OBSTACLE AVOIDANCE ALGORITHM FOR CONFINED SPACES

OBSTACLE AVOIDANCE ALGORITHM FOR

PROPRIETARY AND CONFIDENTIAL

NaviFloor Robotics, Inc.

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1. ALGORITHM OVERVIEW AND SCOPE

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1. This document describes the proprietary obstacle avoidance algorithm ("A

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2. The Algorithm comprises a multi-layered decision matrix incorporating:

(a) Real-time LiDAR sensor data processing

(b) Depth-mapping neural network calculations

(c) Predictive path planning optimization

(d) Dynamic obstacle classification protocols

(e) Emergency override parameters

2. TECHNICAL SPECIFICATIONS

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1. Core Components:

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Primary sensor array integration protocol

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Multi-surface terrain analysis module

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Velocity vector calculation engine

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Proximity threshold management system

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Emergency stop trigger mechanism

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2. Performance Parameters:

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Minimum detection range: 0.05 meters

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Maximum detection range: 25 meters

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Angular resolution: 0.25 degrees

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Processing latency: <15 milliseconds

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Accuracy rate: 99.97% in standard conditions

3. PROPRIETARY RIGHTS AND PROTECTION

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1. The Algorithm, including all component methodologies, source code, and

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2. Access to this document and the information contained herein is strictly li

4. IMPLEMENTATION REQUIREMENTS

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1. Hardware Requirements:

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Minimum processor: NaviFloor N-Series or equivalent

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Required sensors: LiDAR Model NF-350 or higher

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Memory allocation: 4GB dedicated RAM

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Network latency: <5ms

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2. Software Dependencies:

NaviFloor Core Framework v4.2 or higher

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Terrain Mapping Module v2.1

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Sensor Fusion Package v3.0

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Safety Protocol Suite v2.5

5. SAFETY AND COMPLIANCE

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1. The Algorithm incorporates mandatory safety features including:

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Redundant obstacle detection systems

- Fail-safe protocols for sensor malfunction

- Emergency stop capabilities

- Human presence detection prioritization

- Dynamic speed adjustment protocols

- 2. Compliance with Standards:

- ISO/TS 15066:2016

- ANSI/RIA R15.06-2012

EN ISO 13849-1:2015

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IEC 61508-1:2010

6. VERSION CONTROL AND UPDATES

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1. This document reflects Version 2.1 of the Algorithm, released December 1

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2. Previous versions:

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v2.0: September 30, 2023

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v1.5: June 15, 2023

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v1.0: March 1, 2023

7. CONFIDENTIALITY AND DISTRIBUTION

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1. This document contains trade secrets and confidential information of Navi

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2. Distribution limited to:

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NaviFloor executive management

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Authorized development team members

Licensed implementation partners

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Qualified potential acquirers under executed NDA

8. CERTIFICATION AND APPROVAL

The undersigned hereby certify that this document accurately represents the current specification of NaviFloor Robotics' Obstacle Avoidance Algorithm for Confined Spaces.

APPROVED BY:

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9. DOCUMENT CONTROL

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