In recent years, trains equipped with cameras on the side of rolling stock have begun to be introduced to assist driver’s safety check work for passengers on station platform in one-man sections. To further improve the utilization of the side cameras, we propose the safety confirmation method that detects the approach of passengers to the vehicle by image processing and notifies the driver of the danger. In this paper, we report the details of the proposed safety check algorithm, its evaluation, and the results of the train running test.