CLAIMS

1. A detection device for detecting a target behavior that is a vehicle behavior subjected to detection in a preset detection area using a laser radar that generates point cloud information by irradiating the detection area with laser light and receiving reflected light resulting from the irradiation with the laser light, the detection device comprising:

an acquisition unit configured to acquire the point cloud information;

a vehicle detection unit configured to detect a vehicle based on the point cloud information;

an object tracking unit configured to track the vehicle detected by the vehicle detection unit and generate a tracking result; and

a behavior detection unit configured to detect the target behavior in response to the vehicle detected by the vehicle detection unit and tracked by the object tracking unit having moved from a first area to a second area, wherein

the first area and the second area are included in the detection area and are set according to the target behavior,

the vehicle detection unit calculates coordinates of both ends in a width direction of the vehicle as position information indicating a position of the vehicle based on the point cloud information, and

the behavior detection unit determines an area in which the vehicle exists using the position information.

2. The detection device according to claim 1, wherein

the behavior detection unit determines whether the vehicle has

moved from the first area to the second area based on the position information.

3. The detection device according to claim 2, wherein

the behavior detection unit determines that the vehicle has moved from the first area to the second area when the position is included in the second area after being included in the first area.

4. The detection device according to claim 2, wherein

a first line is set for the first area, and a second line is set for the second area, and

the behavior detection unit determines that the vehicle has moved from the first area to the second area when the vehicle has crossed the second line after crossing the first line.

5. The detection device according to any one of claims 1 to 4, wherein

a third area is additionally set between the first area and the second area in the detection area according to the target behavior, and

the behavior detection unit detects the target behavior in response to the vehicle having moved in an order of the first area, the third area, and the second area.

6. The detection device according to any one of claims 1 to 5, wherein

when the target behavior is a traffic violation behavior, the behavior detection unit outputs an acquisition command to cause an external device to acquire vehicle information that identifies the vehicle that has performed the target behavior.

7. A detection system, comprising:

a detection device according to any one of claims 1 to 6; and

a laser radar.