CLAIMS

1. A wireless communication acceptance method for accepting a new traveling vehicle as an object of wireless communication into a communication system comprising a controller, an access point connected to the controller, and a plurality of traveling vehicles each including a wireless communication unit, the communication system performing wireless polling communication between the controller and the plurality of traveling vehicles via the access point at each predetermined polling cycle, wherein

a process including a wireless communication object addition step is performed,

in the wireless communication object addition step, a connection sequence for accepting the new traveling vehicle into the communication system is performed, and

the connection sequence accompanying wireless communication is performed within free time which is time after the wireless polling communication between the controller and the plurality of traveling vehicles is completed and until an end of a period during which the wireless polling communication is possible, in the polling cycle wherein

a process including a connection availability determination step for determining whether or not the free time is longer than or equal to predetermined time is performed,

if it is determined that the free time is longer than or equal to the predetermined time in the connection availability determination step, the wireless communication object addition step is performed, and

if it is determined that the free time is shorter than the predetermined time in the connection availability determination step, the wireless communication object addition step is not performed.

2. The wireless communication acceptance method according to claim 1, wherein

in the wireless communication object addition step, the controller wirelessly transmits a frame to start the connection sequence via the access point within the free time.

3. The wireless communication acceptance method according to claim 2, wherein

in the wireless communication object addition step, the controller transmits the frame to start the connection sequence depending on an acceptance command input by an operator.

4. The wireless communication acceptance method according to claim 1, wherein

in the wireless communication object addition step, the new traveling vehicle wirelessly transmits a frame to start the connection sequence within the free time.

5. The wireless communication acceptance method according to claim 4, wherein

the new traveling vehicle performs a process including a free time estimating step in which the new traveling vehicle intercepts the wireless polling communication between the controller and the plurality of traveling vehicles and estimates the free time.

6. A wireless communication acceptance system for accepting a new traveling vehicle as an object of wireless communication into the communication system,

(a) wherein the communication system comprises a controller, an access point connected to the controller, and a plurality of traveling vehicles each including a wireless communication unit, the communication system performing wireless polling communication between the controller and the plurality of traveling vehicles via the access point at each predetermined polling cycle, and

(b) wherein the controller performs the steps of:

(i) a wireless communication object addition step, the wireless communication object addition step including a connection sequence for accepting the new traveling vehicle into the communication system is performed, wherein the connection sequence accompanying wireless communication is performed within free time which is time after the wireless polling communication between the controller and the plurality of traveling vehicles is completed and until an end of a period during which the wireless polling communication is possible, in the polling cycle, and

(ii) a connection availability determination step, the connection availability determination step including determining whether or not the free time is longer than or equal to predetermined time is performed,

(1) wherein, if it is determined that the free time is longer than or equal to the predetermined time in the connection availability determination step, the wireless communication object addition step is performed, and

(2) wherein, if it is determined that the free time is shorter than the predetermined time in the connection availability determination step, the wireless communication object addition step is not performed.

7. The communication system according to claim 6, wherein

in the wireless communication object addition step, the controller wirelessly transmits a frame to start the connection sequence via the access point within the free time.

8. The communication system according to claim 7, wherein

in the wireless communication object addition step, the controller transmits the frame to start the connection sequence depending on an acceptance command input by an operator.

9. The communication system according to claim 6, wherein

in the wireless communication object addition step, the new traveling vehicle wirelessly transmits a frame to start the connection sequence within the free time.

10. The communication system according to claim 9, wherein

the new traveling vehicle performs a process including a free time estimating step in which the new traveling vehicle intercepts the wireless polling communication between the controller and the plurality of traveling vehicles and estimates the free time.