Vision Based Automated Parking System

Abstract –

This paper describes an approach to overcome a situation of monitoring and managing a parking area using a vision based automated parking system. With the rapid increase of cars the need to find available parking space in the most efficient manner, to avoid traffic congestion in a parking area, is becoming a necessity in car park management. Current car park management is dependent on either human personnel keeping track of the available car park spaces or a sensor based system that monitors the availability of each car park space or the overall number of available car park spaces. In both situations, the information available was only the total number of car park spaces available and not the actual location available. In addition, the installation and maintenance cost of a sensor based system is dependent on the number of sensors used in a car park. This paper shows a vision based system that is able to detect and indicate the available parking spaces in a car park. The methods utilized to detect available car park spaces were based on coordinates to indicate the regions of interest and a car classifier. This paper shows that the initial work done here has an accuracy that ranges from 90% to 100% for a 4 space car park. The work done indicated that the application of a vision based car park management system would be able to detect and indicate the available car park spaces.