PROJECT DEVELOPMENT PHASE

Team ID	PNT2022TMID41774
Project Name	Emerging Methods For Early Detection of Forest Fires
Maximum Mark	2 Marks

Project Planning Using Agile Methodologies:

Project Planning Tools:

Detection of forest fires and smoke in wildland areas is done through remote sensing-based methods such as satellites, high-resolution static cameras fixed on the group, and unmanned aerial vehicles (UAVs).

(i)Usage of the satellite images to observe, detect, and report fire events

(ii)Implementation of the wireless sensor networks to observe the fire events exist in all areas.

The limitations of the satellites are described as follows:

(i)Images that are captured through the satellites have poor resolution, and hence, it becomes difficult to detect the particular area

(ii)Continuous information about the status of the forest could not be obtained due to the restrictions in the monitoring of forests

(iii)Weather might not be stable in all situations as it might vary, and thus, it results in the collection of noisy images

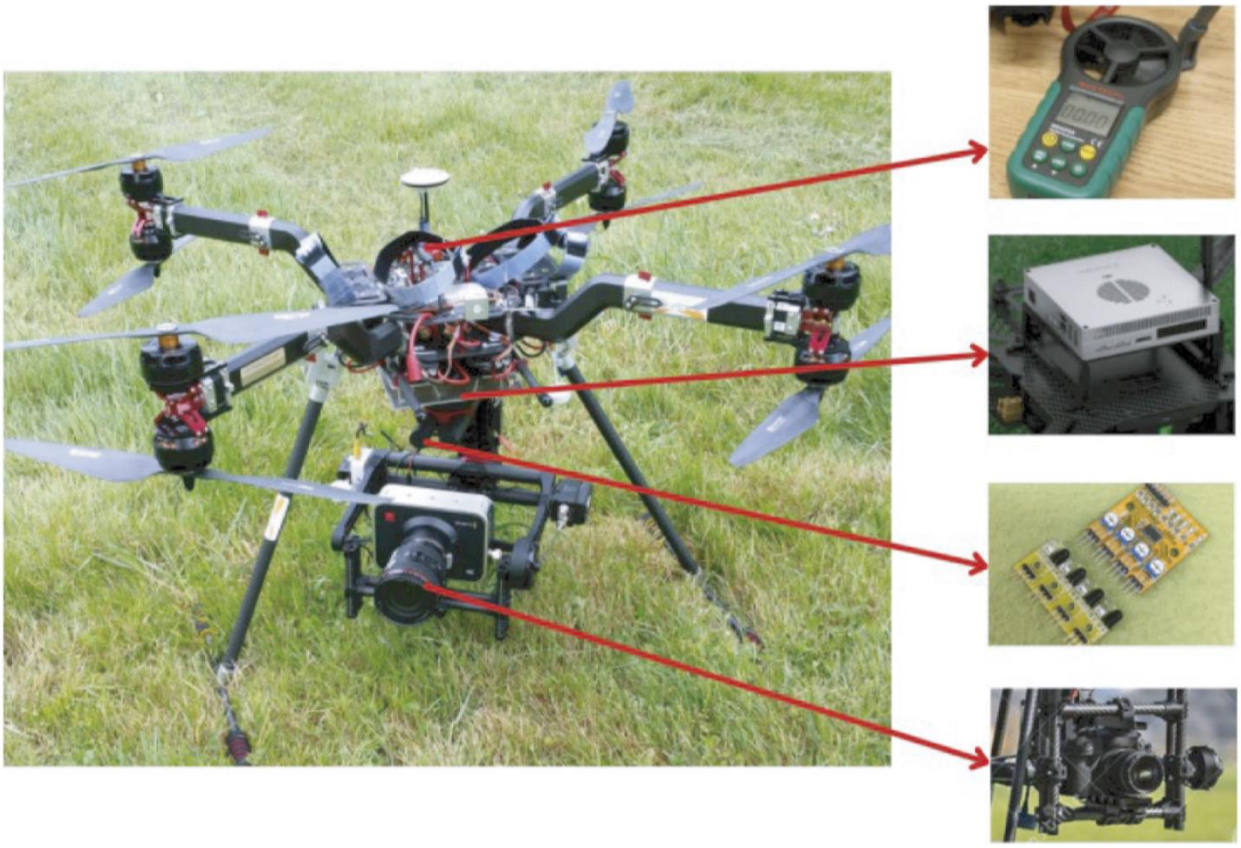
Drone Moment to the Target:

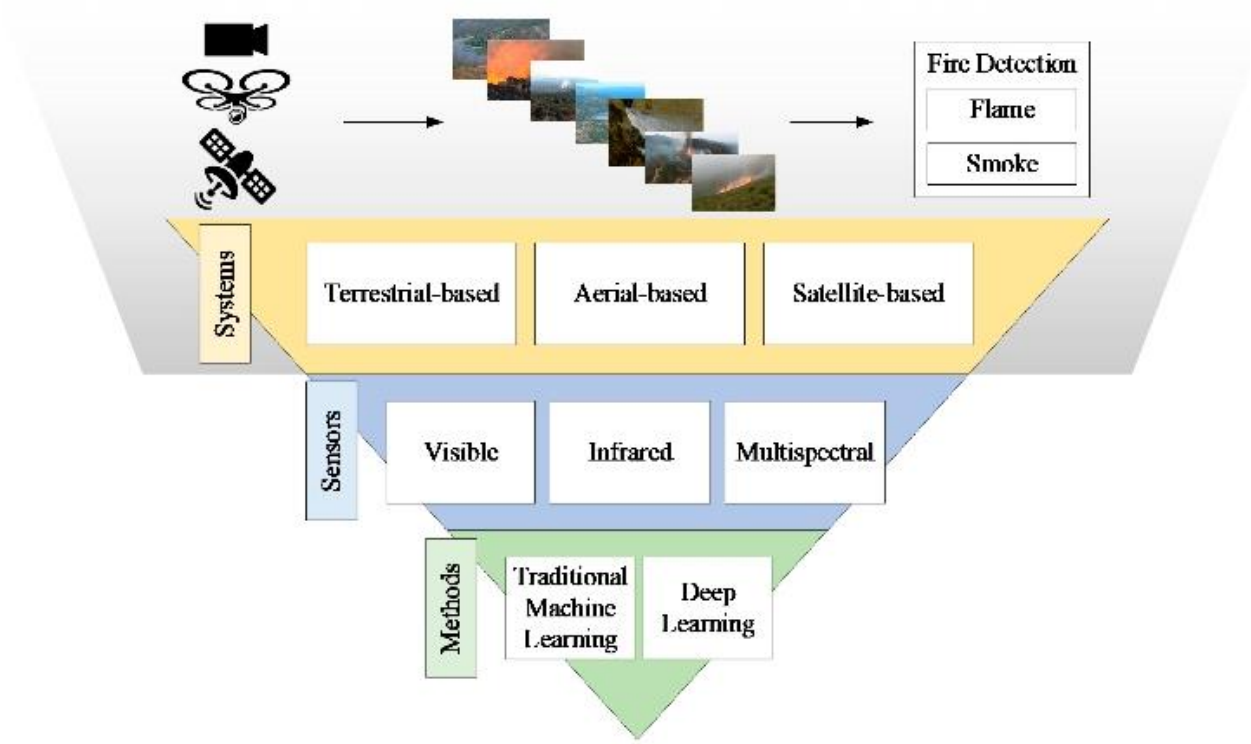
In this whole operation, navigation of UAVs is significant to patrol the risk-prone areas and fire-detected areas. This work monitors the forest area with the help of the navigational analysis technique. To facilitate this, the drone makes the navigation.

(i)Awareness: This provides details about UAV's neighborhood obstacles. The data is collected using internal sensors

(ii)Basic Navigation: Collisions are avoided, and the obstacles such as birds, trees, poles, and so on in the forest farms are detected

(iii)Expanded Navigation: Advanced features such as pathway planning and depth deployment are included and play a crucial role in autonomous navigation.




Fire Detection
Flame
Smoke
Systems
Terrestrial-based
Aerial-based
Satellite-based
Sensors
Visible
Infrared
Multispectral
Methods
Traditional Machine Learning
Deep Learning