Poor management and design of a parking garage would provoke certain problems, such as congestion and emission. Car park has particular transportation system that differs from normal urban or highway system. It demands such an intricate way for analyzing the performance and the traffic interaction inside. Addressing the problem of parking garage management is therefore essential to obtain environmental friendly and efficient performance.

The purpose of this study is to analyze traffic circulation in a car park during the filling and emptying processes, especially in times of work shift changes and to develop potential measures to the merit of efficiency. The performance evaluation was done by using micro simulation, Vissim, which could help in handling complicated traffic design and management issue.

Despite some limitations, the simulation model was quite proficient to represent the real network for evaluation purpose. The findings of this study indicated that the prevalent condition system which employ two-way aisle of conventional parking system is still more efficient than both proposed measures, either at the filling process or emptying case. One interesting thing is noticed for the comparison performance between autonomous parking and one-way aisle system. The result show that autonomous parking system creates more efficient circulation system at the filling process compared to one-way aisle. In the emptying case, one-way aisle system however worked more effective than autonomous.

As a final point, regardless these findings show the lower performance of autonomous parking scenario in the case study, there is still huge promising technology development in this area which might improve the efficiency a car park management.