EARLY DETECTION OF FOREST FIRE

- **PROJECT OBJECTIVE**

Several forest fire detection and prevention system have been made and successfully applied but the issue of forest fire risk has lot more things to research and improve the system so it works more effectively and efficiently. Forest fire management requires high reliability system, so in any incident the system will inform them before any fire accident. Due to the lack of emergency plan and the need of efficient system is much higher.

The installation of early detection system in a better way by identifying the sites is also a major challenge. With the complete information and warning of incident the smart system can help to reduce the risk and prevent the forest fire which ca n save the biodiversity and lives of millions. we are interfacing Arduino Uno R3 with different IoT sensors such as smoke sensor, PIR Sensor, temperature sensor, which is capable of detecting the fire conditions and sends the information to the concerned authority on detecting fire conditions. Webpage display the graph of each sensor and shows the real time information. Through the ML algorithm, we can also calculate percentage of damage caused, if any by analyzing the images of surface fire ar ea captured by drone. The

trained model has capability to visualize burned and intact home, which also helps in understanding how much time will it require to recover and how critical situation is in the site of fire. This system covers all the aspects and risk factors that are involved in forest fire Sensor performance is depending upon the implementation you got and how well your circuit is designed will primarily be dependent on network speed and server performance. However, the we are concerned about performance and real time data processing and generating and to manipulate the data on the cloud side. So, we need a fast and stable connection to send the data accurately. One more important factor is to notice that threshold value must set according to area you put the sensor. And the threshold value must be change during season and in order get correct value of threshold we need to manipulate the data correctly.

- **METHODOLOGY ADOPTED**

The purpose of this designed system is to build a reliable forest fire detection system in order to know active status of forest temperature in certain conditions. It is all about the sensors and active monitoring system to avoid a major fire and serious d amage to forest. One & possibly the most important method for protecting forests from wildfires is their early detection. A particular measure is set on the device and if the ground temperature or the environment temperature reach to that threshold, a sign al is being send to the admin team.

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Putting all efforts to develop a smarter system by connecting it to a webpage and monitoring the developed system statistics controlled by the Arduino programming. The use of latest technology can help to prevent the catastrophic accidents in forests.