

Frontal Obstacle Detection by means of Background Subtraction and Frame Registration

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Systems such as ATP (Automatic Train Protection) and railway blocks provide protection against collision between rolling stock, but collisions against unexpected obstacles in front of the train are prevented only by the driver's eyes. In an effort to lighten the burden of train drivers and to improve the safety of passengers, we propose an obstacle detection method using a camera and image processing. Under the method proposed, we use background subtraction of images obtained by other trains operating earlier on the same track, registered on a database, from the real-time image obtained from the cab. The difference between the two images are defined as obstacles in front of the train. Furthermore, the performance of the method was verified by conducting experiments using rolling stock and imitated obstacles.