

A short glimpse of the Smart Junction system

Smart Junction, is a system designed to **reduce the waiting time of vehicles** and also adapt the traffic to **attain smooth flow of time critical emergency vehicles** by intelligently controlling the traffic flow of a junction.

We've designed this system such that, it first analyses the traffic conditions of each road, then assigns a calculated priority value to it, and accordingly open and close the signals.

What actually causes the waiting time to reduce is achieved by two events, *Early Exit* and *Extra Time*.

Early Exit: *Whenever a road is opened, by default a fixed time is allocated (just like in normal junction). If all vehicles clears before timeout, then it immediately closes that road and opens the next road.*

Extra Time: *Suppose time left for closing is zero, and there are only two or three vehicles left to clear, then extra time of five seconds is given. This may increase the waiting time experienced by other roads by five seconds, but here average waiting time of vehicles is found to be reduced, as those few lucky vehicles need not have to wait for all the other roads to exit before their turn.*

Emergency vehicles (such as ambulances, fire engines, etc.) are to have a registered **Emergency Signal Transmitter module**. In the module's screen the driver can enable active mode, and set the destination. While enabled, the vehicles location (obtained using GNSS) is sent to the Smart Junction server frequently via GSM / GPRS network. The server receives this information, analyses its path, and accordingly instruct the junctions which the vehicle is predicted to pass through, to clear off the traffic for that road for the emergency vehicle to pass without facing traffic congestions. Since traffic is cleared off for this purpose, it also reduces the risk of having accidents due to the reckless speeding of emergency vehicles and so increases safety as the system closes other roads.

