ROBOT-ENVIRONMENT INTERACTION DOCUMENTATION

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NaviFloor Robotics, Inc.

Document Version: 2.4

Effective Date: January 11, 2024

Document Control #: NF-RED-2024-011

1. PURPOSE AND SCOPE

1. This Robot-Environment Interaction Documentation ("Documentatio

2. This Documentation applies to all NaviFloor Series 3000 and 4000

2. DEFINITIONS

1. "Environmental Mapping System" means NaviFloor's proprietary Li

2. "Operational Zone" means any defined area within which AMRs are

3. "Surface Adaptation Protocol" means the dynamic response system

3. TECHNICAL SPECIFICATIONS

1. Environmental Sensing Capabilities

a) Primary LiDAR System: Dual 360 scanning units operating at 40Hz

b) Secondary Depth Sensors: 8 distributed depth-sensing arrays

c) Surface Texture Analysis: High-frequency vibration detection system

d) Environmental Condition Monitoring: Temperature, humidity, and pressure sensors

2. Mapping Resolution Parameters

a) Horizontal Resolution: 2mm at 1m distance

b) Vertical Resolution: 1.5mm at 1m distance

c) Maximum Mapping Range: 30m radial distance

d) Minimum Feature Detection: 5mm at 2m distance

4. OPERATIONAL PROTOCOLS

1. Environment Classification System

a) Class A: Standard warehouse environments

b) Class B: Manufacturing facilities with dynamic obstacles

c) Class C: Multi-level facilities with connecting ramps

d) Class D: Specialized environments requiring custom mapping

2. Surface Adaptation Requirements

a) Minimum friction coefficient: 0.35

b) Maximum allowable grade: 15%

c) Surface transition detection threshold: 2mm

d) Dynamic load adjustment range: 0-2000kg

5. SAFETY PARAMETERS

1. Collision Avoidance Protocols

a) Primary safety zone: 2m radius

b) Secondary warning zone: 4m radius

c) Emergency stop activation threshold: 0.5m

d) Maximum approach velocity: 1.5 m/s

2. Environmental Hazard Response

a) Automatic shutdown conditions

b) Emergency notification protocols

c) Remote override procedures

d) Fail-safe positioning systems

6. COMPLIANCE AND CERTIFICATION

1. The environmental interaction systems described herein comply wit

a) ISO/TS 15066:2016 Robot Safety Standards

b) ANSI/RIA R15.06-2012 Industrial Robot Safety

c) CE Marking Requirements (2006/42/EC)

d) UL 3100 Standard for Automated Mobile Platforms

7. PROPRIETARY INFORMATION

1. All technical specifications, algorithms, and operational parameters

2. This Documentation is protected under applicable trade secret and

8. WARRANTY AND LIMITATION OF LIABILITY

1. NaviFloor Robotics warrants that the environmental interaction syst

2. NAVIFLOOR ROBOTICS MAKES NO OTHER WARRANTIES, EXI

9. DOCUMENT CONTROL

1. This Documentation shall be reviewed and updated annually or up

2. Change History:

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Version 2.4: January 11, 2024 - Updated surface adaptation protocols

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Version 2.3: October 15, 2023 - Enhanced safety parameters

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Version 2.2: July 1, 2023 - Added Class D environment specifications

EXECUTION

IN WITNESS WHEREOF, this Documentation has been reviewed and

authorized representatives of NaviFloor Robotics, Inc.

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