Autonomous Drone For Missing Child Rescue

I. Introduction

This project In the dense expanse of forests, children can easily become disoriented or lost, whether due to adventurous exploration or unforeseen circumstances. Traditional search methods face challenges in navigating such terrains swiftly. This project focuses on real-time human detection aboard a fully autonomous rescue UAV using deep learning techniques. The embedded system demonstrated the ability to identify and locate children in distress within forest areas. This capability enables the UAV to autonomously provide assistance, thereby enhancing the operational capabilities of first responds without requiring constant supervision. Visions of a Global Navigation Satellite System (GNSS) combined with computer vision algorisms to locate exactly where people are in emergencies and release rescue equipment tactically may be one day realised through iD3S The revolutionary feature of our system is that humans can walk in the same old world as themselves, and their eyes roam freely over it with nary a thought to danger from flying arrows. This extends from a facade leisurely wanders to the person who can safely live and breathe thanks entirely on his own! When disaster strikes, time is of the essence. Anxious parents simply cannot wait any longer for help to arrive and it was to save young lives. In such circumstances an unmanned aerial vehicle may be an essential tool for rescue efforts, but this whole aspect had long been overlooked.

II. Project Objectives

1. Object Detection:

- Training of the model via yolov8
- Executing the real time video from drone to detect child

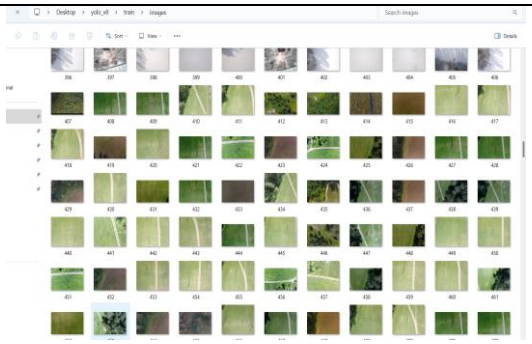
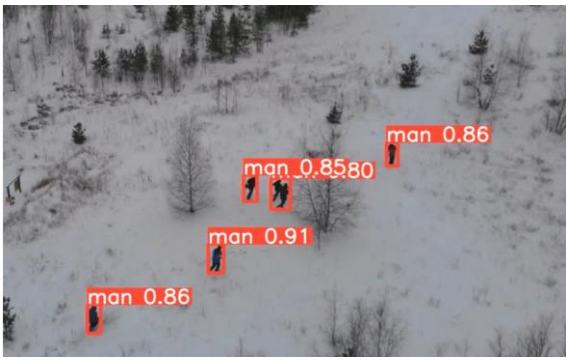
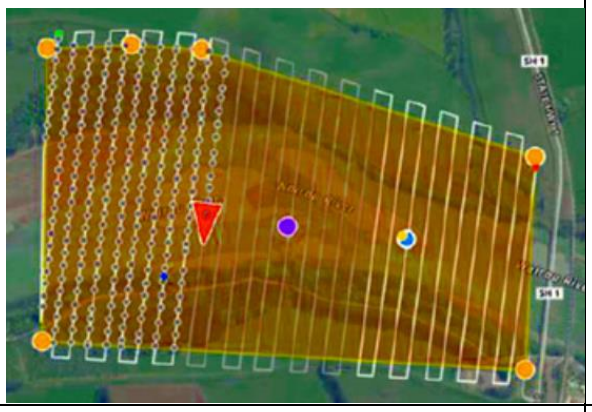
2. Path planning and execution:

- Global Navigation Satellite System (GNSS) combined with computer vision algorisms to locate exactly where people are in emergencies.
- Can also use HC-05 Bluetooth module for experiments at the intial stages consists of master and slave devices.

3. Audio Assistance:

- Embedding microphone in the drone so that when drone reaches the child rescue team can communicate to the child for safety purpose.

III. Expected Outcomes

Module name	Input	Output	Completed
Object detection			**Partially done**
Path Navigation	Area where we need to search the child		**Yet to complete**
Embedding Audio	Integrating microphone	Enables child to communicate from the drone	**Yet to complete**

Status

1.**object detection**

***** training requires lots of computation . so it may take a while since some laptops do Not Support CUDA which is parllell compuatation by nvidia.

2.**path Navigation**

* Need assistance for integration of drone and path planning

3. **Audio**

***** Can proceed once the integration is done.