CLAIMS

1. A detection system comprising:

an electromagnetic induction sensor comprising a transmission coil and a first reception coil and a second reception coil that are differentially connected to each other;

a trajectory image output unit that plots detection waveforms of the first reception coil and the second reception coil in a time series in a coordinate system represented by a reception level and a phase difference and outputs a trajectory image; and

a vehicle detection unit that, based on the trajectory image, detects that a vehicle has passed through an area where the electromagnetic induction sensor is installed.

2. The detection system according to claim 1 further comprising:

a registration unit that pre-registers a trajectory image of a vehicle to be detected as a reference image; and

a determining unit that compares the reference image with the trajectory image outputted from the trajectory image output unit to determine whether a vehicle is a registered vehicle.

3. The detection system according to claim 2 wherein

the vehicle detection unit determines a traveling direction of the vehicle based on a trajectory direction of the trajectory image.

4. A detection system comprising:

an electromagnetic induction sensor comprising a transmission coil and a first reception coil and a second reception coil that are differentially connected to each other; and

a determining unit that determines a vehicle by outputting detection waveforms of the first reception coil and the second reception coil in a time series to a coordinate system represented by a reception level and a phase difference and extracting characteristics of the output result.

CLAIMS

1. A detection system comprising:

an electromagnetic induction sensor comprising a transmission coil, a first reception coil combined magnetically with the transmission coil and positioned apart from the transmission coil along a traveling direction of a vehicle to be detected, and a second reception coil that is differentially connected to the first reception coil and positioned in a symmetrical position to the first reception coil with regard to the transmission coil;

a trajectory image output unit that plots detection waveforms of the first reception coil and the second reception coil in a time series in a coordinate
system represented by a reception level and a phase difference and outputs a trajectory image; and

a vehicle detection unit that, based on the trajectory image, detects that the vehicle has passed through an area where the electromagnetic induction sensor is installed.

2. The detection system according to claim 1 further comprising:

a registration unit that pre-registers a trajectory image of a vehicle to be detected as a reference image; and

a determining unit that compares the reference image with the trajectory image outputted from the trajectory image output unit to determine whether a vehicle is a registered vehicle.

3. The detection system according to claim 2 wherein

the vehicle detection unit determines a traveling direction of the vehicle based on a trajectory direction of the trajectory image.

4. A detection system comprising:

an electromagnetic induction sensor comprising a transmission coil, a first reception coil combined magnetically with the transmission coil and positioned apart from the transmission coil along a traveling direction of a vehicle to be detected, and a second reception coil that is differentially connected to the first reception coil and positioned in a symmetrical position to the first reception coil with regard to the transmission coil;

and a determining unit that determines the vehicle by outputting detection waveforms of the first reception coil and the second reception coil in a time series to a coordinate system represented by a reception level and a phase difference and extracting characteristics of the output result.