Abstract

Image processing has many areas of applications like in metrological prediction of weather conditions, medical science, artificial intelligence, robotics etc. Traffic signs recognition system is in fact the most happening area of research these days. As the world is moving towards the driverless vehicles, a more automated world is the utmost requirement for improving the road safety. Such systems can help the drivers on signs that they may not have noticed beforehand. These systems are so designed so that they consume less power and hence can be efficiently implemented on hardware. FPGA’s are preferred over CPU and GPU due to its low cost and power, prototyping applications and next levels to ASIC’s development. In this paper we have quoted some basic challenges in traffic signs recognition methods and summarized the various detection and recognition techniques for traffic signs. This paper divided the various methods into three categories: color-based, shape-based and learning-based. We have concluded that the Xilinx System Generator is the best tool while implementing on FPGA’s. It is the fastest resource estimation tool in order to take full advantage of FPGA’s resources. Finally, the hardware perspective of traffic signs implementation is briefly examined.
References


14. Anh-Tuan Hoang, Tetsushi Koide and Masaharu Yamamoto, "Low Cost Hardware


Index Terms

Computer Science
Pattern Recognition

Keywords

Traffic Sign Recognition method, Field programmable gate array (FPGA), Xilinx system generator (XSG), Advanced Driver assistance system (ADAS), Machine learning techniques.