Software System Architecture Document

# Project ADSEN86 – Automated Drone Sentry

## List of Changes to Document:

**Draft Version: 1.0**

Initial version: 11/23/2024

Minimum Viable Product version: 1.0

### Project Name: Automated Drone Sentry

### Project ID: ADSEN86

## Introduction:

This document provides the overall Software system architecture of the ADSEN86 project. ADSEN is Automatic Drone Sentry that has AI capabilities to follow its main user’s commands and perform sentry function. This architecture document provides a high level overview of the entire system and how the drone is architected to provide its service.

## Abbreviations:

**CFI:** Core Function Intelligence

**DRIM:** Display Renderer and indication Module

**CMI:** Connectivity Module Interface

**MFM:** Motor Function Module

**VIM:** Vision Interpreter Module

**SM:** Sensor Module

# Design Diagram

### Basic Framework

CORE

FUNCTION

INTELLIGENCE

ADSEN86

Motor Function Module

ADSEN86-001

Vision Interpreter Module

ADSEN86-002

Connectivity Module Interface ADSEN86-005

Display Render and Indication Module ADSEN86-003/004

Sensor Module

ADSEN86-001

Control Signals

Data Signals

Figure 1

The diagram represented by Figure 1 provides a basic framework that the Sentry drone is designed around.

**Core Function Intelligence:**

The core functionality of the drone is operated from the Core Function Intelligence Module. This module controls the operations of the drone and the decision making of the drone based on inputs from different modules. The 5 main modules are implemented as per the Basic Requirements Documentation. These modules feed into the Core Intelligence and also operate based on information provided by the core intelligence module.

**Motor Function Module:**

This module provides the functionality of movement to the Drone sentry. This module mainly takes the input from the Core intelligence module.

**Vision Interpreter Module:**

This module provides the functionality of gathering the camera based input data. Sending the input for interpretation to the AI sub functionality and determining result which can be used to make decisions.

**Connectivity Module Interface:**

This module provides the ability to connect to the drone sentry over multiple different interfaces. The type of interface to connect over can be selected using the settings

**Display Renderer and Indication:**

This module provides the ability to indicate to the User the intentions of the Drone and the results of what it is seeing and interpreting. This can be through different LED based signage or Display system.

**Sensor Module:**

This module provides the inputs from different sensors to generate information of the drone’s surroundings. This input can be used by the CIM to figure out which way to move and obstacles to avoid.