# MULTI-SENSOR FUSION SYSTEM FOR INDO

**TECHNICAL DESCRIPTION AND INTELLECTUAL PROPERTY DO**

**Document ID: IP-MSF-2024-001**

**Version: 3.0**

**Effective Date: January 11, 2024**

**Classification: CONFIDENTIAL**

## 1. OVERVIEW AND SCOPE

1. This document describes the proprietary Multi-Sensor Fusion Syste

2. The System comprises hardware components, software algorithms

## 2. TECHNICAL ARCHITECTURE

1. **Core Components**

a) Advanced LiDAR sensor array (Model NF-L350)

b) Multi-spectrum depth cameras

c) Inertial measurement units (IMUs)

d) Proprietary sensor fusion processors

e) Real-time environmental mapping modules

2. **Integration Framework**

The System utilizes a proprietary integration framework (NaviCore(TM

synchronizes data streams from multiple sensors using temporal align

algorithms developed by the Company.

## 3. PROPRIETARY TECHNOLOGIES

1. **Sensor Fusion Algorithm**

The System incorporates the following proprietary technologies:

a) Dynamic sensor calibration methodology

b) Real-time point cloud processing

c) Surface classification algorithms

d) Adaptive terrain mapping

e) Multi-level simultaneous localization and mapping (SLAM)

2. **Protected Elements**

The following elements are protected as trade secrets:

a) Sensor synchronization protocols

b) Environmental feature extraction methods

c) Machine learning training datasets

d) Calibration parameters

e) Error correction matrices

## 4. INTELLECTUAL PROPERTY RIGHTS

1. **Patent Protection**

The System is protected under the following patents:

a) US Patent 11,234,567: "Method and System for Multi-Sensor Fusion
Autonomous Navigation"

b) US Patent 11,345,678: "Real-Time Environmental Mapping for Rob

c) Patent Application No. 17/123,456: "Adaptive Terrain Classification
Sensor Fusion"

2. **Copyright Protection**

All software components, including source code, algorithms, and docu
are protected under U.S. Copyright Law and registered with the U.S. (
Office under Registration Nos. TX-9-876-543 and TX-9-876-544.

# 5. TECHNICAL SPECIFICATIONS

1. **Performance Parameters**

a) Mapping accuracy:  2.5mm at 10m range

b) Update rate: 60Hz

c) Maximum mapping range: 30m

d) Operating temperature: -10 C to 50 C

e) Power consumption: 45W nominal

2. **System Requirements**

a) Processing unit: NaviCore(TM) processor (Model NC-2000)

b) Memory: 16GB DDR4 RAM minimum

c) Storage: 256GB SSD minimum

d) Network: Gigabit Ethernet

e) Operating system: NaviOS(TM) 4.0 or higher

## 6. CONFIDENTIALITY AND RESTRICTIONS

1. This document contains confidential and proprietary information of

2. Access to this documentation is restricted to authorized personnel

# 7. CERTIFICATION AND COMPLIANCE

1. The System has been certified to comply with:

a) ISO/IEC 27001:2013

b) IEC 61508 SIL 2

c) CE marking requirements

d) FCC Part 15, Class A

e) RoHS 3 (EU 2015/863)

# 8. VERSION CONTROL

1. This document supersedes all previous versions of the Multi-Senso

2. Change history is maintained in the Company's document manage

## 9. AUTHORIZATION

APPROVED AND AUTHORIZED BY:

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