# AI BASED AUTOMATIC ALARM GENERATION AND DROPING OF PAYLOAD THROUGH DRONE

Here I have designed an auto navigation drone system which senses the disaster such as earth quake and flood and detect the exact location of the survivor on real time basis using machine learning technology and drops the payload on the survivor.

This includes 5 phases:

**Phase 1: Sensing The Disaster**

At first if there any disaster occur it sense the disaster through sensor such as vibration/seismic sensor to sense the earthquake and water flow and water level sensor for the detection of the flood.

Once the disaster is detected a alarm is raised and a SMS is sent to the firefighter through a GSM module present in the ESP32 via UART (TX/RX Pins), as well as the drone get triggered and fly into the aerospace for detection of the survivors.

**Phase 2: Cloud Storage and Communication**

As the drone is triggered off and moved into the aerospace it starts collecting data of its environment such as its position, orientation, location etc. through various sensor such as Lidar, GPS, etc.

And the image of the survivors from a certain height is also captured using camera modules and store/send the data to the cloud storage system for future accessing.

**Phase 3: Detection**

Once the drone is in the aero space it starts detecting for the survivors through the camera modules using human detection algorithm such as YOLO (You Only Look Once) model as it detects the objects on a real time basis, and then stores the body count/human count for future use.

**Phase 4: Path Planning**

For the autonomous navigation of the drone at first, the sensor integration is done

**Sensor Integration: -** in this the data of drone on real time is collected such as its position, orientation, location using various types of sensors.

**Data Fusion: -** The data that has been collected from various sensor have been combined to get a Clear and exact data.

**PID Algo: -** Using the data that has been collected from various sensor the PID algorithm is applied that helps the drone to navigate automatically. [Proportional Integral Derivative]

**Object Detection & Handling: -** As the drone moves in aerospace it may encounter with various objects so we will be using object detection and handling algorithm for the collision free trajectory of drone.

**Phase 5: Payload Dropping**

The body count that has been collected is used for dropping of the payload using the mechanism of Rack and pinion gears.