ABSTRACT: Human has the ability to roughly estimate the distance of objects because of the stereo vision of human’s eyes. In this paper we proposed an improved stereo vision system to accurately measure the distance of objects in real world. Object distance is very useful for obstacle avoidance and navigation of autonomous vehicles. Recent researches have used stereo cameras for different applications such as 3D image construction, distance measurement, and occlusion detection. The proposed measurement procedure is a three-phase process: object detection, segmentation, and distance calculation. In distance calculation, we proposed a new algorithm to reduce the error. The result shows our measurement system is capable of providing objects distance with less than 5% of measurement error.

Keywords: stereo vision, distance measurement