ABSTRACT

According to the Badan Pusat Statistik, land transportation continues to increase every year, this can cause problems such as congestion. Congestion itself is the main problem that occurs in Indonesia, especially in big cities. Congestion occurs during hours to work or school, lunch breaks, and at work hours. Congestion does not only occur at the intersection, but on ordinary roads congestion also occurs. Congestion can result in increased travel time, increased fuel consumption, and increased levels of carbon monoxide gas in the air.

Based on the problem above, a scenario regarding vehicle density at a traffic light intersection will be made based on Jarak and carbon monoxide gas levels. So that the duration of the traffic lights can be adjusted using fuzzy algorithms.

Based on these simulations, the appropriate duration is generated for traffic lights with various conditions of vehicle density and carbon monoxide gas levels. For a short duration of about 3-10 seconds, for a normal duration of 10-20 seconds, and for a long duration of about 20-25 seconds. The test results also showed that the accuracy of the fuzzy algorithm was 98.7%.

Key Words : *congestion, traffic light duration, fuzzy algorithm, MQ-7 sensor.*