DYNAMIC OBSTACLE AVOIDANCE IN ROBOTIC FLOOR MAINTENANCE

DYNAMIC OBSTACLE AVOIDANCE IN ROBO

TECHNICAL SPECIFICATION AND INTELLECTUAL PROPERTY D

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1. PROPRIETARY NOTICE AND CONFIDENTIALITY

This document contains confidential and proprietary information belor

NaviFloor Robotics, Inc., a Delaware corporation ("Company"). This d

the information contained herein may not be reproduced, used, or disc

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2. TECHNICAL OVERVIEW

2.1 System Architecture

The Dynamic Obstacle Avoidance System ("System") comprises an in

hardware-software solution incorporating:

(a) Multi-modal sensor array utilizing:

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Primary LiDAR system (Model NF-L350X)

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Secondary depth-sensing cameras (4x NF-DC120)

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Ultrasonic proximity sensors (12x NF-UPS40)

Proprietary sensor fusion middleware (v4.2.1)

(b) Real-time processing unit:

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Custom ASIC (NaviCore(TM) NC-2000)

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Dedicated obstacle classification processor

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Emergency override system

2.2 Protected Algorithms

The System employs the following proprietary algorithms:

(a) Terrain Mapping Algorithm (Patent No. US 11,XXX,XXX)

(b) Dynamic Path Planning Algorithm (Patent Pending, App. No. 17/X

(c) Multi-Surface Classification System (Trade Secret)

3. INTELLECTUAL PROPERTY RIGHTS

3.1 Patents

The Company maintains exclusive rights to the following patents relat
System:

(a) "Method and System for Real-time Obstacle Detection in Autonom
Robots"

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US Patent No. 11,XXX,XXX

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Filing Date: March 20, 2019

Issue Date: June 15, 2021

(b) "Adaptive Navigation System for Multi-Surface Environments"

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US Patent Application No. 17/XXX,XXX

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Filing Date: September 12, 2022

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Status: Pending

3.2 Trade Secrets

The following components are maintained as trade secrets:

(a) Sensor fusion calibration methodology

(b) Surface texture classification algorithms

(c) Emergency override decision trees

(d) Custom ASIC architecture specifications

4. TECHNICAL SPECIFICATIONS

4.1 Performance Parameters

The System maintains the following operational specifications:

(a) Obstacle Detection:

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Minimum object size: 2.5cm x 2.5cm x 2.5cm

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Maximum detection range: 12 meters

Detection latency: <5ms

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False positive rate: <0.01%

(b) Navigation:

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Maximum operating speed: 2.5 m/s

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Minimum turning radius: 0.5m

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Surface transition time: <100ms

4.2 Environmental Requirements

The System is certified to operate under:

(a) Temperature range: 0 C to 45 C

(b) Humidity: 10% to 90% non-condensing

(c) Lighting conditions: 5-1000 lux

(d) Surface types: All industrial standard flooring

5. IMPLEMENTATION REQUIREMENTS

5.1 Integration Prerequisites

System implementation requires:

(a) NaviFloor Base Platform v3.0 or higher

(b) NaviCore(TM) Runtime Environment v4.2

(c) Valid system authentication key

(d) Completed calibration sequence

5.2 Maintenance Requirements

To maintain IP protection:

(a) Quarterly software updates

(b) Annual hardware calibration

(c) Bi-annual security audit

(d) Maintenance of encrypted logging system

6. LEGAL COMPLIANCE

6.1 Export Control

This technology is subject to U.S. export control regulations. Technica

may not be exported without appropriate licensing under EAR classifi

2D992.

6.2 Third-Party Components

All third-party components are used under appropriate licenses and d

compromise the Company's IP rights.

7. CERTIFICATION

The undersigned hereby certifies that this document accurately repres

technical specifications and intellectual property status of the Dynamic

Obstacle Avoidance System as of the date first written above.

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**By:** _

Dr. Elena Kovacs

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8. DOCUMENT CONTROL

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