AUTOMATIC OUTDOOR LIGHT

PRESENTED BY

NAME: NEEVIKA.L

REG NO: 2303811710622075

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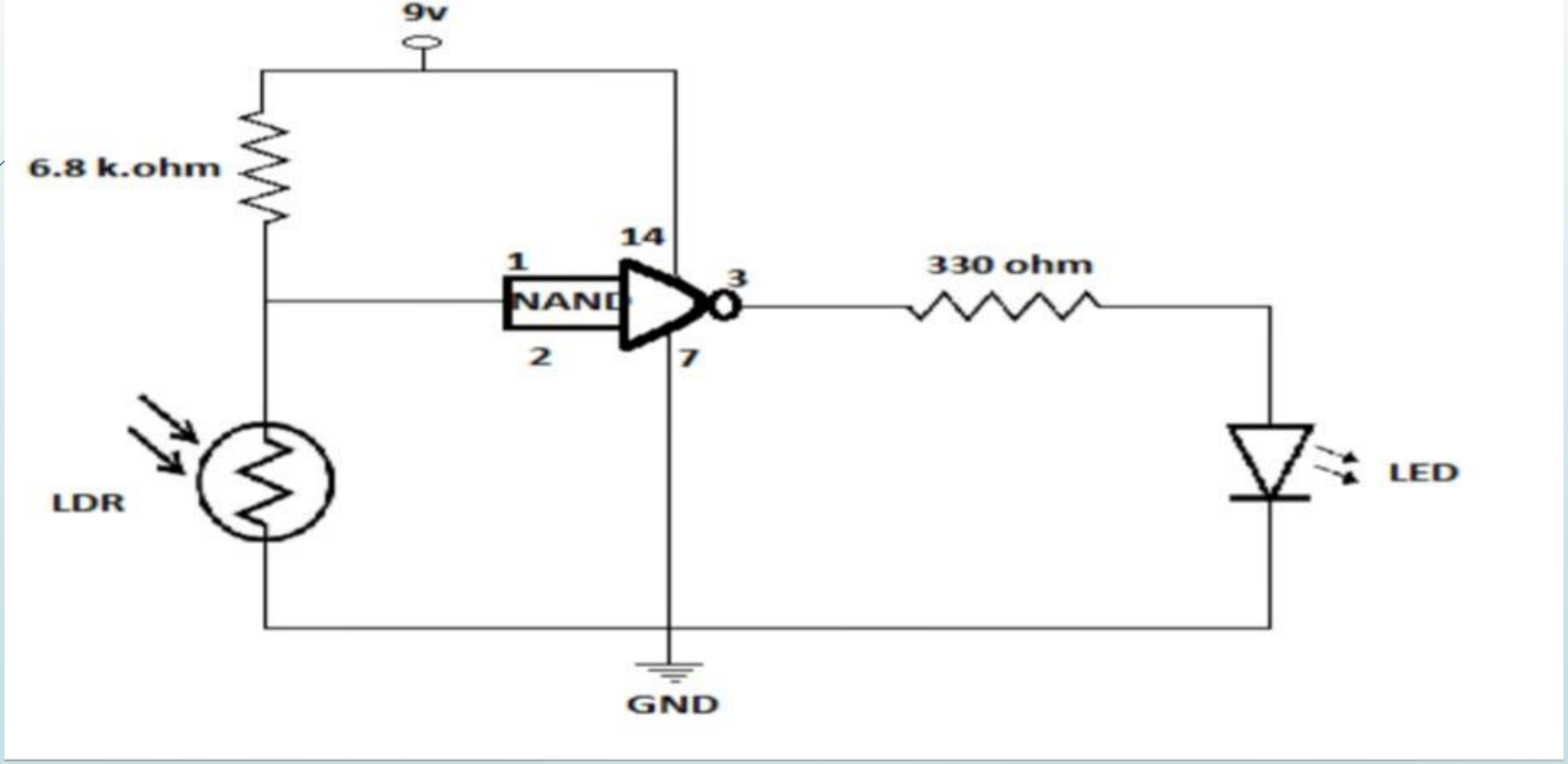
OBJECTIVE

- The Automatic Outdoor light project is to design and build a system that adjusts the brightness of a street lamp automatically according to the ambient light level. The system will ensure optimal energy consumption and reduce unnecessary lighting during bright periods, while providing sufficient illumination during low-light conditions for safety and visibility.

COMPONENTS USED

- IC 7400
- LDR
- 10K RESISTER
- LED
- 9v BATTERY
- BREAD BOARD
- CONNECTING WIRES

CIRCUIT DIAGRAM



WORKING PRINCIPLE

- **LDR** detects the ambient light. When the light level decreases, the resistance of the LDR increases, which alters the voltage at the 7400 control pin.
- **Ic7400** Daytime (Bright Light):LDR detects bright light → low resistance → voltage low → NAND gate output high → LED OFF.
- Nighttime (Low Light):LDR detects low light → high resistance → voltage high → NAND gate output low → LED ON.
- **LED** will dim or brighten based on the PWM signal from the Ic 7400

ADVANTAGE AND DISADVANTAGE

- **Automatic Adjustment**: The brightness of the lamp (or LED) adjusts automatically based on ambient light.
- **Simple Design**: Uses basic components and a straightforward circuit design.

- **Limited Brightness Control:**

The brightness control might be less precise compared to more advanced dimming circuits or digital controllers, especially with just a Ic 7400.

- **Component Sensitivity**:

The LDR can be sensitive to other light sources and not just ambient light, leading to inconsistent performance under varying conditions.

CONCLUSION

- The Automatic Outdoor light project offers a practical and educational experience in creating a lighting system that adjusts its brightness based on ambient light conditions. By using an IC 7400, LDR, and basic electronic components, the project demonstrates fundamental concepts of light sensing, PWM control, and circuit design

THANK YOU