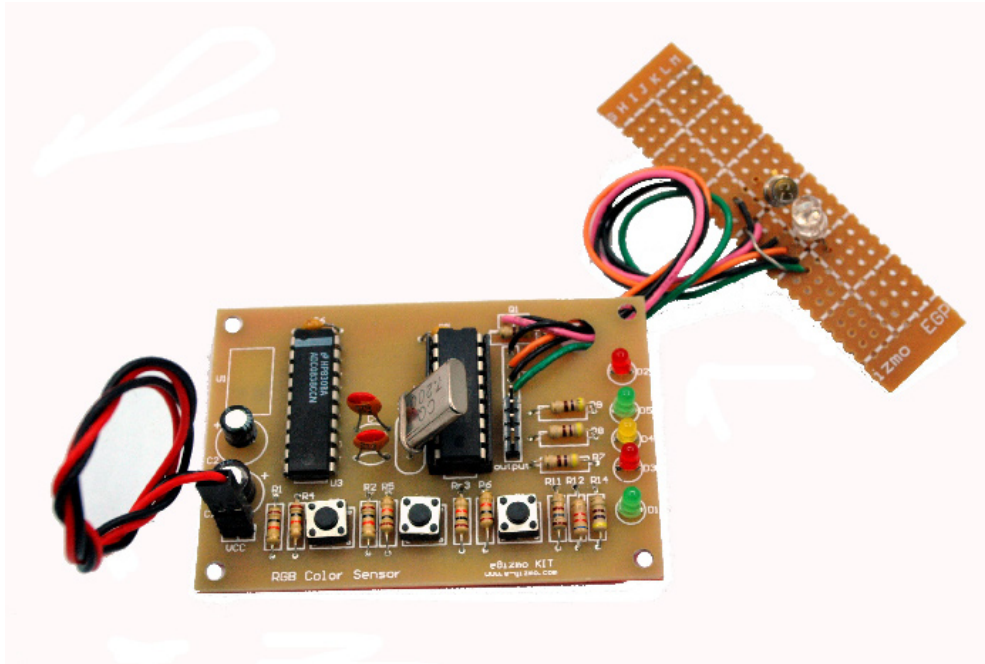# RGB Color Sensor

FEATURES

- Power requirement: 7 – 9VDC power supply or battery.
- Controller: Z8E04 MCU
- Color memory: up to 3 colors can be stored
- User interface: 3 push buttons. 1 for each color memory
- Outputs: 3 logic outputs. 1 for each color

RGB Color Sensor detects color by measuring how much light is reflected by the object under test using red, green, and blue light source. Color tolerance is preset to 12% and is capable of detecting wide range and shades of colors. Internally stores up to three color profiles corresponding to its three Go-NoGo digital outputs.

Microcontroller based sensor capable of detecting object of desired color. Can store up to 3 different colors and has 3 individual logic output for each setting. Setting of desired color can be done easily thru simple push button action.
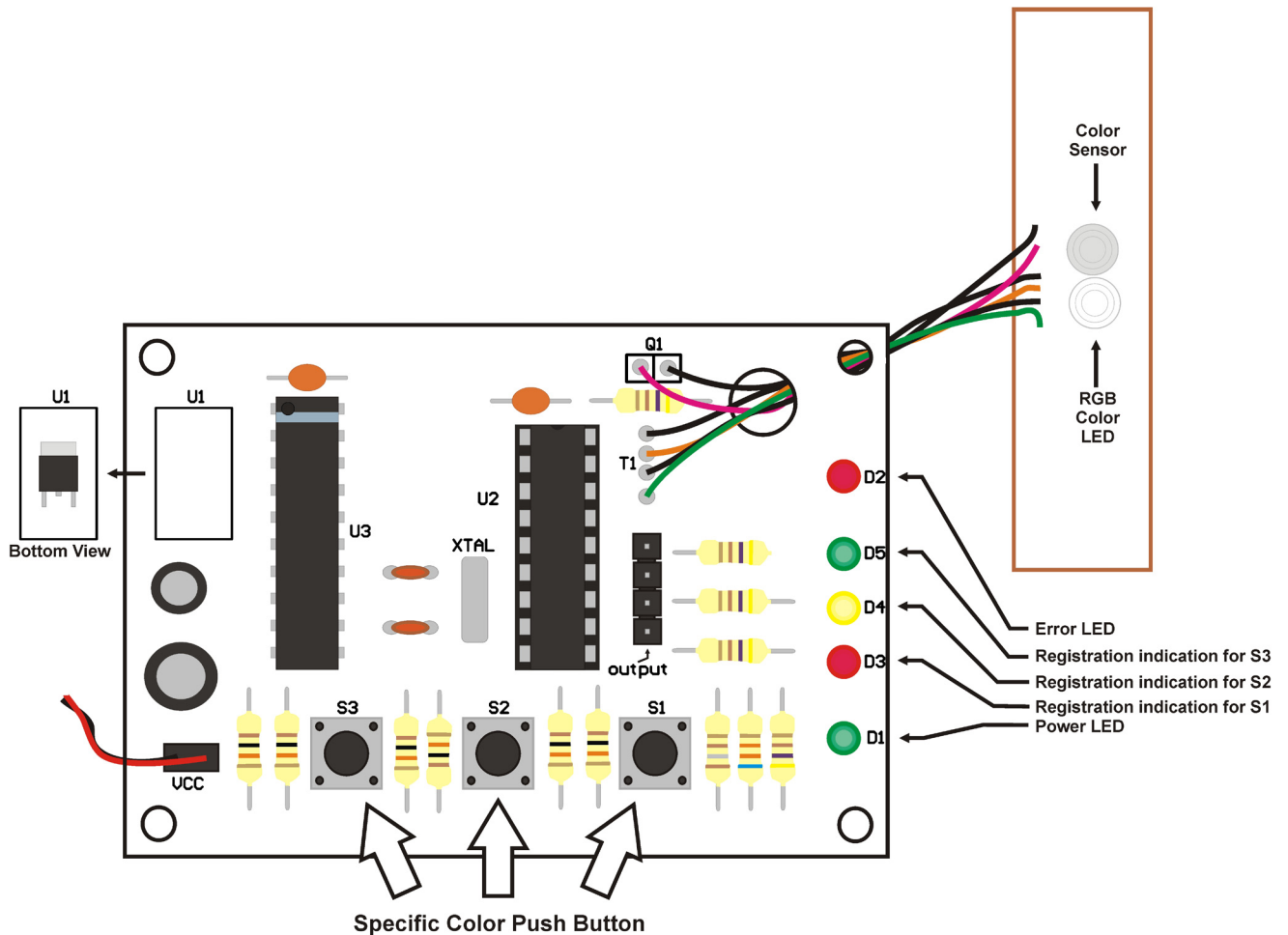
MAJOR COMPONENTS PRESENTATION

Figure 1. *RGB Color Sensor & its major components*

PARTS DESCRIPTION:

Power LED - lights up when a supply voltage is present

LED 1, 2 & 3 - lights up individually when object's color is the same or near the SET COLOR for each LED.

Error LED - lights up when the sensor is saturated for that specific color being test. Also lights up at the absence of an object.

Switch 1, 2 & 3 - Use to set desired color. Push until corresponding LED blinks then release to set desired color. The corresponding LED will lights up indicating that the present color was set successfully.
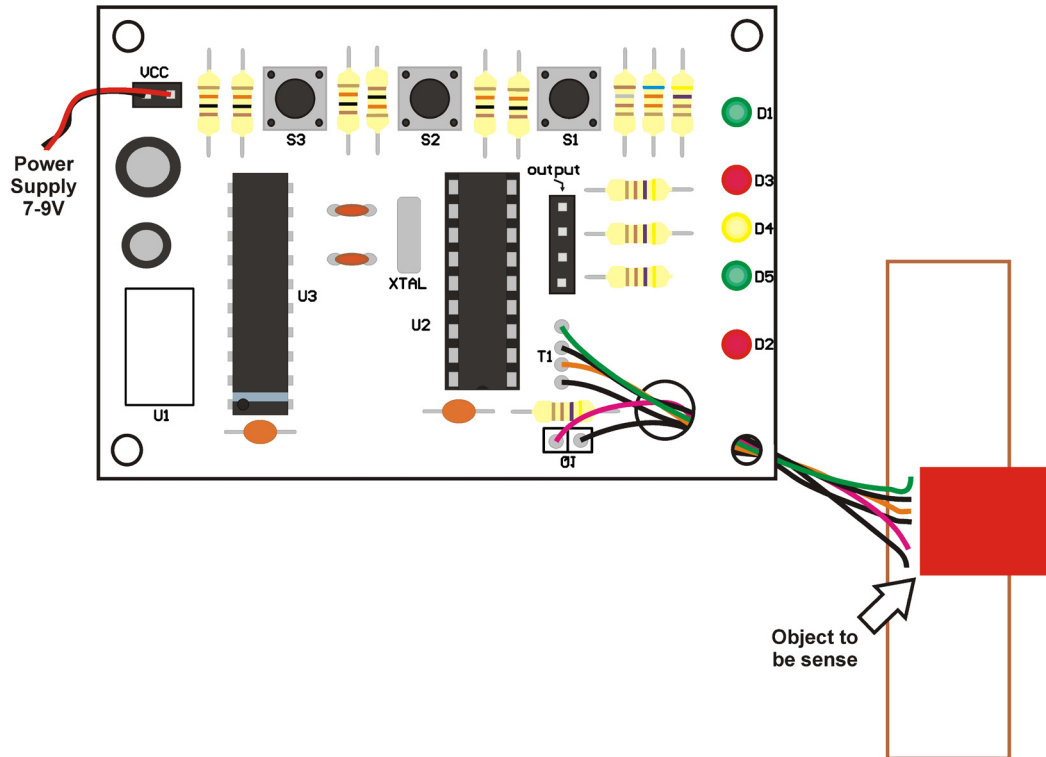
Output Port - each color have 1 logic output.

VCC Port - for 7V-9V power supply or battery.

U2(Z8EO4 MCU) - microcontroller capable of detecting object of desired color.

Color Sensor - act as input, and sense and register specific color.

OPERATION - HOW TO USE & APPLICATION EXAMPLES

Figure 2. *RGB Color Sensor Connected to a microcontroller with Color LCD Shield*

To start, put a power supply in the 'VCC' port. Put the object on the RGB LED and Color sensor then press the chosen color registration button(S1, S2, or S3) until the colored LED blinks (Indication of color registration), do the said process 3 times using different push buttons.
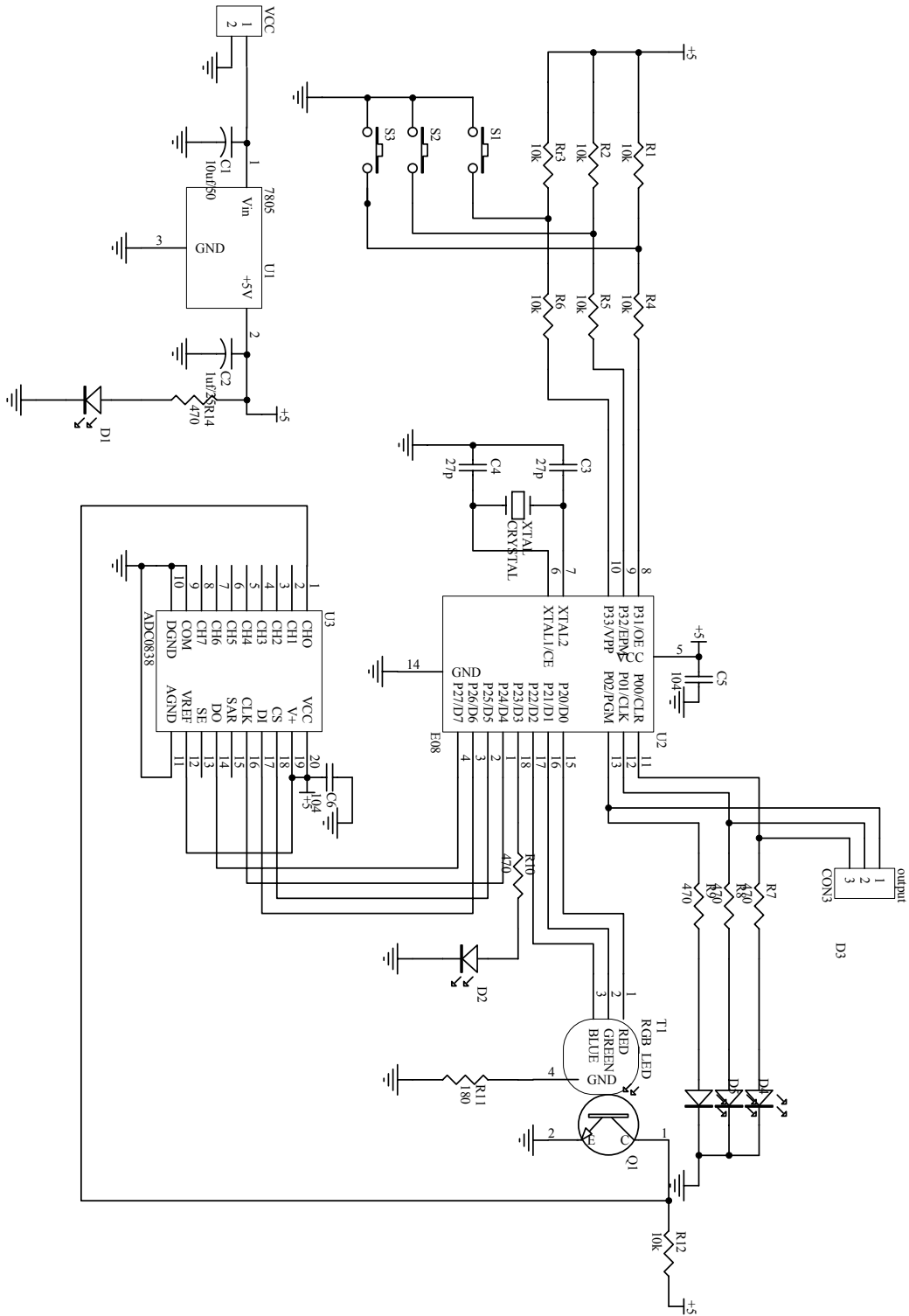
Figure 3. *Schematic Diagram of RGB Color Sensor*
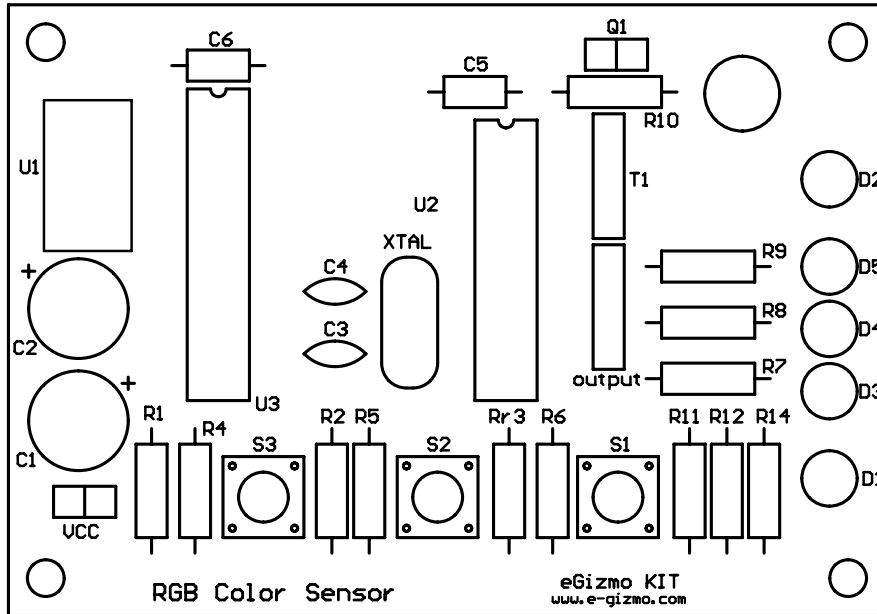
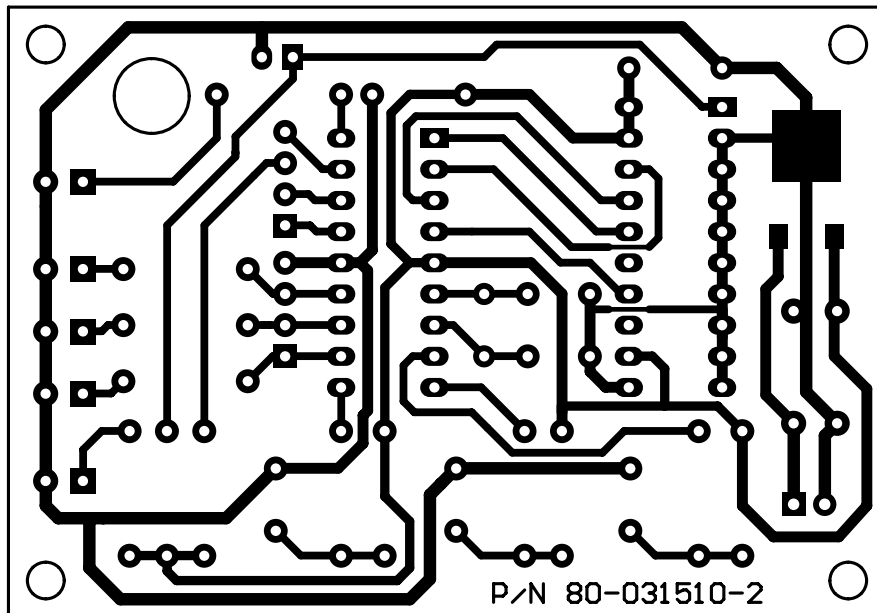# PCB BOARD PRESENTATION

Figure 4. *RGB Color Sensor PCB*
(silkscreen layout)

Figure 5. *RGB Color Sensor PCB*
Copper Pattern

LIST OF MATERIALS

I.D.	Quantity	Description
U1	1	78m05 ox931
U2	1	Z8E04 MCU
U3	1	ADC0838CCN
C1	1	capacitor
C2	1	capacitor
C3	1	capacitor
C4	1	capacitor
C5	1	capacitor
C6	1	capacitor
D1	1	LED (Green)
D2	1	LED (Red)
D3	1	LED (Red)
D4	1	LED (Yellow)
D5	1	LED (Green)
R1	1	resistor
R2	1	resistor
R3	1	resistor
R4	1	resistor
R5	1	resistor
R6	1	resistor
R7	1	resistor
R8	1	resistor
R9	1	resistor
R10	1	resistor
R11	1	resistor
R12	1	resistor
R13	1	resistor
R14	1	resistor
S1	1	Tact Switch
S2	1	Tact Switch
S3	1	Tact Switch
XTAL	1	7.2Mhz crystal
RGB LED	1	Multi color LED
Color Sensor	1	
PCB	1	