Abstract

Nowadays, traffic congestion becomes a serious problem for many urban areas in the world. As the result of congestion, the efficiency of transportation infrastructure is generally reduced and a travel time is increased. Also, congestion creates the additional fuel consumption and generates air pollution.
The aim of projects carry out at Coventry University is to show how *Intelligent Transport Systems* (ITS) software may be used in order to provide traffic improvement, air emissions reduction and fuel economy. The Ring Road and main roads in the Coventry City Centre have been created in a digital form for the computer simulation. Several tasks have been considered, i.e. modelling and simulation of an incident on the main road and the development of an alternative strategy to re-route the traffic; optimisation of existing traffic control plants in order to increase the traffic flow throughput and reduce pollutant emissions and fuel consumption; creating a flooding scenario in a Coventry Ring Road network in order to simulate the road traffic behaviour at the time of flooding; and the addition of a traffic signal on a busy intersection, which allows one to reduce a stoppage time for vehicles and improve safety of pedestrians at the intersection.