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Abstract
The theme aims at providing a surveillance system 360 degrees of view angle of vision by analyzing only single image via an omnidirectional sensor. A camera mounted with the omnidirectional sensor is first calibrated to obtain one-to-one correspondence between the image pixels through a catadioptric mirror and locations on the image plane. The image processing for motion detection that includes image unwarping, YUV transformation, median filtering, binarization, and image dilation and erosion is employed to detect a moving object.
A permanent magnet synchronous motor drive takes the position data of the detected moving object as input to control the motor rotating a CCD camera for image tracking within the range of omnideirectional view. Instead of using normalized grayscale correlation, an algorithm of geometric pattern matching is adopted to determine the geometric model of the target and compare it with preset sample model. The experimental results validate the effectiveness of the proposed system.
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