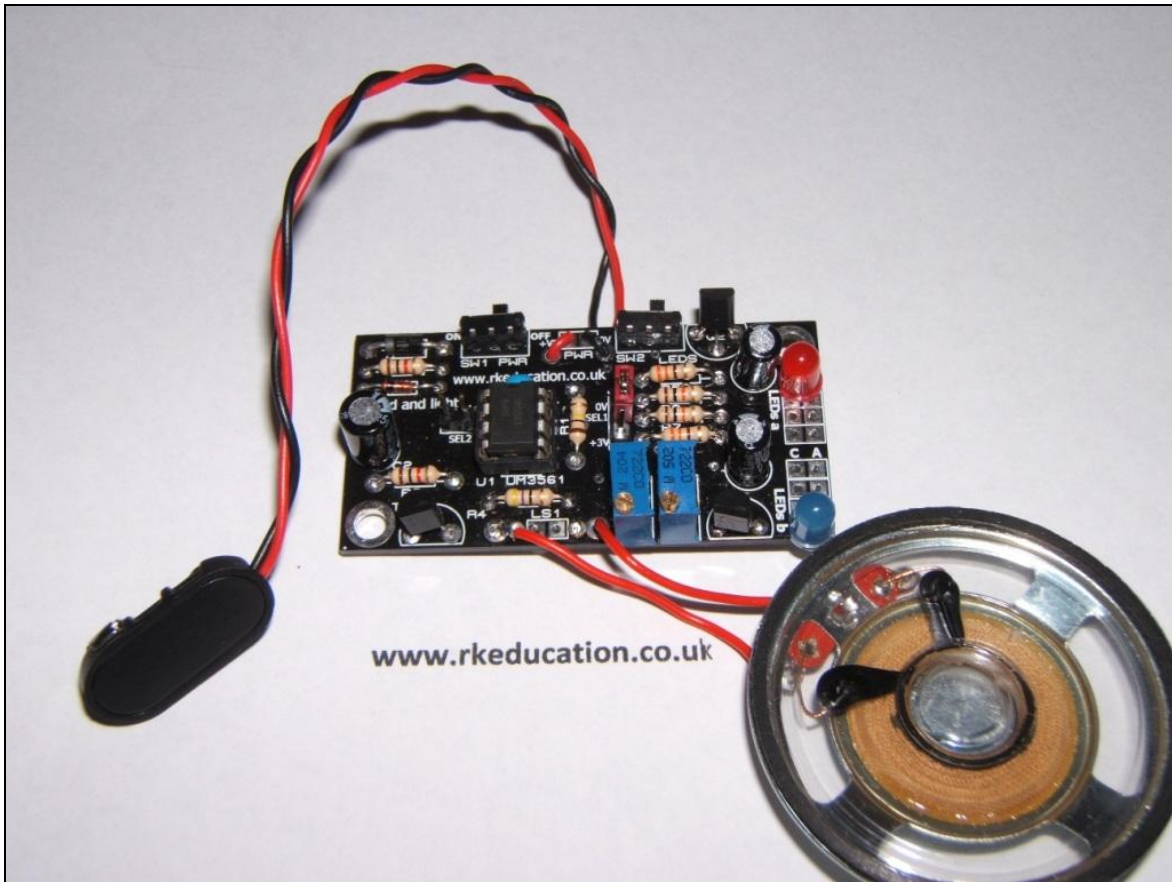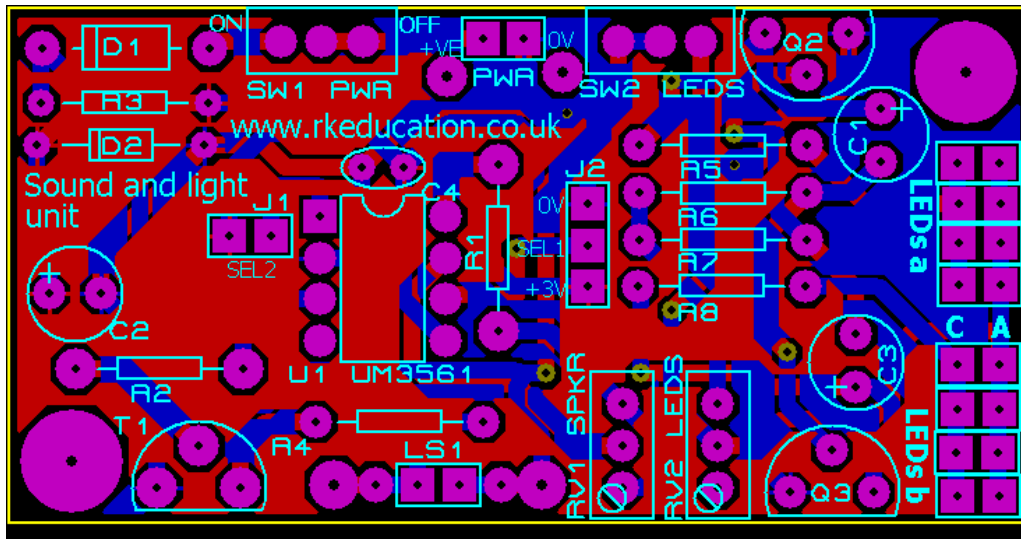## Component List and Instructions - V3 Oct 2018
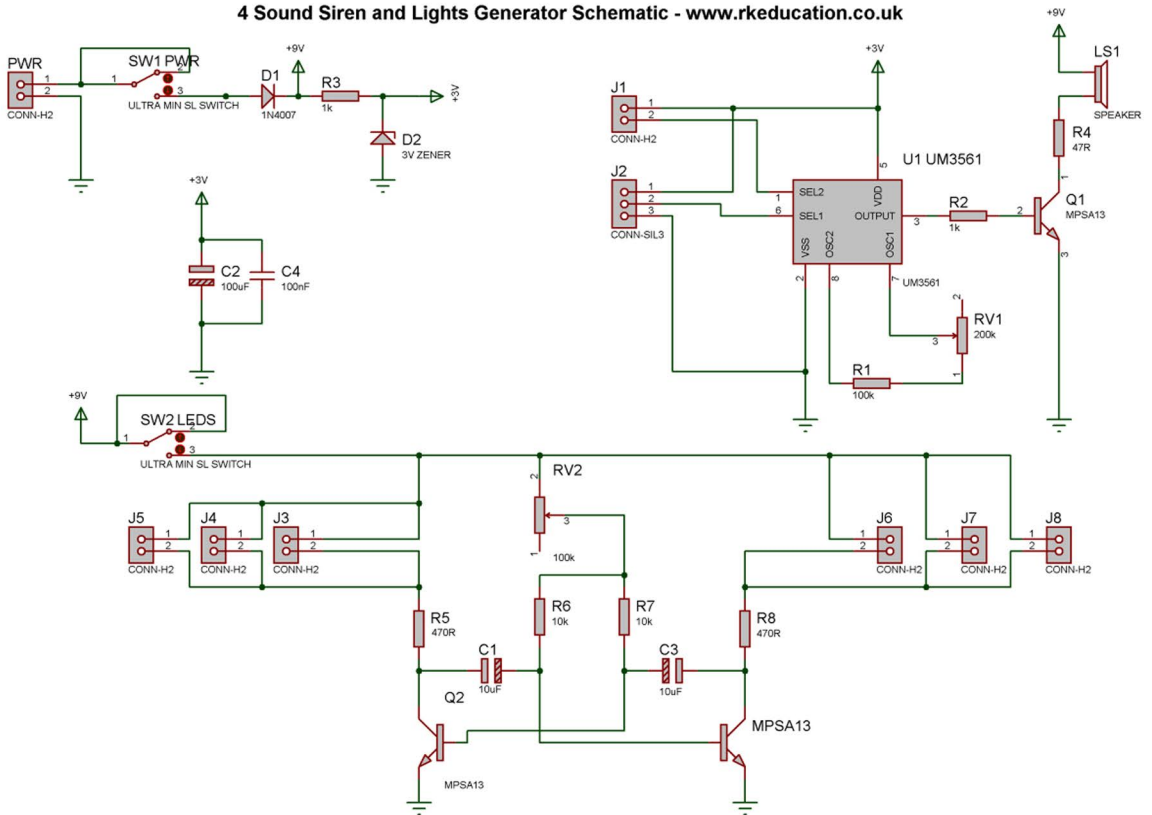

Constructed PCB

PCB layout

Schematic Diagram

4 Sound Siren and Lights Generator Schematic - www.rkeducation.co.uk

Description

This project PCB has been specifically designed to use the UM3561 siren generator chip and is great for integrating into models.

- A low cost method of producing emergency vehicle sounds
- Perfect for models
- Has 4 different siren sounds
- The siren is selected using a PCB jumper
- The pitch of the siren can be varied
- Includes space for 8 LEDs, in 2 groups of 4
- LEDs flash
- Flashing frequency can be varied
- LEDs can be turned on and off independent of the siren
- Battery powered
- Uses a high quality speaker
- Manufactured using a double-sided professional, black PCB
- The PCB has mounting holes
- PCB has a clear silkscreen
- Compact design

Component List

PWR – for battery clip, ensure correct polarity, the holes either side can be used to thread the battery clip leads
J1 - 2 way header (SEL2)
J2 - 3 way header (SEL1)
C1, C3 – 10µF electrolytic capacitor, these control the frequency of LED flashing and can be varied
C2 – 100µF electrolytic capacitor
C4 – 100nF multilayer ceramic capacitor
D1 – 1N4007 diode
D2 – 3.3V zener diode
LS1 – Speaker, attach using flying leads
R1 – 100kΩ resistor (brown, black, yellow)
R2, R3 – 1kΩ resistor (brown, black, red)
R4 – 47Ω (yellow, violet, black)
R5, R8 – 470Ω (yellow, violet, brown)
R6, R7 – 10kΩ (brown, black, orange)
RV1 (100K), RV2 (200K) – variable resistors
SW1, SW2 – ultra miniature slide switch
Q2, Q3 – MPSA13 transistor
T1 – MPSA13 transistor
U1 – 8 way DIP socket with UM3561
LEDs not included

Instructions

For detailed information on the UM3561 please see the appropriate datasheet, this can be found at www.rapidonline.co.uk

When constructing PCBs it is advisable to start with the components with the lowest profile, for example resistors, and end with the components with the highest profile, for example capacitors.

It will be necessary to attach wires or speaker cables to the speaker. The speaker should be connected to the PCB by soldering the speaker wires to LS1. Extra pads have been included for greater flexibility. Normally the 2 pads in the centre should be used.

Wires will also normally need to be added to the LEDs. The PCB has space for up to 8 LEDs, 4 either side of the transistor astable.

Connecting Power

The power is connected to the PCB pads marked PWR. The 0V input, usually black, is put in the right hand terminal and the +VE, usually red, is put in the left hand terminal. A 9V battery should be used. A power switch is included and is labelled SW1. Alternative switches can be used. If a switch is not needed, a shorting link will need to be used instead.
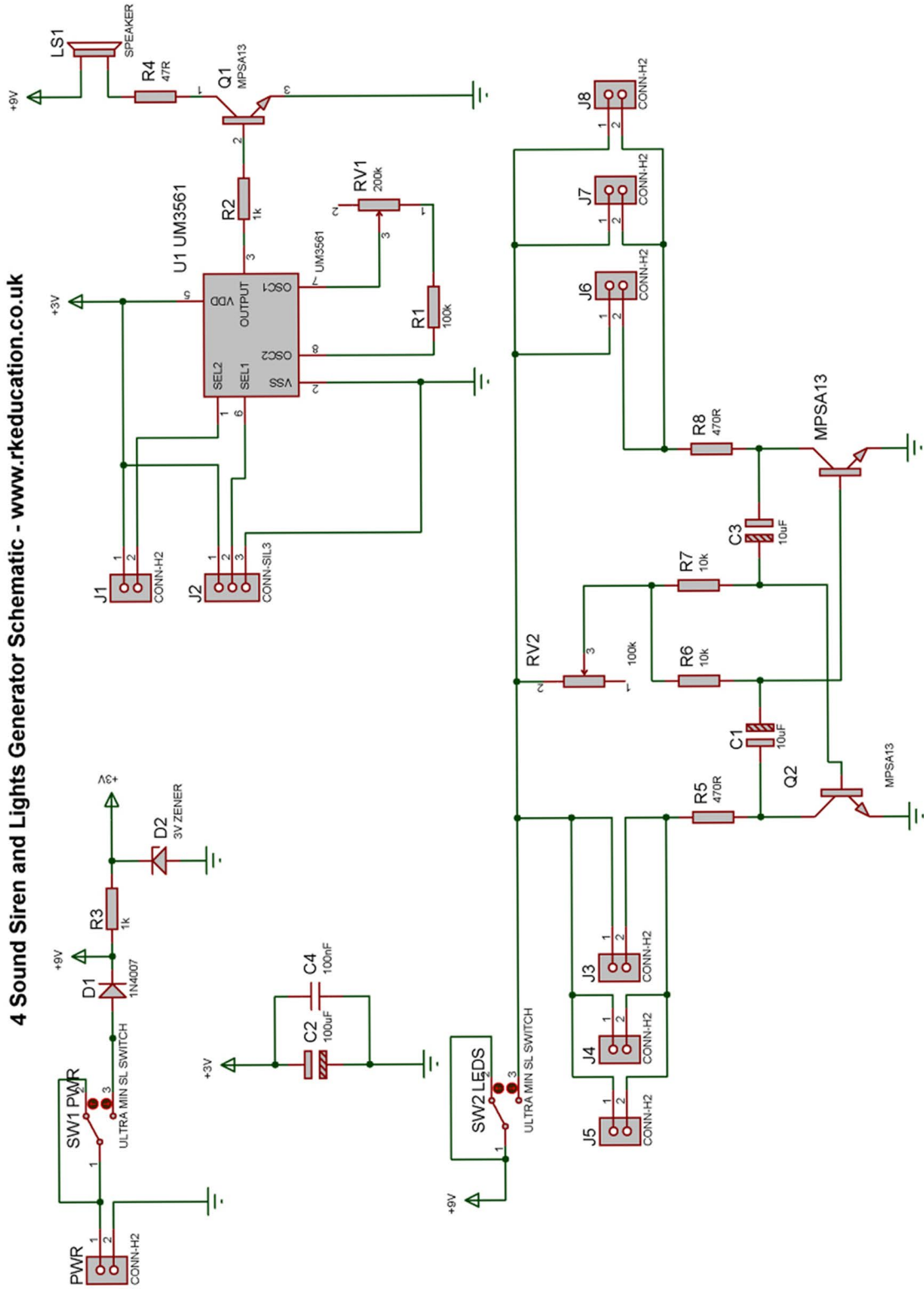
Using the PCB

When powered, and if the PCB has been constructed correctly, the siren will sound. By changing the position of the header socket the sound of the siren can be changed There are 4 different siren sounds.

The PCB also includes a section for flashing up to 8 LEDs. This section of the PCB is based around a transistor astable circuit. The frequency can be varied using RV2.

The pitch of the siren can be varied by adjusting the variable resistor RV1.

4 Sound Siren and Lights Generator Schematic - www.rkeducation.co.uk

Schematic Diagram