ENEE2360 Project sem1 2024-2025

Dark and light Indicator Circuit

The circuit shown in Fig(1) is used to indicate if there is a dark or light in the surroundings. Some applications of this circuit, are street light controlling, home /office light controlling day and night indicators, etc.

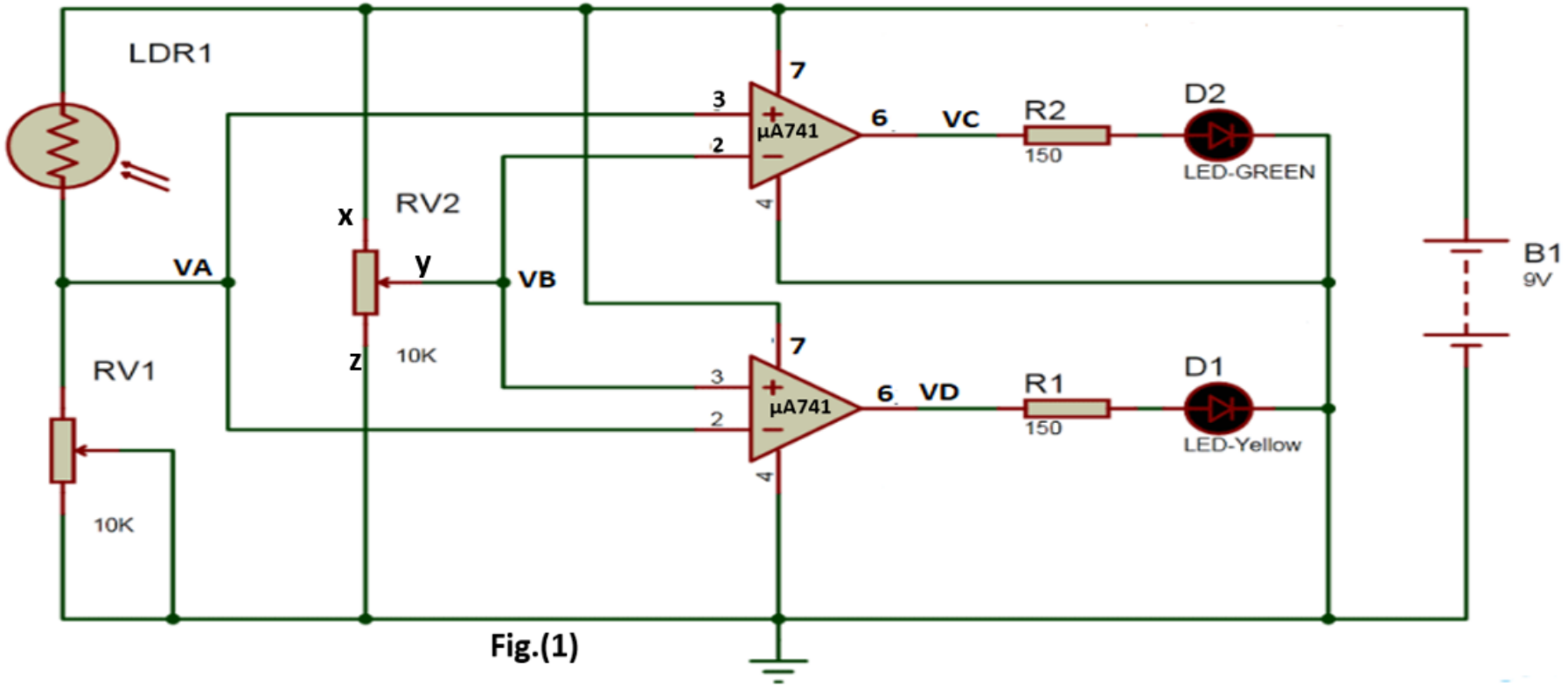

Fig.(1)

Part 1: Practical Part

a) Construct the circuit shown in Fig.(1).
b) Adjust the resistance of RV1 and RV2 so that D1 will glow only at night and D2 will glow only during the day.
c) Measure and record all the nodal voltages at night.
d) Measure and record the resistances Rxy, Ryz, and the LDR sensor at night
e) Measure and record all the nodal voltages during the day.
f) Measure and record the resistances Rxy, Ryz, and the LDR during the day

Part2 :(Simulation and reporting)

a) Replace the LEDs with D1N4148 diodes.
b) Replace the LDR sensor with a variable resistor.
c) Adjust RV1 and RV2 to the values obtained in step (b) of the practical part
d) Simulate the circuit of Fig.(1) for R sensor = 100Ω and determine all the nodal voltages and the diodes' status.
e) Repeat step (d) for R sensor = 200Ω ,500 Ω ,1KΩ, 10KΩ, 50KΩ,100Kand500KΩ.
f) Write a simple report which includes:

1 – Explanation of the function of the circuit of Fig.(1)
2 - Simulation circuits and results
3 - Comparison of simulation results to hand calculation
4 – Conclusion