

***Mapping of Accident-Prone Areas in Tuban Regency Using the GIS-Based
Mamdani Fuzzy Method***

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ABSTRACT

The increasing need for modes of transportation is the impact of the very rapid rate of population growth. This contributes to the number of accidents which continue to increase every year. Traffic accidents are still a problem in various cities in Indonesia. The accident rate in Tuban Regency in 2017 totaled 1,218 incidents. In 2018 the accident rate in Tuban Regency has increased to 1,393 cases. Whereas in 2019 the accident rate in Tuban district was 1,141 incidents. In fact, according to the Tuban Police Chief AKBP Nanang Haryono, accident cases in Tuban Regency in 2018 were the highest in East Java. Therefore, a geographic information system for mapping accident-prone areas in Tuban Regency was developed using the fuzzy mamdani method with the aim of being able to map the points of prone areas in Tuban Regency. The use of the fuzzy mamdani method in research has an effectiveness level with an average value of 97% and the margin of error between manual and system calculations against Matlab has a value of 2.9%. Based on the results of the system testing test with the UAT method, a value of 85,20% was obtained.

Keywords: GIS, Fuzzy Mamdani, Mapping of accident-prone areas.