

# Abstract

In recent years, dual-lens stereo vision can simulate the way of human eyes process the scene. This technology has used in many industries, such as human-computer interaction, video surveillance, intelligent control, three-dimensional measurement, robot navigation and aerial survey.

In this study, we use stereo vision principle to measure the target, and the measurement is done within the defined distance. Placing two webcams at the same height and capturing the image of the dual-lens camera. In order to obtain internal and external parameters, these webcams are corrected through the checkerboard. Then, the image is readjusted with the parameters. By the algorithm, similar objects in left and right images are matched. After that, the disparity image appeared. The noise happened when captured the disparity image. Therefore, morphological and Filtering would be used to resolve this problem in order to make the image more valuable. Last but not the least, the actual distance between the target and the webcams is calculated by pixel value of gray scale image.