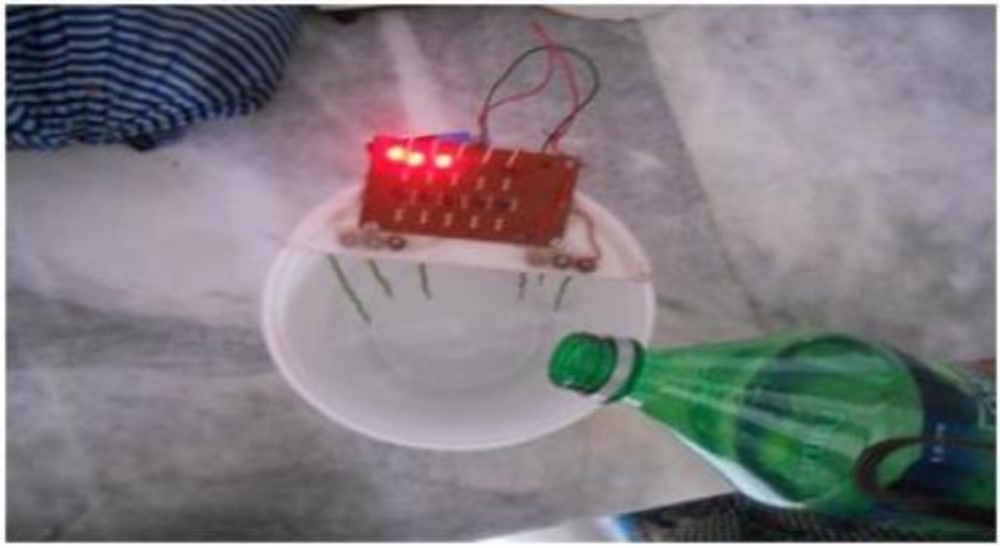
Water level indicator project



Water level indicator project

Water level indicator project by: Ahmed Ibrahim

Introduction:

It is used to check the level of water in the water tank.

Materials:

1. Resistors

2. Transistors _ a733k ph80

3. Diode

4. Led bulbs (light emitting diode)

5. Nuts

6. Connecting wires

7. Battery 6 or 9v

8. Connecting pipe

Functions of the materials:

1. Resistors: they limit the current and provide only the required biasing to the vital parts like transistors.
2. Transistors: they amplify the current to provide right amount of current to the led's to operate.
3. Diode: it allows the current to pass in one direction only.
4. Led bulbs: to indicate different water levels.
5. Nuts: to tighten the wires which are inserted into the water bucket.
6. Connecting wires: to allow the passage of current.
7. 9v battery: to provide required voltage for the led's and prevent hazards related to current.
8. Connecting pipe: to allow the passage of water between the buckets.

Working:

Wires of different lengths but of same material are tightened by the nuts. Each wire is connected to a particular led. When water is added in the bucket, the first led to glow is the one whose wire is longest. The second led glows when water makes contact with the second longest wire. When a particular wire makes contact with water it will be connected to wire "n" through water: establishing a negative voltage across the base of transistor. This results in the flow of current and hence the leds glow.

Advantages:

1. To prevent the leakage of water through the water tank as led's indicate the level of water.

2. It is used in different plants and industries to maintain a constant water level

3. Alarm system can also be added to this circuit which will start ringing when the tank becomes full and will prevent water overflow.

Disadvantages:

1. Neck strain.

How to perform:

1. Take two buckets and attach them through a pipe. Name them bucket "a" and bucket "b".

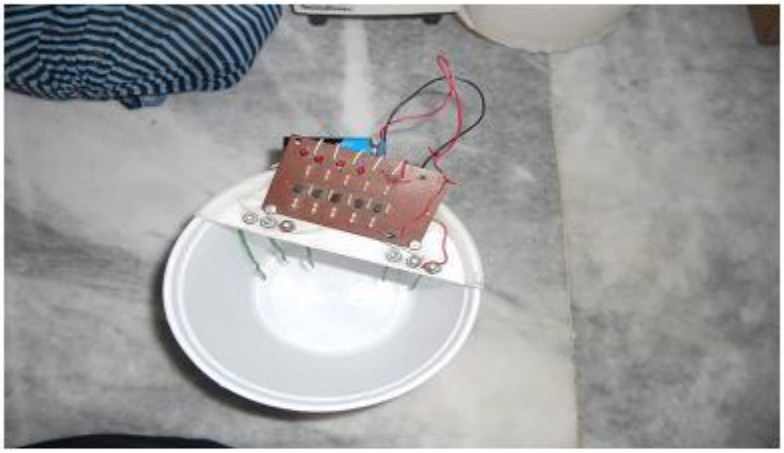
2. Place both buckets on the same horizontal level.

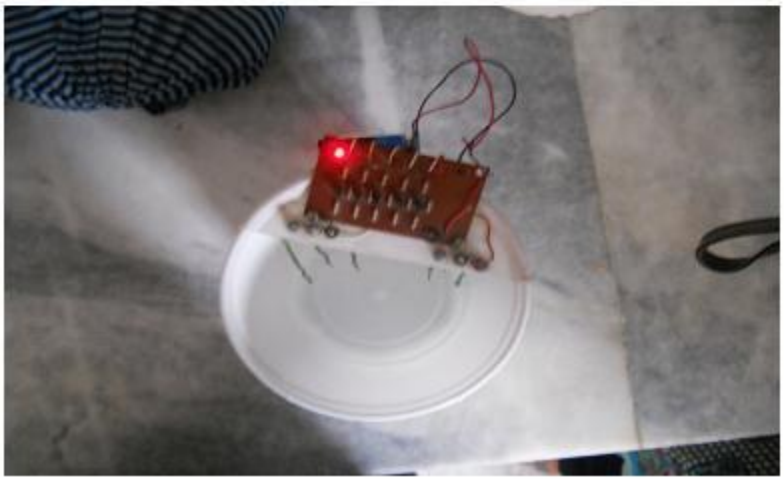
3. Attach the water level indicator system to bucket "a".

4. Start pouring water in bucket "a" and observe that as the water makes contact with wires of different lengths, the led's connected to those particular wires glow.

5. Then place bucket "b" on ground to allow water to pass through the pipe and enter the bucket.

6. Observe that when water loses contact with wires in bucket “a”, the led's connected to those wires turn off.

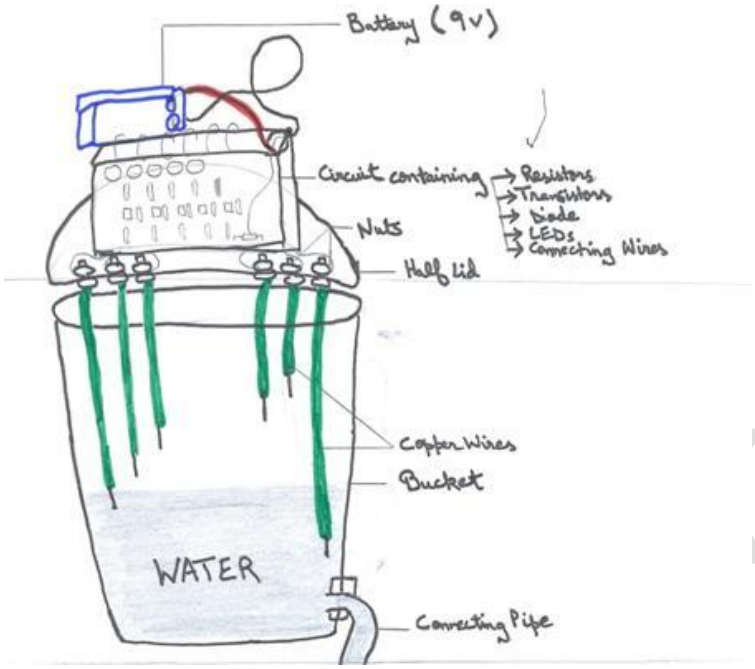


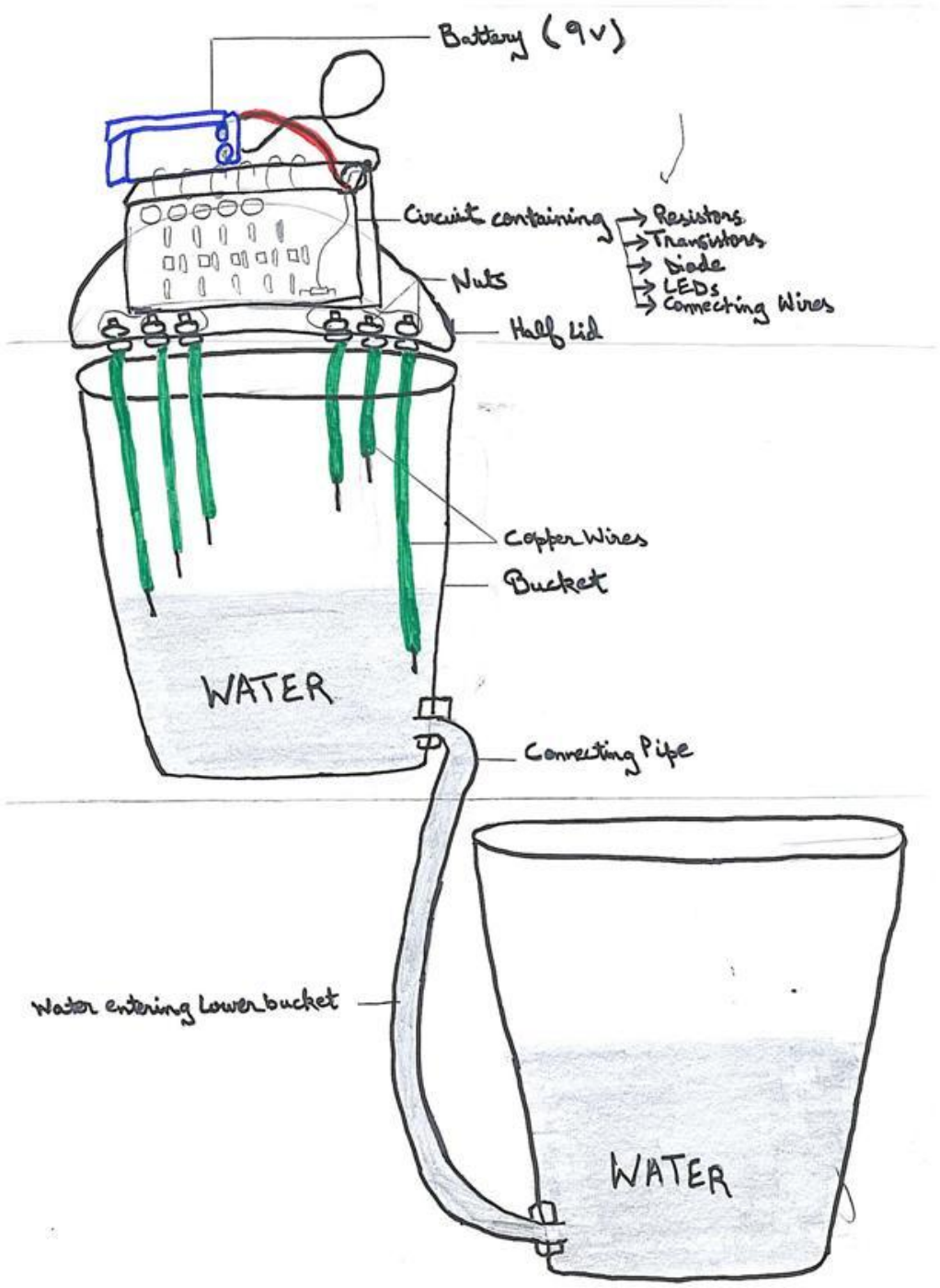


Construction method:

Take two ice-cream boxes or buckets. Drill both of them from the lower end and connect them through a pipe. Cut the lid of one of the box into half. Make drills for insertion of the nuts for holding copper wires. Number of drills is according to number of leds. Then fit the water level indication circuit on the same lid as shown in the diagrams. The circuit is available from the market (rest of the details related to the circuit is presented in the document).

Diagrams:




Battery (9v)
Circuit containing
Resistors
Transistors
Diode
LEDs
Connecting Wires
Nuts
Half lid
Copper Wires
Bucket
WATER
Connecting Pipe
Water entering Lower bucket
WATER

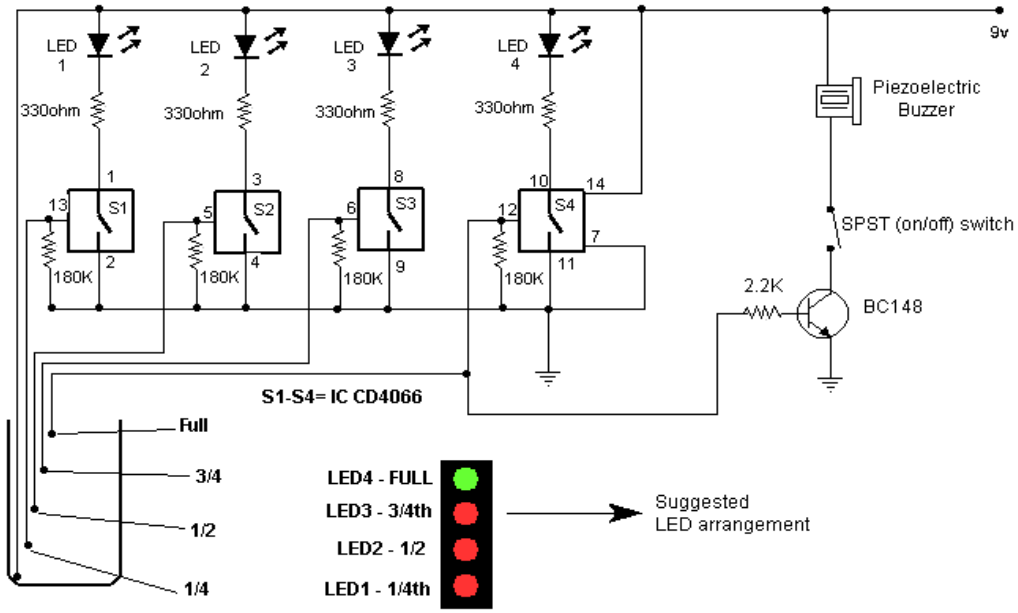
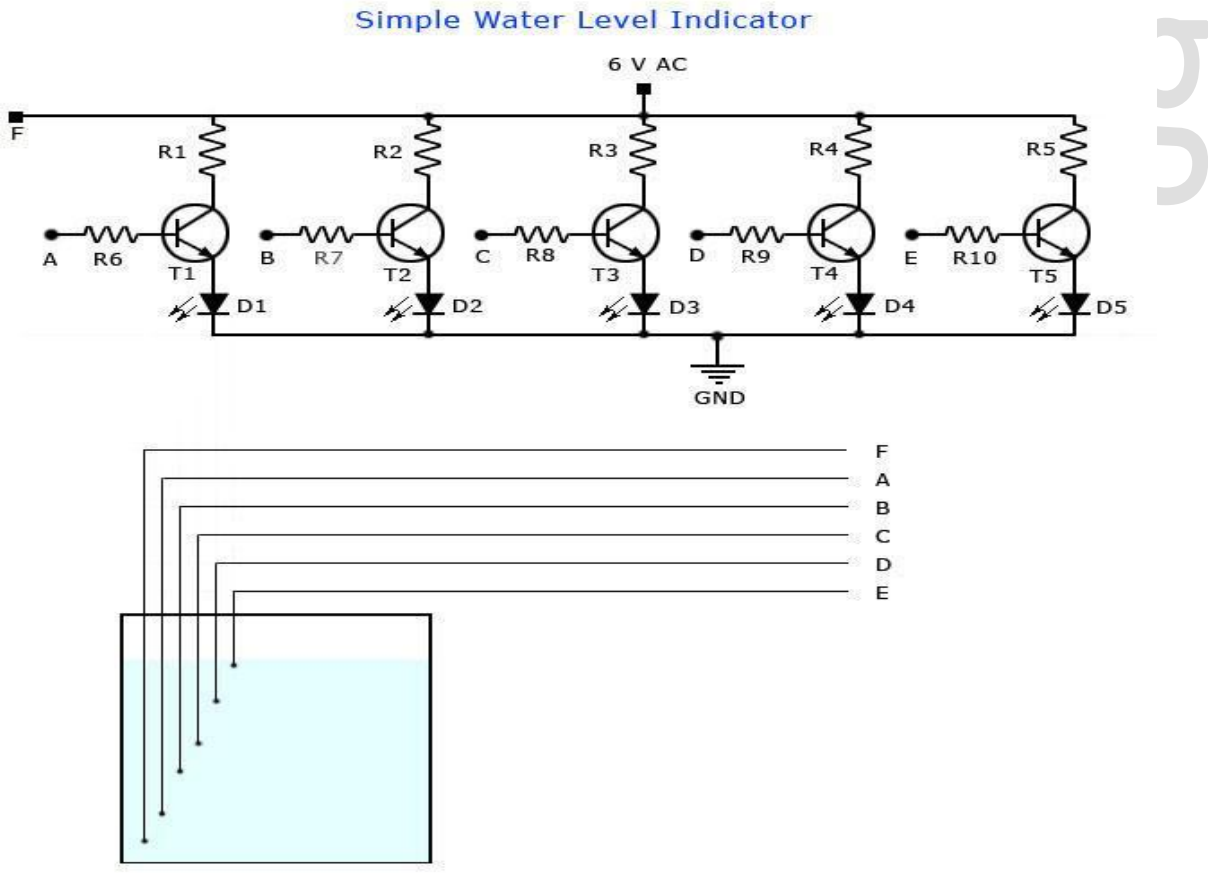

LED 1
LED 2
LED 3
LED 4
330ohm
330ohm
330ohm
330ohm
9v
Piezoelectric Buzzer
SPST (on/off) switch
S1
S2
S3
S4
180K
180K
180K
180K
2.2K
BC148
S1-S4= IC CD4066
Full
3/4
1/2
1/4
LED4 - FULL
LED3 - 3/4th
LED2 - 1/2
LED1 - 1/4th
Suggested
LED arrangement

Diagram 2


Simple Water Level Indicator
6 V AC
F
R1
R2
R3
R4
R5
A
R6
T1
B
R7
T2
C
R8
T3
D
R9
T4
E
R10
T5
D1
D2
D3
D4
D5
GND
F
A
B
C
D
E