

Date	24 September 2022
Team ID	PNT2022TMID39965
Project Name	Project - Emerging Methods for Early Detection of Forest Fires
Maximum Marks	2 Marks

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Forest fires are occurring throughout the year with an increasing intensity in the summer and autumn periods. Regardless of the reasons for the ignition of the forest fires, they usually cause devastating damage to both nature and humans. To fight forest fires, different solutions were employed throughout the years. They were primarily aimed at the early detection of the fires. The simplest of the solutions is the establishment of a network of observation posts both cheap and easy to accomplish, but also time-consuming for the involved people. ICT-based networks of cameras and sensors and even satellite-based solutions were developed and used in the last decades. These solutions have greatly decreased the forest fires in the forest, but have also proven to be expensive and hard to maintain. En-number of algorithms and techniques were used here to detect the fire. This project will involve the development and in the use of the both systems and will analyse the advantages and the benefits, were everyone will gain the best simple solutions.
2.	Idea / Solution description	<ul style="list-style-type: none"> ●Various real-time forest fire detection and prediction approaches, the with goal of informing the local fire authorities. ●It uses GB methods for detecting the forest fire. ●Deep learning process is used here so that accuracy will be in an accurate manner. ●Low altitude UAV provides assistance to the ground level teams. ●Various types of sensors, drones, cameras, alarms are used here to detect the fire. ●It requires more data to recognize the detection process for detecting the forest fires.
3.	Novelty / Uniqueness	<ul style="list-style-type: none"> ●There is no need for the exposure of humans to perilous activities when remote sensing is deployed. ●Usages of satellite images to observe, detect and report fire events. ●Implementations of the wireless sensor network to observe the fire events exist in all areas.

		<ul style="list-style-type: none"> ●The aim of this project is to develop a model to detect the fire and its coverage area, and in addition, it also observes the fire in the low region. ●It can be significantly shorten the reaction time and also reduce the potential damage as well as the cost of fire fighting. ●By detecting the forest fires we can able to save more than 1000,000 acres , wild lives nature. ●It saves our future environment for future generation by detecting the forest fires in the earlier manner.
4.	Social Impact / Customer Satisfaction	<ul style="list-style-type: none"> ●There is no need for the exposure of humans to perilous activities when remote sensing is deployed. ●Usages of satellite images to observe, detect and report fire events. ●Implementations of the wireless sensor network to observe the fire events exist in all areas. ●The aim of this work is to develop a model to detect the fire and its coverage area, and in addition, it also observes the fire in the low region. ●It can be significantly shorten the reaction time and also reduce the potential damage as well as the cost of fire fighting. ●By detecting the forest fires we can able to save more than 1000,000 acres , wild lives nature. ●It saves our future environment for future generation by detecting the forest fires in the earlier manner.
5.	Business Model (Revenue Model)	<pre> graph TD Drone[FIRE DETECTING DRONE] --> Arduino Drone --> Camera Arduino --> FlameSensor[Flame Sensor] Arduino --> ESP8266 FlameSensor -- DATA --> ESP8266 ESP8266 --> ThingSpeak[ThingSpeak Cloud] Camera --> RealTimeImage[Real Time Image] Camera --> RealTimeVideo[Real Time Video] RealTimeImage --> GoogleVision[Google Vision Api] RealTimeVideo --> VideoProcessing[Video Processing] GoogleVision --> ObjectsIdentified[Objects Identified] ThingSpeak -- GRAPH FROM SENSOR VALUES --> FireDetected[Fire Detected at Spot] ObjectsIdentified --> FireDetected </pre>
6.	Scalability of the Solution	<ul style="list-style-type: none"> ●Evolution emerges in the processing, computation, and algorithms, this strives many researchers to pay attention in many domains where they work in the processing of surveillance video streams so that abnormal or unusual actions could be detected. ●The usage of UAVs is recommended in the detection of forest fire due to the high mobility and ensue the coverage areas at various altitudes and locations at a low cost. ●This can be done even in the 3D model for capturing the scenes. ●The 3D modelling techniques can also be extended to various natural disaster prediction models.

		<ul style="list-style-type: none"> ●Focus to meet practical detection and meet the necessity of early detection including the generation of the mixed reality model of the forest fire area that gives more information, and prevention analysis will be made easy. ●The some appears as the same as fog, and the model can be classify the fog as smoke so it can be developed with some extra advanced feature in the future.
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