ABSTRACT

Along with the advancement of time and technology, especially in the field of electronics, rapid development is increasingly visible, especially through the use of PCs or laptops that facilitate various daily activities. In Tamiya car racing, computer technology and electronic circuits can be utilized as efficient time recording tools, in Tamiya car racing which is usually called Lap Timer. Lap timers are very different from normal stopwatches that are used manually. During the race there were several weaknesses in calculating laps or number of laps, because this process was still done manually. Apart from that, fraud often occurs due to inaccurate calculations. In this research, the author designed a microcontroller-based forward countdown timer to record lap times in the Tamiya/speed racing arena which is designed to monitor and record the lap timer in the Tamiya arena automatically. This prototype uses an infrared sensor that will be connected to the NodeMCU ESP8266. With this sensor method, the time produced by the Lap timer is more accurate. Meanwhile, to display the lap time results, Tamiya uses a 16×2 I2C LCD. Then to record and display the speed of the Tamiya car, it is also used as a reset button to restart the match using Arduino Cloud. The purpose of this study is to design a countdown timer for recording lap time in the Tamiya/speed racing arena based on microcontroller to make it easier to record the Tamiya lap time, the number of laps/rounds, and the Tamiya speed and minimize errors. In this study, the accuracy value of the infrared sensor on sensor A was 89.43%, on sensor B 85.90%, and on sensor C 89.74%. The application of this lap timer tool has proven effective in handling inaccurate calculations, resulting in more accurate and fair calculations. This study provides convenience in recording the tamiya lap time, the number of laps/turns, and the speed of the tamiya car.

Keywords: Lap Timer, NodeMCU ESP8266, Infrared Sensor, Tamiya.