Abstract

Stereo vision system used to reconstruct a 3D scene from 2D images taken by a pair of optical cameras (left and right images) and it is used to estimate the distance of the object. The modified version for the (SAD) algorithm is called the Canny Block Matching Algorithm (CBMA) to find the Disparity map, the algorithm consist of two parts the Canny edge detector and Block matching technique with Sum of Absolute Difference (SAD) to determine disparity map to reduce the execution time. The system has been implemented using two cameras arranged in a manner to enhance the detection range of objects from (30cm to 4m). The results show good outputs with less error percentage, as compared with the real objects depth and the Execution time is approximated to the real–time performance. The algorithms implemented using MATLAB (8.0) technical programing language.

References

- Eric W., and Grimson L., &quot;Computational Experiments with a Feature Based Stereo Algorithm&quot;, Massachusetts Institute of Technology, Jan., 1984.
- http://vision.middlebury.edu/stereo/

**Index Terms**

Computer Science  
Image Processing
Keywords
Stereo Vision  Disparity  Epipolar geometry  SAD  CBMA.