ENVIRONMENTAL MAPPING AND CLASSIFICATION SYSTEM

ENVIRONMENTAL MAPPING AND CLASSIF

PROPRIETARY AND CONFIDENTIAL

NaviFloor Robotics, Inc.

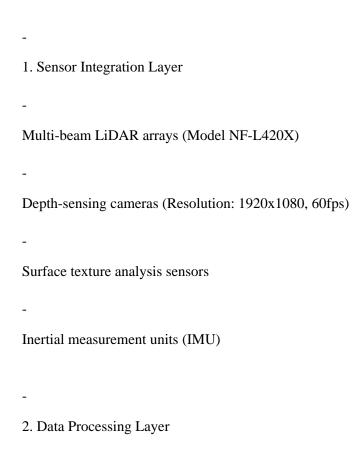
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1. OVERVIEW AND SCOPE

1. This document describes the proprietary Environmental Mapping and Class

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2. The EMCS comprises the integrated hardware and software systems, methods
2. DEFINITIONS
- 1 "Environmental Deta" magne all anotial tomographical symfogs shows staric
1. "Environmental Data" means all spatial, topographical, surface characteris
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2. "Classification Parameters" means the defined set of environmental attribu
3. "Navigation Mesh" means the three-dimensional representation of traverse
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4. "Surface Profile" means the detailed characterization of floor surfaces incl

3. SYSTEM ARCHITECTURE



- - 3 Real-time point cloud generation
Surface classification algorithms
Dynamic obstacle detection
Environmental change tracking
3. Classification Engine
Machine learning-based surface identification

Terrain complexity scoring

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Navigation risk assessment

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Dynamic route optimization

4. MAPPING METHODOLOGY

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1. Initial Mapping Process

The System employs a multi-pass mapping approach:

- a) Primary scan for structural elements
- b) Secondary scan for surface characteristics
- c) Verification scan for data validation

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2	. Classification Categories
E	Environment elements are classified into:
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S	tatic structural elements
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S	emi-permanent fixtures
-	
D	Dynamic obstacles
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R	Restricted zones
-	
P	referred navigation paths
3	. Update Protocols
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Continuous background mapping during normal operation
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Scheduled comprehensive remapping
-
Event-triggered partial remapping
5. PROPRIETARY ALGORITHMS
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1. Surface Analysis Algorithm (Patent Pending, App. No. 16/234,567)
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Multi-layer surface characterization
-
Friction coefficient calculation
Friction coefficient calculation

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Load-bearing capacity assessment

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Wear pattern recognition

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2. Dynamic Navigation Mesh Generation

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Real-time mesh updates

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Predictive path planning

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Collision avoidance optimization

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Multi-robot coordination

6. DATA MANAGEMENT AND SECURITY

1. Storage Requirements

Local edge processing units

Encrypted cloud backup

Version control system

Delta update management

2. Access Controls

- 9 Role-based access system
 Audit logging
 Change tracking

Data retention policies

7. INTEGRATION SPECIFICATIONS

1. Hardware Requirements

Minimum sensor configuration

- - 10 Processing unit specifications

Network infrastructure requirements

Power supply specifications

2. Software Integration

API documentation

Communication protocols

Data format specifications

- - 11 Error handling procedures

8. INTELLECTUAL PROPERTY PROTECTION

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1. All components of the EMCS, including but not limited to algorithms, me

2. Any improvements, modifications, or derivatives of the EMCS developed

9. COMPLIANCE AND CERTIFICATION

1. The EMCS has been certified to meet:

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ISO/TS 1/5066:2016 (Robots and robotic devices)
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IEC 61508 (Functional Safety)
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CE marking requirements
-
ANSI/RIA R15.06-2012
10. DISCLAIMER AND LIMITATION OF LIABILITY
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1. The EMCS is provided "as is" without warranty of any kind, either expres
2. NaviFloor Robotics, Inc. shall not be liable for any direct, indirect, incident
2. I vavii 1801 Roboties, inc. shan not be hable for any direct, indirect, include

AUTHENTICATION

This document is maintained under version control and is considered valid or in its electronic form with digital signature verification.

Approved by:

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Chief Research Officer

NaviFloor Robotics, Inc.

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