SENSOR DATA PROCESSING GUIDELINES

Polar Dynamics Robotics, Inc.

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Classification: Confidential

1. PURPOSE AND SCOPE

1. These Sensor Data Processing Guidelines ("Guidelines") establish the standards and procedures for the collection, processing, storage, and utilization of sensor data generated by Polar Dynamics Robotics, Inc.'s ("Company") autonomous mobile robots ("AMRs"), particularly through the IceNav(TM) AI navigation platform.

2. These Guidelines apply to all sensor data collected from the Company's AMR deployments, including but not limited to: LiDAR scans, thermal imaging data, positional telemetry, environmental condition measurements, and operational performance metrics.

2. DEFINITIONS

1. "Sensor Data" means any data collected, processed, or generated by the Company's AMR sensor systems, including raw sensor outputs and derived analytical data.

2. "Critical Operating Parameters" refers to temperature, humidity, and environmental conditions affecting AMR performance in cold storage environments.

3. "Processing" encompasses any operation performed on Sensor Data, including collection, recording, organization, structuring, storage, adaptation, retrieval, consultation, use, transmission, combination, or erasure.

3. DATA COLLECTION PROTOCOLS

1. Primary Sensor Systems

a) LiDAR sensors shall collect spatial mapping data at minimum 40Hz frequency

b) Thermal sensors shall monitor ambient conditions at 1Hz intervals

c) Proprietary cold-resistant actuator sensors shall log performance metrics every 100ms

2. Data Quality Requirements

a) All sensor readings must maintain accuracy within manufacturer-specified tolerances

b) Calibration checks must be performed every 168 operating hours

c) Sensor health diagnostics must be logged continuously

4. PROCESSING AND STORAGE REQUIREMENTS

1. Real-time Processing

a) IceNav(TM) platform shall process navigation-critical data within 50ms latency

b) Environmental condition alerts must be generated within 200ms of threshold breach

c) Sensor fusion algorithms shall maintain 99.9% uptime

2. Data Retention

a) Raw sensor data shall be retained for 30 days

b) Processed navigation data shall be retained for 90 days

c) Critical incident data shall be retained for 365 days

d) Environmental compliance data shall be retained for 3 years

5. SECURITY AND ACCESS CONTROLS

1. All Sensor Data shall be encrypted using AES-256 encryption during transmission and storage.

2. Access to Sensor Data shall be restricted based on the following hierarchy:

a) Level 1: Basic telemetry data - Operations staff

b) Level 2: Performance analytics - Engineering staff

c) Level 3: Raw sensor data - Research & Development team

d) Level 4: Full system access - Authorized senior technical staff

6. COMPLIANCE AND REPORTING

1. The Company shall maintain compliance with:

a) ISO/IEC 27001 Information Security Management standards

b) Relevant FDA 21 CFR Part 11 requirements for pharmaceutical environments

c) FSMA requirements for food storage facilities

2. Monthly compliance reports shall be generated documenting:

a) Sensor calibration status

b) Data quality metrics

c) Security incident logs

d) Environmental condition compliance

7. INTELLECTUAL PROPERTY PROTECTION

1. All Sensor Data collected through Company AMRs constitutes proprietary information and trade secrets of the Company.

2. Processing methods, algorithms, and derived insights are protected under U.S. Patent Nos. 11,234,567 and 11,234,568.

8. AMENDMENTS AND UPDATES

1. These Guidelines shall be reviewed annually by the Chief Technology Officer and Chief Robotics Officer.

2. Updates require approval from:

a) Chief Technology Officer

b) Chief Robotics Officer

c) Legal Department

d) Information Security Director

9. DISCLAIMER

These Guidelines are confidential and proprietary to Polar Dynamics Robotics, Inc. Unauthorized access, use, or disclosure is strictly prohibited and may result in civil and criminal penalties.

APPROVAL

APPROVED BY:

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Date: January 15, 2024

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