Claims

1. Method for controlling a drone (104) along a shaft (106), the shaft (106) having at least a first shaft wall (118) and a second shaft wall (120) adjoining the first shaft wall (118), the drone (104) having a sensor system (108; 210, 212; 300, 302, 304) for detecting an environment and/or a state of flight of the drone (104), an actuator system (102) for controlling the drone (104), and a control device (110) for controlling the actuator system (102), the method comprising:
receiving sensor data (112) which have been generated by the sensor system (108; 210, 212; 300, 302, 304), in the control device (110);
determining actual distances (l_x, l_{x_2}, l_y) of the drone (104) relative to the first shaft wall (118) and to the second shaft wall (120) by processing the sensor data (112); and
generating a control signal (128) for actuating the actuator system (102) such that the drone (104) flies along the shaft (106), on the basis of a deviation of the actual distances (l_x, l_y) from the target distances (l'_x, l'_y) and a target flight route (s'_z) which the drone (104) is to cover until reaching a target position in the shaft (106),
an actual flight route (s_z) of the drone (104) being determined by processing the sensor data (112), and the control signal (128) being generated on the basis of a deviation of the actual flight route (s_z) from the target flight route (s'_z),
characterized in that
door regions (204) ~~and/or height markings (205)~~ in the shaft (106) are recognized by processing the sensor data (112), and the actual flight route (s_z) is determined on the basis of the door regions (204) ~~and/or height markings (205)~~ recognized by processing the sensor data (112).

2. Method according to claim 1,
wherein height markings (205) in the shaft (106) are recognized by processing the sensor data (112), and the actual flight route (s_z) is determined on the basis of the height markings (205) recognized by processing the sensor data (112).

3~~2~~. Method according to claim 2~~1~~,
wherein the actual distances (l_x, l_{x_2}, l_y) comprise a first actual distance (l_x) of the drone (104) relative to the first shaft wall (118) in a first spatial direction (*x*) and a second actual distance (l_y) of the drone (104) relative to the second shaft wall (120) in a second spatial direction (*y*) orthogonal to the first spatial direction (*x*);

wherein the control signal (128) is generated on the basis of a deviation of the first actual distance (l_x) from a first target distance (l'_x) and a deviation of the second actual distance (l_y) from a second target distance (l'_y).

43. Method according to claim 32,
wherein the actual distances (l_x, l_{x_2}, l_y) comprise an additional first actual distance (l_{x_2}) of the drone (104) relative to the first shaft wall (118) in the first spatial direction (*x*), wherein the first actual distance (l_x) and the additional first actual distance (l_{x_2}) are associated with different points of the first shaft wall (118);
wherein an actual orientation of the drone (104) is determined on the basis of the first actual distance (l_x) and the additional first actual distance (l_{x_2});
wherein the control signal (128) is further generated on the basis of a deviation of the actual orientation from a target orientation.

54. Method according to any of the preceding claims,
wherein furthermore a third actual distance (l_{z_1}) of the drone (104) relative to a ceiling (206) of the shaft (106) is determined by processing the sensor data (112);
wherein the control signal (128) is further generated on the basis of a deviation of the third actual distance (l_{z_1}) from a third target distance (l'_{z_1}).

65. Method according to any of the preceding claims,
wherein furthermore a fourth actual distance (l_{z_2}) of the drone (104) relative to a floor (208) of the shaft (106) is determined by processing the sensor data (112);
wherein the control signal (128) is further generated on the basis of a deviation of the fourth actual distance (l_{z_2}) from a fourth target distance (l'_{z_2}).

76. Method according to any of the preceding claims, furthermore comprising:
generating measurement data (132) comprising a measured width, depth and/or length of the shaft (106) from the sensor data (112).

87. Method according to any of the preceding claims, furthermore comprising:
transmitting the sensor data (112) and/or data (132) generated from the sensor data (112) from the control device (110) to an external data processing device (136).

98. Control device (110) comprising a processor (116) configured to carry out the method according to any of the preceding claims.

109. Drone control system (100) for actuating an actuator system (102) of a drone (104), wherein the drone control system (100) comprises:
a sensor system (108; 210, 212; 300, 302, 304) for detecting an environment and/or a state of flight of a drone (104); and
a control device (110) according to claim 98.

1110. Drone control system (100) according to claim 109,
wherein the sensor system (108; 210, 212; 300, 302, 304) comprises an ultrasonic sensor system (212; 300, 302, 304) and/or a laser sensor system (210) for detecting the environment of the drone (104); and/or
wherein the sensor system (108; 210, 212; 300, 302, 304) comprises an acceleration sensor system for detecting the state of flight of the drone (104).

1211. Elevator installation (200), comprising:
an elevator shaft (106) having at least a first shaft wall (118) and a second shaft wall (120) adjoining the first shaft wall (118); and
at least one drone (104) to be controlled along the elevator shaft (106), which drone is equipped with an actuator system (102) for controlling the drone (104) and a drone control system (100) according to either claim 109 or claim 1110 for actuating the actuator system (102).

1312. Computer program comprising commands that cause a processor (116) to carry out the method according to any of claims 1 to 87 when the computer program is executed by the processor (116).

1413. Computer-readable medium on which the computer program according to claim 1312 is stored.