Proposed Solution Document

TeamID	PNT2022TMID03558
Project Name	Emerging Methods for Early Detection of Forest Fires

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Over the last few decades, forest fires are increased due to deforestation and globalwarming.Many trees and animals in the forest are affected by forest fires. Technology can be efficiently utilized to solve this problem. Forest fire detection is inevitable for forest fire management.
2.	Idea/Solution description	Modern fire protection systems are comprised of three main components—firedetection, alarms and notifications, and suppression, all of which must function together to provide the necessary fireprotection for a given building. Designing afire alarm and notification system requires an integrated approach that includes a comprehensive analysis of the entire fire protection system.This analysis is necessary to gain a thorough understanding of how all the main components of the overall fire protection system will work together.This analysis needs to be conducted before the system is installed.
3.	Novelty/Uniqueness	The novelty of system is real-time monitoring, early prediction, validation through UAV and fire confirmation using image processing.The proposed system presents higher true fire detection rate of about 95-98 percent.

4.	Social Impact /Customer Satisfaction	Timely information about the appearance of fire reduce the number of areas affected by this fire and thereby minimizes the costs of fire extinguishing and the damage caused in the woods. Monitoring of the potential risk areas and an early detection of fire can significantly shorten the reaction time and also reduce the potential damage caused by the forest fire.

5.	BusinessModel(RevenueModel)	Aspirating smoke detectors continuouslysample air to provide early warnings of firehazards, helping detect threats before theyescalate. Some devices provide multi-levelwarnings and are equipped with wide-rangingsensitivitytoidentifyeventhemostnegligible amounts of smoke, helping toprevent smalls fire from taking hold andcausingwidespreaddamage. Unlike traditional detection technology – which is largely passive, waiting for smoketo reach sensors – aspirating devices aredesignedtosample andtestairnearthemost likely sources of fires throughout abuilding.Aspirating smoke devices can bepositionedin hard-to-monitor places, suchas ceilings, air grilles and openings, orwithin critical spaces, including operatingand patientrooms.Earlydetectiontechnologiescan alsodrawair fromtargetedlocations back to a central system thatcontinuously monitorsfortraceamountsof smoke.
6.	ScalabilityoftheSolution	Changes in the use or occupancy of abuildingcanresultincomplianceissuesanda fire alarm system that no longer providessufficient protection. If future changes areanticipated, fire safety engineers can designa fire alarm system with this in mind,providing aflexibleinfrastructurethatincludes the proper wire size and additionalcircuits distributed in a way thataccommodatesfuturegrowthand change. Perhapsoneofthemostcompellingreasons to design a fire alarm system thatgoesaboveandbeyond theminimumrequirements from the start is the fact thatfire codes and other applicable regulationscananddochange.And,changesthataremade retroactively can trigger potentiallyvery expensive alterations in a fire alarmsystem.Thisisalsowhyitissoimportantto work with highly qualified fire safetyengineers who can anticipate comingchangesandproactivelydesignyour system tomeet newrequirements.