DYNAMIC OBSTACLE DETECTION SYSTEM DOCUMENTATION

DYNAMIC OBSTACLE DETECTION SYSTEM

NaviFloor Robotics, Inc.

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Classification: CONFIDENTIAL

1. SYSTEM OVERVIEW

1. This Dynamic Obstacle Detection System Documentation ("Docum

2. The System utilizes advanced LiDAR sensors, depth-mapping algo

2. TECHNICAL SPECIFICATIONS

1. Sensor Configuration

- Primary LiDAR Array: Dual NS-450X sensors
- Secondary Depth Sensors: Four (4) DM-8800 units
- Tertiary Motion Detection: Integrated IMU array
- Scanning Frequency: 40Hz nominal operation

2. Detection Parameters

Minimum Obstacle Size: 2.5cm at 3m distance

-

Maximum Detection Range: 12m forward, 8m lateral

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Angular Resolution: 0.13 horizontal, 0.18 vertical

-

Response Latency: <15ms from detection to actuation

3. PROPRIETARY ALGORITHMS

1. The System incorporates the following proprietary algorithms:

-

TerrainMap(TM) surface classification system

-

DynamicPath(TM) trajectory planning

- ObstacleNet(TM) object recognition and classification

- AdaptiveNav(TM) real-time route optimization

2. All algorithms listed in Section 3.1 are protected under U.S. Patents

- US 11,234,567 B2

- US 11,345,678 B2

- US 11,456,789 B2

4. SAFETY FEATURES

1. Emergency Stop Protocol

The System maintains three-tier emergency stop capabilities:

-

Level 1: Soft stop (controlled deceleration)

-

Level 2: Hard stop (immediate motor cutoff)

-

Level 3: System-wide fleet shutdown

2. Redundancy Systems

-

Dual-redundant sensor arrays

-

Triple-redundant processing units

-

Backup power systems with 30-minute operation capability

5. COMPLIANCE AND CERTIFICATION

1. The System meets or exceeds the following standards:

-

ISO 13849-1:2015 (Performance Level D)

-

IEC 61508 (SIL 2)

-

ANSI/RIA R15.06-2012

-

CE Marking requirements for industrial machinery

2. Testing and Validation

All System components undergo:

-

Factory Acceptance Testing (FAT)

-

Site Integration Testing (SIT)

-

Periodic Performance Verification (PPV)

6. INTELLECTUAL PROPERTY PROTECTION

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