

DYNAMIC AREA COVERAGE OPTIMIZATION SYSTEM

DYNAMIC AREA COVERAGE OPTIMIZATION

TECHNICAL SPECIFICATION AND INTELLECTUAL PROPERTY

Document ID: DACOS-2023-IP-001

Version: 3.1

Last Updated: December 15, 2023

Classification: CONFIDENTIAL AND PROPRIETARY

1. OVERVIEW AND SCOPE

- - 1 -

1. This document describes the proprietary Dynamic Area Coverage Optimiz

-

2. DACOS encompasses the Company's proprietary algorithms, methodologi

2. SYSTEM ARCHITECTURE

-

1. Core Components:

a) Multi-Surface Terrain Analysis Module (MS-TAM)

b) Adaptive Navigation Processing Unit (ANPU)

c) LiDAR Integration Framework (LIF)

d) Real-time Environmental Mapping System (REMS)

- - 2 -

2. Protected Technologies:

- a) Depth-sensing algorithms derived from marine applications
- b) Proprietary surface recognition patterns
- c) Dynamic path optimization protocols
- d) Multi-robot coordination algorithms

3. INTELLECTUAL PROPERTY PROTECTION

-

1. Patent Protection:

- a) U.S. Patent No. 11,487,XXX: "Method and System for Dynamic Area Coverage Optimization in Autonomous Mobile Robots"
- b) U.S. Patent No. 11,592,XXX: "Multi-Surface Navigation System for Industrial Robots"

c) Patent Applications: PCT/US2023/XXXXX (pending)

-

2. Trade Secrets:

a) Proprietary calibration methodologies

b) Surface friction coefficient calculations

c) Environmental variable compensation algorithms

d) Fleet optimization protocols

4. TECHNICAL SPECIFICATIONS

-

1. Performance Parameters:

a) Navigation Accuracy: $\pm 2.5\text{mm}$ at 95% confidence

b) Surface Type Recognition: 98.7% accuracy

c) Real-time Processing Latency: <5ms

d) Maximum Concurrent Robot Control: 50 units

-

2. System Requirements:

a) Minimum Computing Infrastructure: 64GB RAM, 12-core processor

b) Network Requirements: <20ms latency, 99.99% uptime

c) Storage Requirements: 500GB SSD per 10,000 sq ft coverage

5. IMPLEMENTATION AND DEPLOYMENT

-

1. The DACOS implementation process follows the Company's proprietary d

a) Environmental scanning and digital twin creation

b) Surface characteristic mapping and calibration

- c) Robotsfleet configuration and optimization
- d) System validation and performance verification

-

2. Integration Requirements:

- a) API compatibility with standard industrial control systems
- b) Secure data transmission protocols
- c) Redundant backup systems
- d) Emergency override capabilities

6. CONFIDENTIALITY AND RESTRICTIONS

-

1. All information contained herein is strictly confidential and constitutes val

- - 6 -

2. Access to this documentation is restricted to authorized personnel who have

-

3. No portion of this system may be reproduced, reverse engineered, or imple

7. WARRANTY AND DISCLAIMER

-

1. The Company makes no warranties, express or implied, regarding the DA

-

2. This documentation is provided "as is" and may be updated or modified by

8. CERTIFICATION AND COMPLIANCE

- - 7 -

1. DACOS has been certified to meet the following standards:

- a) ISO/IEC 27001:2013 Information Security Management
- b) IEC 61508 Functional Safety Standard
- c) ANSI/RIA R15.06-2012 Industrial Robot Safety

9. EXECUTION AND VALIDATION

IN WITNESS WHEREOF, this document has been executed by the authorized
representatives of NaviFloor Robotics, Inc.

NAVIFLOOR ROBOTICS, INC.

By:

Name: Dr. Elena Kovacs

Title: Chief Research Officer

Date: December 15, 2023

By:

Name: Marcus Depth

Title: Chief Technology Officer

Date: December 15, 2023

10. DOCUMENT CONTROL

Version History:

-

3.1: December 15, 2023 - Updated technical specifications

-

3.0: September 30, 2023 - Major revision incorporating new patents

- - 9 -

2.1: June 15, 2023 - Updated system architecture

-

2.0: March 1, 2023 - Comprehensive update

-

1.0: January 15, 2023 - Initial release

