Claims

1. An inductive power transfer system, wherein the inductive power transfer system comprises an object detection system, wherein the inductive power transfer system comprises a primary winding structure and a secondary winding structure, wherein a charging volume (CV) is assigned to the inductive power transfer system, wherein the object detection system comprises at least one sensing device (12), wherein the sensing device (12) has a detection volume (10), wherein the at least one sensing device (12) is arranged such that the detection volume (10) is fully arranged outside the charging volume (CV) or comprises only an edge portion of the charging volume (CV),
   characterized in that
   the at least one sensing device (12) comprises at least one exciting winding structure and at least one detecting winding structure, wherein the at least one detecting winding structure is arranged within the exciting winding structure, wherein an electromagnetic detection field is generable by the exciting winding structure.

2. The inductive power transfer system according to claim 1, characterized in that the at least one sensing device (12) is designed as an inductive sensing system.

3. The inductive power transfer system according to one of the claims 1 to 2, characterized in that the at least one sensing device (12) is arranged ahead of the charging volume (CV) or at a front edge region of the charging volume (CV).

4. The inductive power transfer system according to one of the claims 1 to 3, characterized in that the object detection system comprises at least another sensing device (12), wherein the at least one other sensing device (12) is arranged beside the charging volume (CV) or at a lateral edge region of the charging volume (CV) and/or behind the charging volume (CV) or at a rear edge region of the charging volume (CV).

5. The inductive power transfer system according to one of the claims 1 to 4, characterized in that at least one barrier device is arranged beside the charging volume (CV) and/or behind the charging volume (CV).

6. The inductive power transfer system according to one of the claims 1 to 5, wherein the at least one sensing device (12) and/or the at least one other sensing device (12) is/are arranged on a secondary side of the inductive power transfer system.

7. The inductive power transfer system according to one of the claims 1 to 5, wherein the at least one sensing device (12) and/or the at least one other sensing device (12) is/are arranged on a primary side of the inductive power transfer system.

8. The inductive power transfer system according to one of the claims 1 to 7, wherein the object detection system comprises at least one positioning means for adapting a position of the at least one sensing device (12) and/or the at least one other sensing device (12).

9. The inductive power transfer system according to one of the claims 1 to 8, wherein the object detection system comprises at least evaluation unit, wherein at least one signal characteristic of an output signal of the at least one sensing device is determinable by the at least one evaluation unit, wherein at least one characteristic of a detected object is determinable depending on the at least one signal characteristic.

10. A method for detecting a foreign object in an inductive power transfer system, in particular for transferring power to a vehicle (1) on a surface (2) of a route (3), wherein the inductive power transfer system comprises a primary winding structure and a secondary winding structure, wherein a charging volume (CV) is assigned to the inductive power transfer system, wherein an object detection system comprises at least one sensing device (12), wherein the at least one sensing device has a detection volume (10), wherein the at least one sensing device (12) is arranged such that the detection volume (10) is fully arranged outside the charging volume (CV) or comprises only an edge portion of the charging volume (CV), wherein the at least one sensing device (12) is activated before and/or during an inductive power transfer, characterized in that
the at least one sensing device (12) comprises at least one exciting winding structure and at least one detecting winding structure, wherein the at least one detecting winding structure is arranged within the exciting winding structure, wherein an electromagnetic detection field is generated by the exciting winding structure.

11. The method according to claim 10, characterized in that the at least one sensing device is activated during an alignment operation of the secondary winding structure relative to the primary winding structure.

12. The method according to claim 11, characterized in that the at least one sensing device (12) is arranged ahead of the charging volume (CV) or at a front edge region of the charging volume (CV) and is activated before and during the secondary winding structure is moved over the primary winding structure in a predetermined direction.

13. The method according to one of the claims 10 to 12, characterized in that the at least one sensing device arranged ahead of the charging volume (CV) or at a front edge region of the charging volume (CV) and/or the at least one other sensing device arranged beside or behind the charging volume (CV) or at a lateral edge region or at a rear edge region of the charging volume (CV) is activated after the secondary winding structure is aligned relative to the primary winding structure and before and/or during an inductive power transfer.

14. The method according to one of the claims 10 to 13, characterized in that a vertical position of the at least one sensing device (12) is adjusted.

15. The method according to one of the claims 10 to 14, characterized in that a detection signal is generated if a foreign object is detected by the at least one sensing device (12), wherein the inductive power transfer process is controlled depending on the detection signal.

16. The method according to one of the claims 10 to 15, characterized in that at least one signal characteristic of an output signal of the at least one sensing device is determined, wherein at least one characteristic of a detected object is determined depending on the at least one signal characteristic.

17. A vehicle, characterized in that the vehicle comprises an object detection system, wherein the object detection system comprises at least one sensing device (12), wherein the sensing device (12) has a detection volume (10), wherein the at least one sensing device (12) is arranged such that the detection volume (10) is fully arranged outside a charging volume (CV) or comprises only an edge portion of the charging

volume (CV),

characterized in that

the at least one sensing device (12) comprises at least one exciting winding structure and at least one detecting winding structure, wherein the at least one detecting winding structure is arranged within the exciting winding structure, wherein an electromagnetic detection field is generable by the exciting winding structure.