

INTELLIGENT CLEANING PATTERN GENERATION

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Technical Documentation and Proprietary Process Description

NaviFloor Robotics, Inc.

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1. OVERVIEW AND SCOPE

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1. This document describes the proprietary intelligent cleaning pattern generation

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2. The System comprises both hardware and software components that enable

2. TECHNICAL SPECIFICATIONS

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1. ****Core Components****

a) Multi-sensor fusion array incorporating:

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Advanced LiDAR sensors (Model NF-L450X)

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Depth-sensing cameras (Resolution: 1920x1080, 60fps)

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Surface texture analyzers (Model STA-2000)

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Proprietary terrain mapping processors

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2. **Pattern Generation Algorithm**

a) Dynamic path planning utilizing:

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Quadtree decomposition for space partitioning

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Adaptive coverage patterns based on surface conditions

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Real-time obstacle avoidance and rerouting

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Energy optimization subroutines

3. PROPRIETARY PROCESSES

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1. ****Surface Analysis Protocol****

The System employs a proprietary three-stage surface analysis protocol:

- a) Initial terrain mapping and classification
- b) Surface composition identification
- c) Cleaning requirement assessment

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2. ****Pattern Optimization****

- a) Real-time adjustment based on:

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Surface texture variations

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Contamination levels

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Traffic patterns

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Energy efficiency parameters

4. INTELLECTUAL PROPERTY PROTECTION

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1. The System and all its components are protected by:

a) U.S. Patent No. 11,234,567 "Method for Autonomous Surface Treatment and Generation"

b) U.S. Patent No. 11,345,678 "Multi-Surface Adaptive Navigation System"

c) Multiple pending patent applications as detailed in Schedule A

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2. ****Trade Secrets****

The following elements are maintained as trade secrets:

- a) Surface classification algorithms
- b) Energy optimization formulas
- c) Pattern generation coefficients
- d) Sensor fusion calibration parameters

5. IMPLEMENTATION REQUIREMENTS

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1. **Hardware Requirements**

a) Minimum processor specifications:

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Dual-core ARM processor @ 2.5GHz

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8GB RAM

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Dedicated GPU with 4GB VRAM

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2. **Software Dependencies**

a) NaviFloor Core Framework v4.2 or higher

b) Pattern Generation Module v2.1

c) Surface Analysis Library v3.0

6. CONFIDENTIALITY AND ACCESS

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1. This document contains confidential and proprietary information of NaviF

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2. ****Access Levels****

- a) Level 1: System architecture overview
- b) Level 2: Implementation specifications
- c) Level 3: Core algorithms and proprietary formulas

7. CERTIFICATION AND COMPLIANCE

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- 1. The System has been certified to meet:
 - a) ISO 18000 Safety Standards
 - b) CE Mark requirements
 - c) UL 1740 Robot Safety requirements

8. VERSION CONTROL

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1. This document supersedes all previous versions of the Intelligent Cleaning

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2. **Revision History**

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v3.0: December 15, 2023

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v2.5: June 30, 2023

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v2.0: January 15, 2023

9. LEGAL NOTICES

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2. CONFIDENTIALITY NOTICE: This document contains proprietary information.

AUTHENTICATION

IN WITNESS WHEREOF, this document has been reviewed and approved by the undersigned authorized representatives of NaviFloor Robotics, Inc.

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Chief Research Officer

Date: December 15, 2023

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