FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

LIE DETECTOR
CODE 940

LEVEL 1

A lie detector circuit that used for playing among friends at leisure. This circuit uses the principle of skin moisture volume detecting. Telling a lie will increase more skin moisture volume so that this circuit can detect.

Technical specifications:

- Power supply : 9VDC.

- Consumption : 32mA max.

- Adjust detecting speed with trimmer potentiometer.

- PCB dimensions : 3.03 x 1.75 in.

- Recommended housing : Future Box (FB03).

How to work:

When there is moisture at detecting plate, the circuit will start working. Moisture is an electrical media that will supply voltage to bias the base of TR1 and causes TR1 to work. Voltage from the collector will feed the emitter of TR1 through VR1 which acting as a detecting speed adjuster. The said voltage will be used to bias TR2-TR5 through D1-D6. The working of TR2-TR5 will depend on incoming voltage to bias the base of TR1. If there is enough voltage passing the detecting plate, all TR2-TR5 will work and lit all LEDs. But if there is less voltage, TR2-TR5 will work due to the passing voltage and lit some LEDs.
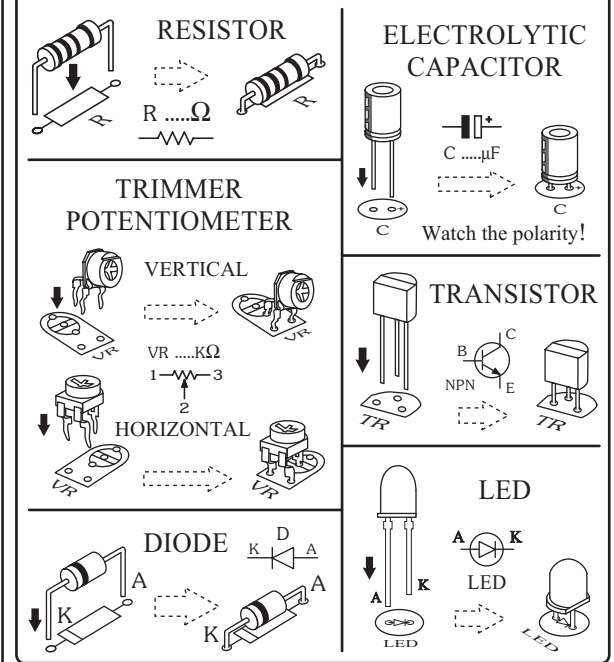
Circuit assembling:

External connecting and fitting of components are shown in figure 3. It is recommended to assemble the circuit starting with a less height component i.e. diodes, resistor, electrolite capacitors and transistors etc. Be careful while assembling and check for the matching of PCB poles and components before soldering as shown in Figure 1. Use a max. 40W. solder and soldering lead with a tin and lead ratio of 60/40 together with a joint

solution inside. Recheck the assembled circuit for your own confidence. Better using a lead sucker or a lead wire absorber in case of misplacing component to protect PCB damage.

Testing:

Supply voltage of 9VDC to the circuit and try to adjust the trimmer VR1 to the most right hand, all LEDs will be off. Try to short circuit of both poles of the detecting plate by using electrical wire or any component pin, all LEDs will be lit. Taking out electrical wire or component pin, all LEDs will be off. Touching hand at detecting plate, LEDs will be lit depending on the hand moisture. It shows that the circuit is workable. In using, VR1 should be adjusted accordingly.

Figure 1. Components installing

RESISTOR

R ......Ω

ELECTROLYTIC CAPACITOR

C ......µF

Watch the polarity!

TRIMMER POTENTIOMETER

VERTICAL

VR ......KΩ

1 —〜— 3
2

HORIZONTAL

TRANSISTOR

B   C
NPN
E

TR

DIODE

K D A
A
K
A
K

LED

A ⟶ K
LED

Troubleshooting:

As the circuit has only a few components, the main cause of troubles will come from component misplacing and defaulted soldering. When found out that the circuit does not work, check for the proper component placings and various soldering points.
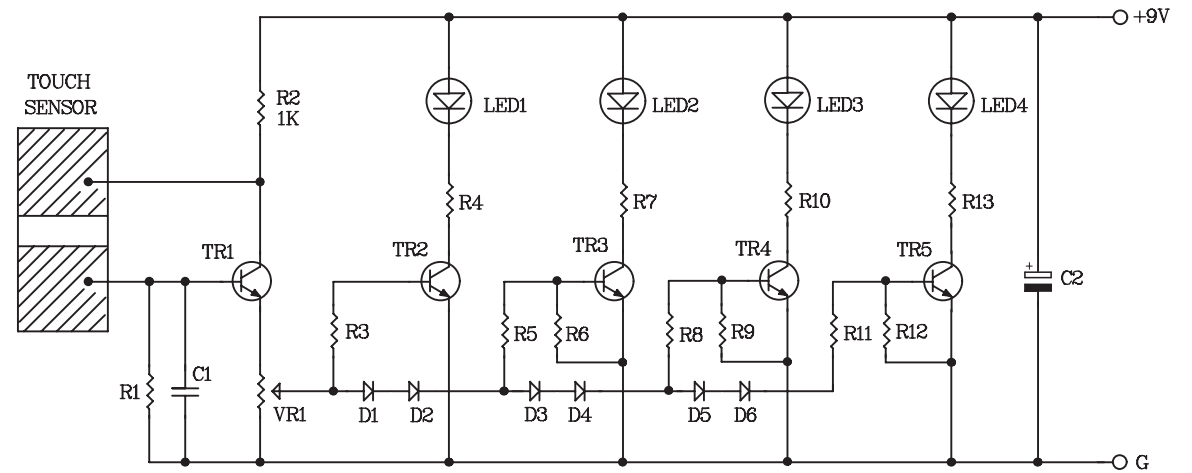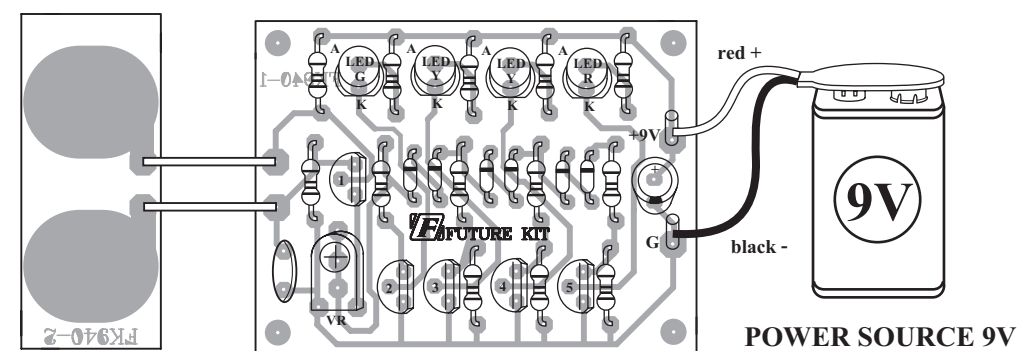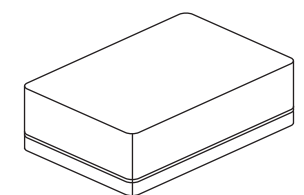

Figure 2. Lie detector circuit

Figure 3. Circuit assembling

FK940-1

red +

black -

POWER SOURCE 9V

9V

NOTE:

FUTURE BOX FB03 is suitable for this kit.