ABSTRACT

As the healthy lifestyle trend increases, exercise has become an essential activity for the community. Swimming is one of the most popular sports activities, as it is not only healthy but also recreational. This trend aligns with the growing number of swimming competitions in Indonesia. The Fédération Internationale de Natation Amateur (FINA) and the Indonesian Swimming Association (PRSI) are the federations responsible for organizing swimming competitions at both international and national levels.Swimming competitions essentially require tools that help organizers record the time of each swimmer. However, the devices used to measure lap times and swimming duration are still integrated with cables, whichcan reduce the sensitivity of the tools in recording the swimmers' times.

To address this issue, we developed a swimming lap counter supported by Internet of Things (IoT) data transmission. This allows the lap counter to operate without being integrated with cables. By adding an IR obstacle avoidance sensor, the swimming lap counter has high sensitivity in measuring the duration and laps of swimming, making it easier to apply.

The swimming lap counter can detect objects with a response time of less than 1 second. By using the MQTT protocol for data transmission, the swimming lap counter can send data with a delay of less than 3 seconds and minimize packet loss to below 5%. This swimming lap counter is also integrated with a website, which makes it easier for users to view the results of the competitions held.

Keywords: *Swimming, Lap Counter, IoT*