REAL TIME CAR BATTERY AND LOW VOLTAGE ALERT SYSTEM

This project is designed to know the voltage level of a battery from the number of LEDs that are glowing. It uses ten LEDs in all. So if three LEDs glow, it indicates battery capacity of 30 per cent. Unlike in mobile phones where the battery-level indicator function is integrated with other functions. This project uses ten comparators, which are internally assembled in the voltage divider network based on the current-division rule. So it divides the battery level into ten parts. The circuit derives the power supply for its operation from the battery of the device itself. It uses ten LEDs wired in a 10-dot mode. The use of different coloured LEDs makes it easier to recognise the voltage level on the basis of the calibration made. Red LEDs indicate battery capacity of less than 40 per cent. Orange LEDs indicate battery capacity of 40 to less than 70 per cent and green LEDs indicate battery capacity of 70 to under 100 per cent.

The brightness of the LEDs can be adjusted by varying the value of preset. Diode is used to prevent the circuit from reverse-polarity battery connection. The tenth LED glows only when the battery capacity is full, i.e., the battery is fully charged. When the battery is fully charged, relay-driver transistor T1 conducts to energise relay RL1. This stops the charging through normally-open (N/O) contacts of relay. For calibration, connect 15V variable, regulated power supply and initially set it at 3V. Slowly adjust VR1 until LED1 glows.

This project uses regulated 12V, 750mA power supply for charging the battery. 7812 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/18V step down transformer.
10 comparators built-in IC

Charge Full indicator
Charge Medium indicator
Charge Low indicator

Driver Circuit
Relay

Step down T/F
Bridge Rectifier
Filter Circuit
Regulator
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