DYNAMIC ROUTE PLANNING FOR MULTIPLE ROBOT COORDINATION

DYNAMIC ROUTE PLANNING FOR MULTIPL

Technical Documentation and IP Rights

1. OVERVIEW AND SCOPE

1. This document describes the proprietary dynamic route planning sy

2. The System encompasses the algorithms, methodologies, and tech

2. TECHNICAL SPECIFICATIONS

1. Core Components

a) Distributed Computing Architecture

b) Real-time Position Tracking System

c) Dynamic Path Generation Algorithm

d) Collision Prediction Module

e) Traffic Management Protocol

2. System Architecture

The System utilizes a three-tier architecture:

a) Local Robot Control Layer

b) Central Coordination Layer

c) Strategic Planning Layer

3. Key Algorithms

a) NaviFloor Predictive Path Planning(TM) (Patent Pending, App. No.

b) Multi-Agent Collision Avoidance System

c) Adaptive Speed Control Protocol

d) Dynamic Priority Assignment Method

3. INTELLECTUAL PROPERTY RIGHTS

1. Proprietary Rights

All intellectual property rights, including but not limited to patents, copyrights, trade secrets, and know-how related to the System are ex owned by NaviFloor Robotics, Inc.

2. Protected Components

a) Source code implementations

b) Algorithm specifications

c) System architecture designs

d) Technical documentation

e) Training materials

f) Configuration parameters

3. Patent Applications

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US Patent Application No. 16/789,432

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PCT Application No. PCT/US2022/123456

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European Patent Application No. EP22987654

4. IMPLEMENTATION SPECIFICATIONS

1. Hardware Requirements

a) Minimum Processing Capabilities

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CPU: Intel i7 or equivalent

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RAM: 16GB minimum

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Storage: 256GB SSD

2. Software Dependencies

a) NaviFloor Core Framework v3.2 or higher

b) ROS2 Humble or newer

c) Custom middleware components

3. Network Requirements

a) Ultra-low latency network infrastructure

b) Redundant communication channels

c) Minimum bandwidth: 1Gbps

5. SECURITY MEASURES

1. Data Protection

a) End-to-end encryption of all robot communications

b) Secure boot mechanisms

c) Encrypted storage of configuration data

2. Access Control

a) Role-based access management

b) Multi-factor authentication

c) Audit logging of all system access

6. PERFORMANCE METRICS

1. System Capabilities

- Maximum number of simultaneous robots: 100
- Path recalculation frequency: 10Hz
- Collision prediction window: 5 seconds
- Maximum supported facility area: 100,000 sq ft

2. Reliability Standards

System uptime: 99.99%

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Mean time between failures: 5000 hours

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Recovery time objective: <1 second

7. CONFIDENTIALITY

1. All information contained herein is strictly confidential and constitute

2. Disclosure of any portion of this document to third parties is strictly

8. CERTIFICATION

The undersigned hereby certifies that this document accurately repres
technical specifications and intellectual property rights of the Dynamic
Planning System as of the date below.

NAVIFLOOR ROBOTICS, INC.

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Date: January 11, 2024

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Date: January 11, 2024

9. DOCUMENT CONTROL

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