CLAIMS

1. A travel control device comprising:

a detection unit for detecting an object existing in a vicinity of a track of a train and making a stop position of the train specifiable, the object being detected from a captured image obtained by capturing an area ahead of the train by an image capturing unit provided in the train;

a relative distance calculation unit for calculating a relative distance between the train and the object, based on a detection result of the object by the detection unit;

a speed information acquisition unit for obtaining speed information of the train;

a movement distance calculation unit for calculating a movement distance of the train, based on the speed information obtained by the speed information acquisition unit; and

a travel control unit for controlling travel of the train such that the train stops at the stop position specified by the object, wherein the control of the travel of the train is performed based on

the relative distance calculated by the relative distance calculation unit when the object is detected by the detection unit, and

the movement distance calculated by the movement distance calculation unit by changing control after a predetermined condition is satisfied,

wherein the predetermined condition is one of conditions that:

the object has been out of the captured image;

the object has moved to a predetermined position in the captured image;

the object has become a predetermined size or larger in the captured image; and

the relative distance calculated by the relative distance calculation unit has become a second threshold or smaller.

2. The travel control device according to claim 1, wherein the speed information acquisition unit obtains the speed information based on at least one of: a rotational speed of wheels of the train obtained from a wheel speed sensor; acceleration information obtained from an acceleration sensor; and information on a distance to the object obtained by a distance measurement device.

3. The travel control device according to claim 1, wherein

the detection unit detects a second train existing ahead of the train in the captured image, and,

the travel control unit controls, when the detection unit detects a second train existing ahead of the train, travel of the train such that the train stops in a state that a relative distance to the second train is equal to or larger than a first threshold.

4. The travel control device according to claim 1, wherein

the image capturing unit is a stereo camera, and

the relative distance calculation unit calculates the relative distance between the train and the object, based on parallax of the object in a plurality of the captured images obtained by image capturing using the stereo camera.