

## **ABSTRACT**

On practice and trial session in an automotive car racing team, the team manually timer and record the lap time to check performance of the racer and its car. This is considering as less effective and efficient procedure regarding there has always be a person who record and timer the car when the car passed the circuit for several laps. Nonetheless the accuracy of the timer result is not a valid guarantee.

On this final project, automation designs are implemented in a timer based PC using infra red sensor to improve the system performance. Signal came from sensor will be passed by microcontroller and IC MAX232 as transmitter serial data to computer to simplify data processing. On the other hand, Borland Delphi used in timer application program to simplify the record and timing process, and used to display the data result.

The timer are designed to have good response and high accuracy to guarantee a valid measurement result, all at once this timer also designed to be compatible with computer which is used to process and display the data. Simulation result shows that the sensors on timer are able to detect moving vehicle up to 57 Km/h speed. Simulation results also show that the timer has a good response, that the timer has only 120,4836ms delay. On this kind of system, timer based PC are able to operate automatically, efficiently and practically so that the systems are able to saved and display various the measurement result.

**Keyword:** Sensor, *Timer*, Microcontroller, Serial Communication, PC