

Universiti Teknologi MARA

**Comparison Between Artificial Neural
Network and Fuzzy Time Series to
Predict Road Accidents**

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STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the products of my own work and that any idea or quotation from the of other people, published or otherwise are fully acknowledge in accordance with the standard referring practices of the discipline.

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ABSTRACT

Road accidents are very common and everyday we always heard a news about people involved in road accidents especially in Malaysia. The statistics of road accidents which come from the website of Jabatan Keselamatan Jalan Raya Malaysia for the year 1975 to 2017 show an increasing number of road accidents from year to year. This study has been conducted to make a prediction of total road accidents for the future. The secondary data has been used in this study in order to obtain the main objective which is to make a comparison between Artificial Neural Network and Fuzzy Time Series and which method more accurate to make a prediction. Then, this study also contains a sub-objective which is to predict the road accidents in for the next 3 years in Malaysia by using the best method. Furthermore, Artificial Neural Network was generated through Alyuda NeuroIntelligence software by using Quasi-Newton algorithm to get their accuracy. However, the error measure was calculated in this study which is Mean Square Error (MSE) for a comparison which methods gives the lowest value. The result shows that Artificial Neural Network method gives the lowest value of MSE that is 37593818.4 which is more accurate as compared to Fuzzy Time Series is 94186572.8. Thus, the prediction of total road accidents for the next 3 years was produced by using the best method that is Artificial Neural Network. The prediction value for the year 2018, 2019 and 2020 are 522649, 523814 and 524511.

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