User Manual: Drone-Based AI Infrared Human Detection System for Disaster Response

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1. Introduction

Welcome to the Drone-Based AI Infrared Human Detection System for Disaster Response. This application aims to simulate the core functionalities of a drone system that could potentially save lives in disaster-stricken areas by rapidly detecting and locating humans in need.

This user manual provides comprehensive instructions on how to use the application effectively. Please read it carefully before you begin.
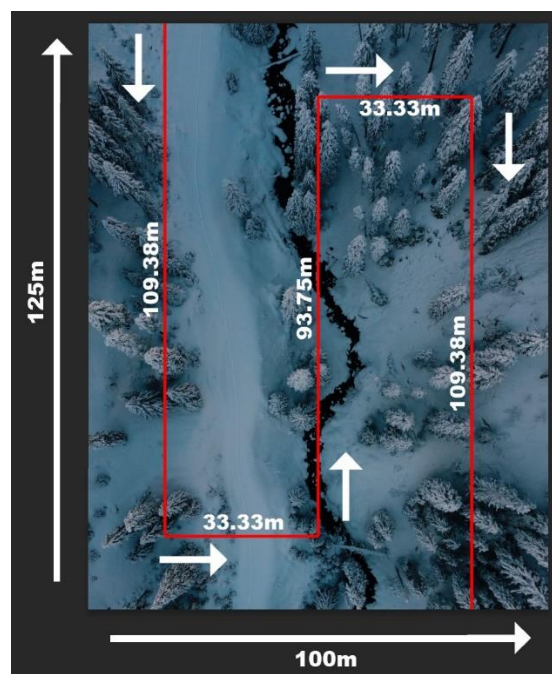
2. System Requirements

- Operating System: Windows 10 or newer

- Python 3.11 installed

- A system capable of running C# Windows Form Applications

3. Preparing Your Drone Footage

Before using the application, it's crucial to prepare your drone footage according to the following assumptions:

1. **Altitude**: Ensure that the drone maintains a consistent altitude of 15 meters above the ground level.

2. **Navigational Path**: Use your drone software to set up a flight path that covers a rectangular region with an area of 12500 square meters. This corresponds to dimensions of 125 meters in length (vertical) and 100 meters in width (horizontal). Popular software like DJI GO or DJI Fly offers features that allow you to set custom flight paths. See the example diagram of the required flight path below:

3. **Time and Speed**: Set the drone's speed at 3 meters per second in the drone software of your choice. This should allow the drone to complete the flight path in approximately 2 minutes.

Ensure that your footage complies with these assumptions for the most accurate results.

4. Application Overview

The application has the following features:

- Uploading Video Footage

- Viewing Results

- Downloading Documentation

- Downloading User Manual

- Exiting the Application

5. Using the Application

Uploading Video Footage

1. Click the "Upload" button.

2. Select your prepared drone footage.

3. Wait for the processing to complete.

Viewing Results

After the processing, you'll be redirected to the "Results" window, where you can:

- View the reconstructed map with humans indicated on it.

- Download the reconstructed map with humans indicated on it.

- Check the detected coordinates in the text box next to the map.

Downloading Documentation

1. Click the "Download" button to download the project documentation.

2. Choose the location where you want to save the PDF.

Downloading User Manual

1. Click the "Download User Manual" button to download the User Manual.

2. Choose the location where you want to save the PDF.

Exiting the Application

- To exit the application, click the "Cancel" button in the main window or in the "Results" window.

6. Troubleshooting

If you encounter any issues while using the application, refer to the error messages displayed on the screen for guidance.

7. Contact Information

For further assistance, please contact our support team at: support@email.com

8. Disclaimer and Limitation of Liability

This software is intended for simulation purposes only. It should not be used as a substitute for actual disaster response measures.

We hope that this user manual helps you in using the application effectively. Thank you for choosing the Drone-Based AI Infrared Human Detection System for Disaster Response.