

AUTONOMOUS VEHICLE SCHEDULING AT INTERSECTIONS BASED ON
PRODUCTION LINE TECHNIQUE

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Nasser Aloufi

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ABSTRACT

This thesis considers the problem of scheduling autonomous vehicles at intersections. A new system is proposed which is more efficient and could replace the recently introduced Autonomous Intersection Management (AIM) model. The proposed system is based on the production line technique. The environment of the intersection, vehicles position, speeds, and turning are specified and determined in advance. The goal of the proposed system is to eliminate vehicle's collision and reduce the waiting time to cross the intersection. Three different patterns of traffic flow towards the intersection have been tested. The system requires less waiting time, compared to the other models, including the random case where the flow is unpredictable. The K-Nearest Neighbors (KNN) algorithm has been used to predict vehicles making a right turn at the intersection. The experimental results show there is no chance of collision inside the intersection using the proposed model; however, the system might require more space in the traffic lane for some specific traffic patterns.