CHESS TIMER SYSTEM DESIGN USES A P10 BASED MATRIX LED PANEL ARDUINO UNO

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ABSTRACT

Current chess timers still use analog chess timers and the timer settings cannot be changed. This problem can be solved by designing and implementing an Arduino Uno-based chess timer control system with a P10 LED matrix panel, which is designed to help the referee determine the winner of the match. chess and provides time limits for participants to think through clear visual displays. Test results show that the Arduino Uno functions well at a voltage of 6-12 volts. The mini UPS battery with 220 volt input and 14 volt output has a battery life of 2 hours 5 minutes at 100% capacity, and a charging time of 20 minutes for 25% battery capacity. The buzzer produced an average sound intensity of 101.11 dB from 9 tests. The voltage on the push button when pressed is 4.48 volts and when released is 0.04 volts, while the buzzer functions at 4.78 volts when active and 0 volts when deactivated. The LED matrix panel operates at 5.04 volts, and the push button response time is 2.59 seconds. Overall, the system operates with 100 % performance, meeting all design criteria and research objectives.

Keywords*: Timer, chess, LED matrix panel, Arduino uno*