

P437380NO00

NO20220217

Amended claims following 2nd examination report

Deleted: 1st

Applicant: Norphonic AS

Inventors: Eugene Zaikonnikov
Tron Vedul Tronstad

Title: An auditory guidance method and system

Claims

1. An auditory guidance system for installation along a pathway (1) between an initial location (L) and a target location (3, 4), comprising a plurality of nodes (2_{1-n}) arranged at intervals along the pathway, wherein a first node (2₁) is the closer node to the initial location (L) and a last node (2_n) is the closer node to the target location (3, 4),

characterized in that each node (2_{1-n}) comprises ~~one or more~~ directional sound generator (9a,b) ~~which is configured to emit a sound pulse (A) towards the initial location (L), in a sequence from the directional sound generator (9a₁) in the first node (2₁) to the directional sound generator (9a_n) in the last node (2_n), each sound pulse emission being interrupted by a constant time interval (Δt).~~

2. The system of claim 1, wherein the directional sound generators (9a,b) are loudspeakers with small apertures arranged into an array.

3. The system of any one of claims 1-2, wherein each sound generator (9a,b) in each node (2_{1-n}) is configured and controlled via a control system (8) to emit a sound pulse (A) with predefined characteristics.

4. The system of claim 3, wherein said characteristics comprise duration (t_A), pitch, volume.

5. The system of claim 3 or claim 4, wherein said sound pulses comprises bell chimes or sound of footsteps on pavement.

6. The system of any one of claims 3-5, wherein the system is configured to emit the same sound pulse from all the nodes.

7. The system of any one of claims 1-6, wherein the nodes are configured to be activated in a sequence, from the initial location (L) and towards the target location (4).

8. The system of any one of claims 1-7, wherein sound generators (9a,b) in each node are controlled to emit the same sound pulse at the same time, or to emit sound pulses in a desired sequence.

Deleted: two

Deleted: s

Commented [HL1]: From claim 1 as originally filed, and former claim 9.

Deleted: that each is configured to emit sound in a predetermined direction, and the sound generators (9a,b) within each node are pointing in opposite directions along the pathway (1)....

9. The system of any one of claims 1-8, wherein each is configured to emit sound in a predetermined direction, and the sound generators (9a,b) within each node are pointing in opposite directions along the pathway (1).

Deleted: each sound generator is configured to emit a sound pulse (A) towards the initial location (L), in a sequence from the directional sound generator (9a₁) in the first node (2₁) to the directional sound generator (9a_n) in the last node (2_n), each sound pulse emission being interrupted by a constant time interval (Δt). ...

Commented [HL2]: Basis: page 4, lines 17-21.

10. The system of any one of claims 4-9, wherein the sound pulse duration (t_A) is constant.

11. Use of the system as defined by any one of claims 1-10 as an evacuation system in a tunnel or other confined space, and where the target location is an emergency exit (3) or another opening (4) out of the tunnel or confined space.

12. An auditory guidance method, for guiding at least one individual (P) along a pathway (1) from an initial location (L) to a target location (3, 4), **characterized by** emitting directional sound pulses (A) from a plurality of nodes (2_{1-n}) arranged at intervals along the pathway between the initial location (L) and the target location (3, 4), said directional sound pulses being emitted in a sequence at time intervals (Δt) such that each node (2_{1-n}) emits a directional sound pulse (A) towards the initial location (L);

wherein a second node (2₂) is emitting a sound pulse (A) at a time interval (Δt) following the emission of a sound pulse (A) from a first node (2₁), a third node (2₃) is emitting a sound pulse (A) at a time interval (Δt) following the emission of a sound pulse (A) from the second node (2₂), and so on until a last node (2_n) has emitted a sound pulse (A);

whereby the sequential emission of sound pulses from the same side directional sound generators in subsequent nodes creates a spatial effect and an illusion of a sound travelling towards the target location and thus encourages the individual to follow the sequentially emitted sounds pulses.

13. The method of claim 12, wherein the time interval (Δt) is constant.

14. The method of any one of claims 12-13, wherein the pathway (1) is inside a tunnel or other confined space, and the target location comprises an emergency exit (3) or another exit (4) from the tunnel or other confined space, and wherein the sound pulse (A) duration (t_A) is determined such that it is significantly shorter than the reverberation time for the tunnel or other confined space.

3

15. The method of any one of claims 12-14, wherein the method is executed in multiple segments (G) of nodes (2_{1-n}), either simultaneously or at different intervals.
16. The method of any one of claims 12-15, executed by the auditory guidance system as defined by any one of claims 1-10.