**Abstract**

 Road traffic accidents are the majority and severe issue, it results death and injuries of various levels. The traffic control system is one of the main areas, where critical data regarding the society is noted and kept as secured. Various issues of a traffic system like vehicle accidents, traffic volumes and deliberations are recorded at different levels. In connection to this, the accident severities are launched from road traffic accident database. Road traffic accident databases provide the origin for road traffic accident analysis. In this research work, Coimbatore city road traffic databases is taken to consideration, the city having higher number of vehicles and traffic and the city having higher number of vehicles and traffic and the cost of these loss and accidents has a great impact on the socioeconomic growth of a society. Traditional machine learning algorithms are used for developing a decision support system to handle road traffic accident analysis. The algorithms such as SMO, J48, IBK are implemented in Weka version 3.7.9 the result of these algorithms were compared. In this work, the algorithms were tested on a sample database of more than thousand five hundred items, each with 29 accident attributes. And the final result proves that the SMO algorithm was accurate and provides 94%.