A METHOD OF FIELD–MOBILE–ROBOT LOCALIZATION BY USING A REFERENCE MARK

Knowing the position of field–mobile–robot itself is significant for running autonomously in the wild fields. This paper proposes and methods for field robot to localize its own position by using a reference mark. In this method, image of reference mark illustrated on the sign is tracked by CCK camera which is mounted on a pan platform at the top of field robot. The robot position which includes the distance and angle from the reference mark calculated from the changed shapes of reference mark image by Perspective Transformation Method and the trigonometry techniques. In the next image, size and position of the reference mark is predicted by the movement of field robot for reference–mark to center of image. To evaluate the performance of this method, the experiments in robot localization and reference–mark tracking were performed. The results reveal that the errors of robot–position calculating are in the range of 0–10 percents when the camera position is located in 45–135 degree range.