ABSTRACT

In contests of middle size robot soccer at the national or international level, a robot is needed that has the ability to recognize the environment on the playing field. This ability includes the determination of coordinate position points and orientation on the field, detecting the ball, and directing the ball to the opponent's goal. One method that can be used as the most optimal alternative solution is to use an omnidirectional camera lens or catadioptric lens to detect lines on the field as a reference for localizing robots on the field. In addition, this sensor is used to detect the movement of the ball in the field. The robot localization process is done by the omnidirectional camera undistort method to simplify line detection and distance measurement between robots and lines. Based on the test results, the system can maneuver or navigate in a 6x8 meter field and also update the robot's position on the field with ± 30 cm error, detect the ball on the field, and direct the ball to the opponent's goal using a camera sensor with an omnidirectional lens.