CLAIMS

1. Floor cleaning system comprising a self-propelled and self-steering floor cleaning apparatus (10),
at least one controllable display unit (48),
and at least one storage unit (40; 100),
wherein the floor cleaning apparatus (10) comprises a running gear (18) for traveling on a floor surface (14), a control unit (20), a sensor unit (38), at least one cleaning unit (22), and an operating unit (44),
wherein an environment is detectable by means of the sensor unit (38) in order to locate and/or navigate the floor cleaning apparatus (10), in particular during movement,
wherein cleaning paths (68) for the floor cleaning apparatus (10) are stored in the at least one storage unit (40) with respective information about a route and preferably the use of at least one cleaning unit (22),
wherein a cleaning task is specifiable by a user (70) on the operating unit (44) by linking two or more cleaning paths (68) to be processed successively, and the cleaning task is automatically processable by the floor cleaning apparatus (10),
wherein at least one characteristic landmark (64) that is detectable by means of the sensor unit (38) is stored in the storage unit (40) and is associated with two or more cleaning paths (68), wherein a start position and/or an end position of a respective cleaning path (68) is located on or at the landmark (64),
and wherein a selection of the cleaning paths (68) associated with the respective landmark (64) is providable to the user (70) on the at least one display unit (48).

2. Floor cleaning system in accordance with claim 1, characterized in that two or more characteristic landmarks (64) detectable by means of the sensor unit (38) are stored in the storage unit (40), wherein two or more cleaning paths (68) are associated with at least one landmark (64).

3. Floor cleaning system in accordance with claim 1 or 2, comprising at least one landmark (64) which is preferably configured as a marker element (66) which is visually and/or electrically and/or electromagnetically detectable by the sensor unit (38), wherein the marker element (66) is in particular a matrix code or a barcode.

4. Floor cleaning system in accordance with one of the preceding claims, characterized in that at least one characteristic feature of an environment of the floor cleaning apparatus (10) is usable as a landmark (64).

5. Floor cleaning system in accordance with one of the preceding claims, characterized in that the cleaning task is storable in the at least one storage unit (40; 100).

6. Floor cleaning system in accordance with one of the preceding claims, characterized in that a map (56, 561, 562, 564, 565, 75, 751, 752, 753, 754) of the environment, in which the cleaning paths (68) associated with the landmark (64) are stored, is stored in the storage unit (40) associated with at least one landmark (64).

7. Floor cleaning system in accordance with one of the preceding claims, characterized in that a combined map (56, 561, 562, 564, 565, 75, 751, 752, 753, 754), in which the at least one landmark (64) and the cleaning paths (68) associated with these landmarks (64) are stored, is stored in the storage unit (40).

8. Floor cleaning system in accordance with one of the preceding claims, characterized in that cleaning paths (68) are provided and associated with the at least one landmark (64) which have a start position and their end position at the landmark (64), and/or cleaning paths (68) are provided which have a start position at one landmark (64) and an end position at another landmark (64).

9. Floor cleaning system in accordance with one of the preceding claims, characterized in that the floor cleaning apparatus (10) is hand-guided by a user (70), in particular, in that at least one of the following applies:

   - the floor cleaning apparatus (10) is guidable by the user (70) from a current start position to a landmark (64), starting from which the cleaning task is initiated;
   - the floor cleaning apparatus (10) is guidable by the user (70) from a landmark (64) to a parking position after completion of the cleaning task;

- the floor cleaning apparatus (10) is guidable by the user (70) from a first landmark (64) at which a cleaning path (68) ends up to another landmark (64) at which another cleaning path (68) begins.

10. Floor cleaning system in accordance with one of the preceding claims, characterized in that, in the at least one storage unit (40; 100), at least one transport path (74) is stored linked to at least one landmark (64) without using the at least one cleaning unit (22), which landmark is specifiable by the user (70) in particular as a component of the cleaning task.

11. Floor cleaning system in accordance with one of the preceding claims, characterized in that at least one of the following applies:

- a graphical user interface is providable to the user (70) on the display unit (48) for seeking a stored landmark (64) and/or a stored cleaning path (68);
- a map (56, 561, 562, 564, 565, 75, 751, 752, 753, 754) of the environment is displayable to the user (70) on the display unit (48) for selecting a landmark (64) shown therein and/or a stored cleaning path (68).

12. Floor cleaning system in accordance with one of the preceding claims, characterized in that a graphical user interface is providable to the user (70) on the display unit (48) for showing information relating to a landmark (64) and/or a stored cleaning path (68), in particular, depending upon a preceding search and/or selection in a map (56, 561, 562, 564, 565, 75, 751, 752, 753, 754).

13. Floor cleaning system in accordance with one of the preceding claims, characterized in that cleaning paths (68) are selectable on the user interface using names and/or symbols (72) and are displayable in a manner linkable to the cleaning task.

14. Floor cleaning system in accordance with one of the preceding claims, characterized in that the cleaning paths (68) are displayable linked to a selected landmark (64), in particular, cleaning paths (68) that are not associated with the landmark (64) are hidden or are displayed as non-selectable.

15. Floor cleaning system in accordance with one of the preceding claims, characterized in that the at least one cleaning path (68) is creatable by a user (70) on a data processing device (102) external to the floor cleaning apparatus (10) and is storable in the at least one storage unit (40; 100).

16. Floor cleaning system in accordance with one of the preceding claims, characterized in that the floor cleaning apparatus (10) is designed and configured to create and store at least one cleaning path (68), under the guidance of the user (70), on the operating unit (44) in a teach-in operating mode.

17. Floor cleaning system in accordance with claim 16, characterized in that a section (80) of the floor surface (14) recognized by the floor cleaning apparatus (10) and/or a section (80) of the floor surface (14) traversed by the user (70) along a circumference are automatically assignable a route (86, 95, 96) of the cleaning path (68), in particular, so as to cover the entire area.

18. Floor cleaning system in accordance with one of the preceding claims, characterized in that a notification is providable to the user (70), in particular, on the at least one display unit (48; 98), as to the quantity of a consumable component required to clean the section (80), and/or whether the quantity of an existing consumable component carried by the floor cleaning appliance (10) is sufficient to clean the section (80).

19. Floor cleaning system in accordance with one of the preceding claims, characterized in that the cleaning path (68) is adapted to have one or more segments, wherein at least one cleaning unit (22) is activated on at least one segment, wherein at least one of the following applies to the cleaning path (68):

- different types of cleaning units (22) are activated or deactivated at different segments of the cleaning path (68) or within a respective segment;
- there is at least one segment in which no cleaning unit (22) is activated;
- paths and assignable sections of the floor surface are stored in the cleaning path (68);

- at least one interaction event of the floor cleaning apparatus (10) with the environment is stored in the cleaning path (68), in particular, an acoustic and/or visual notification to be output by the floor cleaning apparatus (10).

20. Floor cleaning system in accordance with one of the preceding claims, characterized in that a notification is outputtable to the user (70) on the at least one display unit (48) to recognizably position the floor cleaning apparatus (10) at a landmark (64) by means of the sensor unit (38).

21. Floor cleaning system in accordance with one of the preceding claims, characterized in that at least one of the following applies in the event of the detection of at least one landmark (64):

- information about the cleaning paths (68) associated therewith is displayable on the display unit (48), preferably for creating the cleaning task;
- the processing of a cleaning task beginning at the landmark (64) is triggerable.

22. Floor cleaning system in accordance with one of the preceding claims, characterized in that, when the floor cleaning apparatus (10) is guided by the user (70), a notification about the cleaning paths (68) associated with the landmark (64) is providable on the display unit (48) when the at least one landmark (64) is detected by the sensor unit (38).

23. Floor cleaning system in accordance with one of the preceding claims, characterized in that the floor cleaning system (12; 120) comprises at least one docking station (54) for the floor cleaning apparatus (10) for assuming a defined position in a docking position, wherein the at least one docking station (54) preferably comprises or forms a landmark (64).

24. Floor cleaning system in accordance with claim 23, characterized in that the floor cleaning apparatus (10) is suppliable, via the at least one docking station (54), with a consumable component required for processing the cleaning task, and/or a used component of the floor cleaning appliance (10) is able to be picked up.

25. Floor cleaning system in accordance with claim 23 or 24, characterized in that the floor cleaning apparatus (10) is designed such that, at a respective docking station (54), at least one usable component is supplied in a sufficient amount for an upcoming cleaning path (68), and/or a used component is removed.

26. Floor cleaning system in accordance with one of claims 23 to 25, characterized in that the floor cleaning apparatus (10) is designed such that, during the processing of the cleaning task, the at least one docking station (54) is visitable in the event that the processing requires the supply of at least one consumable component and/or the discharge of at least one used component.

27. Floor cleaning system in accordance with one of claims 23 to 26, characterized in that the at least one docking station (54) is headable for in the cleaning path (68) in accordance with a specification, in order to supply at least one consumable component and/or to discharge at least one used component.

28. Floor cleaning system in accordance with one of claims 23 to 27, characterized in that the floor cleaning apparatus (10) is designed such that, during the processing of the cleaning task, depending upon a remainder of the cleaning task still to be processed, it automatically determines an amount of a consumable component required for this purpose and, if necessary, picks it up at at least one docking station (54) and/or discharges a consumed component, wherein picking up too much consumable component is preferably avoided.

29. Floor cleaning system in accordance with one of the preceding claims, characterized in that the floor cleaning apparatus (10) comprises at least one storage unit (40).

30. Floor cleaning system in accordance with one of the preceding claims, characterized in that at least one storage unit (100) is positioned remote from the floor cleaning apparatus (10), wherein information that is to be stored or is stored is transmittable from the floor cleaning apparatus (10) to the storage unit (100) and/or vice versa via a communications unit (42), in particular, in that the floor cleaning system (120) comprises a data processing device (102) which has the storage unit (100).

31. Floor cleaning system in accordance with one of the preceding claims, characterized in that the floor cleaning apparatus (10) comprises at least one display unit (48).

32. Floor cleaning system in accordance with one of the preceding claims, characterized in that at least one display unit (98) is positioned remote from the floor cleaning apparatus (10), wherein image information is transmittable from the floor cleaning apparatus (10) to the display unit (98) via a communications unit (42), in particular, in that the floor cleaning system (12) comprises a data processing device (102) which has the display unit (48).

33. Floor cleaning apparatus comprising
a running gear (18) for traveling on a floor surface (14), a control unit (20), a sensor unit (38), at least one cleaning unit (22), and an operating unit (44),
wherein an environment is detectable by means of the sensor unit (38) in order to locate and/or navigate the floor cleaning apparatus (10) during movement,
wherein cleaning paths (68) for the floor cleaning apparatus (10) are stored in at least one storage unit (40) with respective information about a route and preferably the use of at least one cleaning unit (22),
wherein a cleaning task is specifiable by a user on the operating unit (44) by linking two or more cleaning paths (68) to be processed successively, and the cleaning task is automatically processable by the floor cleaning apparatus (10),
wherein at least one characteristic landmark (64) that is detectable by means of the sensor unit (38) is stored in the storage unit (40) and is associated with two or more cleaning paths (68), wherein a start position and/or an end position of a respective cleaning path (68) is located on or at the landmark (64),
and wherein a selection of the cleaning paths (68) associated with the respective landmark (64) is providable to the user (70) on at least one display unit (48).

34. Method for operating a floor cleaning system in accordance with one of claims 1 to 32 or for operating a floor cleaning apparatus in accordance with claim 33, comprising:
providing at least one storage unit, wherein at least one characteristic landmark is stored in the at least one storage unit, to which landmark are associated two or

more cleaning paths with respective information about a route and preferably the use of the at least one cleaning unit of the floor cleaning apparatus, wherein a start position and/or an end position of a respective cleaning path is located on or at the landmark;

providing to a user a selection of the cleaning paths associated with the respective landmark to the user on the at least one display unit;

specifying, by the user, a cleaning task on the operating unit by linking two or more cleaning paths to be processed successively;

processing the cleaning task is automatically by the floor cleaning apparatus while detecting an environment of the floor cleaning apparatus by means of the sensor unit in order to locate and/or navigate the floor cleaning apparatus during movement.