

AUTONOMOUS NAVIGATION IN DYNAMIC ENVIRONMENTS

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Technical Documentation and IP Rights Summary

NaviFloor Robotics, Inc.

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1. PROPRIETARY NOTICE

This document contains confidential and proprietary information of NaviFloor Robotics, Inc. ("NaviFloor"). All intellectual property rights described herein

are owned exclusively by NaviFloor Robotics, Inc., a Delaware corporation, its principal place of business at 2500 Innovation Drive, Wilmington, DE 19801.

2. TECHNOLOGY OVERVIEW

2.1 Core Navigation System

The Autonomous Navigation System ("NavSystem") comprises proprietary algorithms and methodologies for real-time terrain mapping and autonomous navigation in dynamic industrial environments, specifically:

- (a) Multi-Surface Adaptive Navigation Protocol (MSANP)
- (b) Dynamic Environment Recognition System (DERS)
- (c) Predictive Path Planning Algorithm (PPA)
- (d) Fleet Coordination Management System (FCMS)

2.2 Protected Components

The following components are subject to intellectual property protection:

- (a) LiDAR-based surface recognition algorithms
- (b) Depth-sensing calibration methodologies
- (c) Machine learning models for obstacle avoidance
- (d) Real-time path optimization protocols
- (e) Multi-robot coordination algorithms

3. INTELLECTUAL PROPERTY RIGHTS

3.1 Patents

NaviFloor maintains the following patent portfolio related to autonomous navigation:

(a) US Patent No. 11,234,567: "Method and System for Multi-Surface Autonomous Navigation"

(b) US Patent No. 11,345,678: "Dynamic Environment Mapping Using Advanced Systems"

(c) US Patent Application No. 17/123,456: "Fleet Management System for Autonomous Mobile Robots"

3.2 Trade Secrets

The following elements are maintained as trade secrets:

(a) Proprietary calibration parameters

(b) Machine learning training datasets

(c) Algorithm optimization techniques

(d) Surface material recognition databases

4. TECHNICAL SPECIFICATIONS

4.1 Navigation Capabilities

The system demonstrates the following performance metrics:

- (a) Surface recognition accuracy: 99.8%
- (b) Obstacle avoidance response time: <50ms
- (c) Path optimization efficiency: 94.5%
- (d) Multi-robot coordination latency: <100ms

4.2 System Requirements

Minimum technical requirements for implementation:

- (a) Processing power: 4.0 GHz quad-core processor

(b) Memory: 16GB RAM

(c) Storage: 256GB SSD

(d) Network: Gigabit Ethernet

5. IMPLEMENTATION RESTRICTIONS

5.1 Usage Limitations

The technology shall only be implemented:

(a) Within authorized NaviFloor AMR platforms

(b) By certified NaviFloor technicians

(c) In approved industrial environments

(d) Under valid license agreements

5.2 Security Protocols

Required security measures include:

- (a) End-to-end encryption of all navigation data
- (b) Secure boot protocols
- (c) Regular security audits
- (d) Access control systems

6. COMPLIANCE AND CERTIFICATION

6.1 Safety Standards

The system complies with:

- (a) ISO/TS 15066:2016

(b) ANSI/RIA R15.06-2012

(c) EN ISO 13849-1:2015

(d) IEC 61508:2010

6.2 Industry Certifications

Current certifications include:

(a) UL 3100 certification for AMRs

(b) CE marking for European markets

(c) RoHS compliance

(d) FCC certification

7. CONFIDENTIALITY

All information contained herein is strictly confidential and may not be

disclosed, copied, or distributed without the express written consent of NaviFloor Robotics, Inc. Unauthorized use or disclosure may result in legal action.

8. VALIDATION

This document has been reviewed and approved by:

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NaviFloor Robotics, Inc.

Date: January 11, 2024

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Chief Technology Officer

NaviFloor Robotics, Inc.

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9. DOCUMENT CONTROL

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