SENSOR DATA FILTERING AND NOISE REDUCTION METHOD

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PROPRIETARY AND CONFIDENTIAL

NaviFloor Robotics, Inc.

Document ID: IP-2023-0147

Last Updated: December 15, 2023

1. OVERVIEW AND SCOPE

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1. This document describes the proprietary method for sensor data filtering a

2. The Method encompasses algorithmic processes, mathematical models, an

2. DEFINITIONS

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1. "Raw Sensor Data" means unprocessed data streams from any Company-d

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2. "Filtered Output" means the processed sensor data after application of the

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3. "System" means the complete hardware and software implementation of th

3. TECHNICAL SPECIFICATIONS

1. Signal Processing Architecture

1.1. The Method employs a multi-stage filtering architecture comprising:

(a) Primary noise reduction filter utilizing adaptive Kalman filtering

(b) Secondary terrain feature extraction layer

(c) Tertiary surface classification processor

(d) Final output harmonization stage

1.2. Processing occurs in real-time with maximum latency of 50 milliseconds

2. Algorithm Components

2.1. The Method incorporates the following proprietary algorithms:

(a) Dynamic threshold adjustment based on environmental conditions

(b) Surface pattern recognition using modified wavelet transforms

(c) Multi-sensor data fusion with weighted confidence scoring

(d) Predictive error correction using historical mapping data

4. IMPLEMENTATION REQUIREMENTS

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1. Hardware Requirements

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1.1. The Method requires implementation on systems with:

(a) Minimum processing capability of 2.5 TFLOPS

(b) Dedicated sensor processing unit

(c) Real-time operating system with deterministic scheduling

(d) Minimum 8GB high-speed cache memory

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2. Software Integration

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2.1. Implementation must include:

(a) Raw data acquisition modules

(b) Filter pipeline manager

(c) Output validation system

(d) Performance monitoring subsystem

5. PERFORMANCE SPECIFICATIONS

1. The Method shall maintain the following performance metrics:

1.1. Accuracy Requirements:

(a) False positive rate < 0.1%

(b) Surface classification accuracy > 99.5%

(c) Feature detection precision < 2mm deviation

1.2. Processing Requirements:

(a) Maximum latency: 50ms

(b) Minimum throughput: 100,000 points/second

(c) Memory utilization < 750MB

6. INTELLECTUAL PROPERTY PROTECTION

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1. This Method is protected under U.S. Patent Application No. 17/234,567 fi

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2. All implementations, modifications, and derivatives of the Method are the

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3. This document contains trade secrets and confidential information of the C

7. USAGE RESTRICTIONS

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1. The Method shall only be implemented in Company-authorized systems.

2. No reverse engineering, decompilation, or analysis of the Method is permi

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3. Access to Method specifications is restricted to authorized personnel who

8. COMPLIANCE AND VALIDATION

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1. All implementations must undergo validation testing per Company Protoc

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2. Quarterly performance audits must be conducted and documented.

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3. Any deviations from specified performance metrics must be reported to th

9. DOCUMENT CONTROL

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1. This document is classified as Level 1 Confidential.

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2. Document Owner: Chief Technology Officer

Version: 2.3

Original Issue Date: March 1, 2023

Last Review Date: December 15, 2023

AUTHORIZATION

APPROVED AND ADOPTED by NaviFloor Robotics, Inc.

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[COMPANY SEAL]