ABSTRACT

In the highly pro-active world of the 21st century, we seek to minimise the time spent by us on a particular task or job. We strive to work hard in an efficient way such that we can all be as productive as the next person, for now this is a world of rigorous competition. However large chunks of our time are wasted on the road, in traffic jams which reduces our productivity exponentially. We have attempted to find some viable solutions to this nuisance.

> In this project, we address a problem of safe and efficient intersection crossing traffic management of autonomous and connected ground traffic. Toward this objective, we propose an algorithm that is called the Discrete-time occupancies trajectory based Intersection traffic Coordination Algorithm (DICA). DICA is a deadlock free and also starvation free, And thus might as well be the next pushing thing in intelligent management of road traffic.

It has been demonstrated in the real life that traditional traffic control, such as traffic signal and stop sign control are not optimal especially for heavy traffic demand levels. Alternatively, centralised autonomous vehicle control strategies are costly and not scalable given that the ability of a central controller to track and schedule the movement of hundreds of vehicles in real-time is questionable. However, to solve this we have devised a distance sensor (miniaturised sonar) that can be installed in every car for extremely cheap cost and we have made a motion tracking(trajectory plotter) algorithm that makes it easier to coordinate real time changes as it is installed in the car itself. Moreover, there is a proposal for installation of traffic density sensors to be put in traffic lights at intersections to control traffic lights autonomously based on car density instead of the older inefficient time-based systems.