Abstract

Stereo vision system adds the essential feature for robots to see the real world in a human-like manner by combining two 2D imaging systems. Robotic arm with end-effector helps robots to interact with real-world things by grabbing objects. Here in this research a 5 DOF human-like robot arm and a stereo vision set using two cameras mounted in parallel with 6cm distance was developed. Inverse kinematics is then calculated for the designed arm thus the robot can control the end-effector (gripper) position by adjusting motors angle. A software system was developed so the robot can perceive an objects 3d position using the stereo set and move the gripper through the help of kinematics. OpenCV blob detection technique was used to identify objects in an image. Summing up them the robot can now grip object seeing it in front of its stereo eye.

References

Experiment with Humanoid Robot Hand to Reach Object by Measuring Objects 3D Coordinates using Binocular Stereo Vision

4139. International Society for Optics and Photonics, 2000.


Index Terms

Computer Science

Information Systems

Keywords

Humanoid Arm, Stereo Vision, Kinematics, Robot Vision, Epipolar Geometry
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