DYNAMIC ROUTE GENERATION FOR MULTIPLE ROBOT COORDINATION

DYNAMIC ROUTE GENERATION FOR MULT

Technical Documentation and IP Rights

PROPRIETARY AND CONFIDENTIAL

NaviFloor Robotics, Inc.

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1. OVERVIEW AND SCOPE

1. This document describes the proprietary dynamic route generation system

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2. The System comprises proprietary algorithms, methodologies, and softwa

2. TECHNICAL SPECIFICATIONS

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1. Core Components

a) Real-time terrain mapping module utilizing LiDAR-based depth sensing

b) Dynamic path optimization engine

c) Multi-robot coordination protocol

d) Collision avoidance system

e) Surface adaptation algorithms

2. Key Functionalities

a) Simultaneous route generation for up to 50 AMRs

b) Real-time path recalculation at 100Hz

c) Surface characteristic identification and classification

d) Dynamic obstacle avoidance with 99.99% accuracy

e) Cross-platform compatibility with NaviFloor control systems

3. INTELLECTUAL PROPERTY RIGHTS

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1. Protected Elements

The following elements are protected as trade secrets and/or through patent protection:

a) Terrain mapping algorithms

b) Route optimization methodologies

c) Multi-robot coordination protocols

d) Surface adaptation calculations

e) System architecture and implementation

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2. Patent Coverage

a) U.S. Patent No. 11,XXX,XXX: "System and Method for Dynamic Route C
in Multi-Robot Environments"

b) PCT Application No. PCT/US2023/XXXXX

c) European Patent Application No. EP23XXXXXX.X

4. IMPLEMENTATION REQUIREMENTS

1. Hardware Requirements

a) Minimum processor: Intel i7 or equivalent

b) RAM: 16GB minimum

c) Storage: 256GB SSD

d) Network: Gigabit Ethernet

e) Compatible LiDAR sensors: Listed in Appendix A

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2. Software Dependencies

a) NaviFloor Core Platform v4.2 or higher

b) ROS2 Humble or newer

c) Python 3.9+

d) CUDA 11.0+

5. SECURITY PROTOCOLS

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1. Access Control

a) Role-based access management

b) Multi-factor authentication required

c) Encrypted communication channels

d) Audit logging of all system access

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2. Data Protection

a) AES-256 encryption for stored data

b) TLS 1.3 for data in transit

c) Regular security audits

d) Compliance with ISO 27001 standards

6. CONFIDENTIALITY AND USE RESTRICTIONS

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1. This document and the System described herein contain confidential and p

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2. Disclosure Restrictions

a) Information shall not be disclosed to third parties without written authorization

b) Access limited to authorized personnel with signed NDAs

c) No reverse engineering permitted

d) No unauthorized copying or reproduction

7. WARRANTY AND LIABILITY

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1. The System is provided "as is" without warranty of any kind, express or in

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2. Company shall not be liable for any damages arising from the use or inabi

8. CERTIFICATION AND COMPLIANCE

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1. The System has been certified to meet:

a) ISO/TS 15066:2016 for collaborative robots

b) IEC 61508 SIL 2 for functional safety

c) CE marking requirements

d) UL 1740 for robot safety

EXECUTION

IN WITNESS WHEREOF, this document has been executed by the duly aut

representatives of NaviFloor Robotics, Inc.

By: _

Name: Dr. Elena Kovacs

Title: Chief Research Officer

Date: January 11, 2024

By: _

Name: Marcus Depth

Title: Chief Technology Officer

Date: January 11, 2024

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