SURFACE MOISTURE DETECTION USING SENSOR FUSION

SURFACE MOISTURE DETECTION USING SE

Technical Documentation and IP Rights

PROPRIETARY AND CONFIDENTIAL

NaviFloor Robotics, Inc.

Document No.: IP-2023-0147

Effective Date: December 15, 2023

1. OVERVIEW AND SCOPE

1. This document describes the proprietary surface moisture detection

2. The System comprises hardware and software components that en

2. TECHNICAL SPECIFICATIONS

1. Sensor Array Configuration

a) Infrared moisture sensors (Model NF-MS500)

b) Capacitive detection arrays (Series CDA-2000)

c) Multi-spectral imaging units (Resolution: 1280x1024)

d) Temperature and humidity sensors (Accuracy: 0.2 C, 2% RH)

2. Data Fusion Architecture

a) Primary processing unit: NaviCore(TM) V3 processor

b) Sensor synchronization rate: 100Hz

c) Data integration latency: <5ms

d) Environmental condition operating range: -10 C to 50 C

3. INTELLECTUAL PROPERTY RIGHTS

1. Patents and Applications

a) US Patent No. 11,XXX,XXX: "Method and System for Multi-Modal S
Condition Detection"

b) PCT Application No. PCT/US2023/XXXXX: "Adaptive Sensor Fusio
Environmental Monitoring"

c) EU Patent Application No. EP23XXXXXX.X

2. Proprietary Technologies

a) NaviSense(TM) fusion algorithm

b) MoistureMap(TM) visualization software

c) CalibrationPro(TM) automatic sensor calibration system

4. IMPLEMENTATION METHODOLOGY

1. Sensor Calibration Protocol

a) Factory calibration requirements

b) Field recalibration procedures

c) Environmental compensation factors

2. Data Processing Pipeline

a) Raw data acquisition

b) Signal preprocessing

c) Feature extraction

d) Classification algorithm

e) Decision output generation

5. PERFORMANCE SPECIFICATIONS

1. Detection Capabilities

a) Moisture level range: 0-100% relative surface saturation

b) Detection accuracy: 2% absolute

c) Response time: <100ms

d) False positive rate: <0.1%

2. Environmental Tolerances

a) Operating temperature: -10 C to 50 C

b) Humidity range: 0-95% non-condensing

c) Dust immunity: IP65 rated

6. CONFIDENTIALITY AND PROTECTION

1. All information contained herein is classified as Confidential Informa

2. Access to this documentation is restricted to authorized personnel w

7. INTEGRATION REQUIREMENTS

1. Hardware Integration

a) Power requirements: 12VDC 5%

b) Communication interfaces: CAN-FD, Ethernet

c) Physical mounting specifications

d) Environmental protection requirements

2. Software Integration

a) API specification version 3.2

b) Data format requirements

c) Network protocol compliance

d) Security requirements

8. VALIDATION AND TESTING

1. Required Testing Protocols

a) Initial calibration verification

b) Environmental condition testing

c) Long-term stability assessment

d) Cross-interference validation

2. Quality Assurance Measures

a) Continuous monitoring requirements

b) Performance validation intervals

c) Maintenance schedules

9. LEGAL NOTICES

1. This document and the technology described herein are protected l

2. No license, express or implied, to any intellectual property right is g

10. DOCUMENT CONTROL

Version: 2.3

Last Updated: December 15, 2023

Approved By: Dr. Elena Kovacs, Chief Research Officer

Document Owner: Technical Documentation Department

CONFIDENTIALITY NOTICE: This document contains proprietary