

Claims:

1. Method for determining a mapping of a number of floors (7) to be served by an elevator (1), the method comprising:  
5 determining, during a multiplicity of trips of an elevator cabin (3) of the elevator (1), a trip-dependent physical parameter value which unambiguously depends on at least one of a trip duration ( $\Delta t$ ) and a trip distance ( $\Delta s$ );  
clustering the determined trip-dependent physical parameter values to define each of the number (k) of floors (7) in the mapping.  
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2. Method of claim 1, wherein the clustering is performed using a density-based clustering algorithm.
3. Method of one of the preceding claims, wherein the physical parameter value is  
15 measured using an acceleration sensor (13).
4. Method of claim 3, wherein a beginning of the at least one of a trip duration and a trip distance is triggered upon a physical parameter value relating to a measured acceleration exceeding a first threshold value and an end of the at least one of a trip  
20 duration and a trip distance is triggered upon a physical parameter value relating to a measured acceleration falling below a second threshold value after exceeding a third threshold value.
5. Method of one of claims 1 to 2, wherein the physical parameter value is  
25 measured using an air pressure sensor (15).
6. Method of claim 5, wherein a beginning of the at least one of a trip duration and a trip distance is triggered upon a physical parameter value relating to a gradient of a measured air pressure exceeding a first threshold value and an end of the at least one of a  
30 trip duration and a trip distance is triggered upon a physical parameter value relating to the gradient of the measured air pressure falls below a second threshold value.

7. Method of one of the preceding claims, wherein a trip distance is determined by double integration of measured acceleration values.
8. Method of one of the preceding claims, wherein a trip distance is determined  
5 based upon a pressure difference between air pressures measured at a beginning and at an end of an elevator trip.
9. Method of one of the preceding claims, wherein a beginning of the at least one of a trip duration ( $\Delta t$ ) and a trip distance ( $\Delta s$ ) is triggered based on a measurement of a  
10 first physical parameter value and wherein the trip-dependent physical parameter value is determined based on a measurement of a second physical parameter value.
10. Method for determining relative trip-dependent data of an elevator cabin (3), the method comprising:  
15 determining a trip-dependent physical parameter value which unambiguously depends on at least one of a trip duration ( $\Delta t$ ) and a trip distance ( $\Delta s$ );  
classifying the determined trip-dependent physical parameter value to exactly one type of trip ( $\Delta F$ ) between floors defined in a mapping of the number of floors to be served by the elevator (1), the mapping being determined using a method according to one of claims 1  
20 to 9;  
determining the relative trip-dependent data of the elevator cabin (3) based on the classification.
11. Method of claim 10, further comprising:  
25 tracking the relative trip-dependent data such as to determine whether the elevator cabin (3) has travelled along all of the number of floors (7) in a consecutive order and setting an initial cabin position information of the elevator cabin (3) to one of an uppermost and a lowermost floor of the number of floors, depending on a travelled direction.
12. Method of claim 11, wherein, upon each trip of the elevator cabin (3), a current  
30 position information of the elevator cabin (3) is set to one of the number of floors to be served by the elevator based on the initial cabin position information and based on the trip-dependent data determined since the setting of the initial cabin position information.

13. Elevator monitoring device (11) for one of determining a mapping of a number of floors (7) to be served by an elevator (1) and determining relative trip-dependent data of an elevator cabin (3), the device (11) being configured for one of performing and controlling a method according to one of the preceding claims.

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14. Computer program product comprising computer readable instructions which, when performed by a processor of an elevator monitoring device (11), instruct the elevator monitoring device (11) to one of perform and control a method according to one of claims 1 to 12.

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15. Computer readable medium comprising a computer program product according to claim 14 stored thereon.