

CLAIMS

1. A vehicle communication and guidance system for use in guiding and communicating with a land vehicle along a roadway, the system comprising:

one or more reference devices positioned along a central portion of a lane of the roadway, the reference devices further comprising:

a memory device for storing one or more values for one or more vehicle and traffic related parameters; and

one or more transmission modules for transmitting said fixed values for one or more vehicle and traffic related parameters;

one or more receiver modules for receiving transmitted signals from the vehicle mounted device and the remotely located communication centre.

a vehicle mounted device comprising:

a receiving module for receiving transmitted signals from the transmission module of said reference devices; and

a transmission device for transmitting signals from the vehicle mounted device to the vehicle reference device;

a processing module for processing the received signals and communicating with one or more controllers of the vehicle to guide and control movement of the vehicle along the roadway.

2. A vehicle communication and guidance system in accordance with claim 1 wherein a plurality of said reference devices are positioned in a spaced apart configuration along the central portion of lane of the roadway to allow continuous transmission of signals to the vehicle as the vehicle travels along the lane of the roadway.

3. A vehicle communication and guidance system in accordance with claim 1 or claim 2 wherein the reference devices are positioned along a central portion of each lane of the roadway.
4. A vehicle communication and guidance system in accordance with any one of the preceding claims wherein each of said one or more reference devices comprises: a communication unit to communicate with a remotely located server to receive said values for one or more vehicle and traffic related parameters from the remotely located server.
5. A vehicle communication and guidance system in accordance with any one of the preceding claims wherein each of said reference devices comprises: a fixing arrangement for fixing the reference devices on a surface of the roadway.
6. A vehicle communication and guidance system in accordance with any one of the preceding claims wherein each reference device further comprises a power supply for powering the memory devices and the transmission module.
7. A vehicle communication and guidance system in accordance with any one of the preceding claims wherein the memory device and the transmission module are housed with a housing body with at least one surface of the housing body being adapted to be positioned above the surface of the roadway to allow the transmitting module to transmit said signals to the vehicle mounted device.
8. A vehicle communication and guidance system in accordance with claim 7 wherein the reference device further comprises reflective material that is visible during day and night to the vehicle mounted device.
9. A vehicle communication and guidance system in accordance with any one of the preceding claims wherein each of said reference devices further comprises: a power generation unit coupled to an input terminal of the reference device and at least

one energy storage element coupled to said input terminal for powering the memory device and the transmission device.

10. A vehicle communication and guidance system in accordance with any one of the preceding claims comprising:

a first plurality of the vehicle mounted devices mounted along a substantially frontal portion of the vehicle for receiving a first plurality of vehicle and traffic related signals; and

a second plurality of the vehicle mounted devices mounted along a substantially rear portion of the vehicle for transmitting information to one or more of said reference devices located behind the vehicle.

11. A vehicle communication and guidance system in accordance with claim 10 wherein the information transmitted by the second plurality of vehicle mounted devices comprises feedback, said feedback being processed by a processor of the reference device in accordance with one or more pre-determined rules to optionally vary the values for one or more vehicle and traffic related parameters.

12. A vehicle communication and guidance system in accordance with claim 4 further comprising a remotely located user input interface for receiving input from a remotely located server in relation to the vehicle and traffic related parameters thereby allowing the remote users to change or update said vehicle and traffic related parameters being transmitted to the vehicle.

13. A vehicle communication and guidance system in accordance with any one of the preceding claims comprising a power exchange facility configured to provide power to the vehicles.

14. A vehicle communication and guidance system in accordance with claim 13, wherein the power exchange facility comprises replacement battery packs.

15. A vehicle communication and guidance system in accordance with claim 13 or 14, wherein the power exchange facility dispenses fuel.

16. A vehicle communication and guidance system in accordance with claim 13 or 14, wherein the power exchange facility is configured to remove a discharged battery pack from a vehicle and replace it with a charged battery pack.

17. A vehicle communication and guidance system in accordance with any one of claims 13 to 16, wherein the power exchange facility provides battery charging related information over a network to the vehicles.

18. A vehicle communication and guidance system in accordance with claim 17, wherein communication received from the power exchange facility is used for scheduling charging of batteries by providing appropriate power exchange time slots and route access for vehicles.