

Emerging Methods for Early Detection of Forest Fires

Problem statement

- Over the last few decades, forest fires are increased due to deforestation and global warming.
- Many trees and animals in the forest are affected by forest fires.
- Technology can be efficiently utilized to solve this problem.
- Earlier times fires were detected with the help of watching towers or using satellite images.
- Satellites collect images and send it to the monitoring authority which will decide by seeing images that it is a fire or not.
- But this approach was very slow as the fire may have spread in the large areas and caused so much damage before the rescue team came.
- In the watching tower method, there was a man always standing on the tower who would monitor the area and inform if there was fire.
- This method was also slow because before the man got to know about the fire it may have spread in the inner parts of forest, also it always requires a man who must be present there.
- Since, we know that some areas, especially forest areas are large so it is practically impossible to put a man in every part of forest from where they can monitor the forest area.
- So, both these approaches of watching towers and satellite images failed to detect fire as early as possible to reduce the damage done by fire Problems in fire detection:
- There were mainly two problems in fire detection as discussed:
 - (a). Judging criteria for the fire: Edge is set, on the off chance that the worth is more noteworthy than edge, it is a fire, else not. So, this problem was removed by using machine learning techniques by many researchers.
 - (b). Connection of nodes: Traditional systems used cables to connect alarm with the detectors.
- Cable was mainly of copper. But copper wire may be costly or it can suffer from fault in the mid-way.
- So, this problem was removed using wireless sensor networks.
- So, with the advancement in technology researchers find an efficient method to detect forest fire with the help of Wireless Sensor Network.
- Fire can be identified by conveying sensor hubs in timberland regions by which they illuminate about fire.
- Conveying sensor hubs in the timberland regions means placing sensors in every part of the forest and mostly in the prone areas where risk of catching fire is more. With the use of wireless sensor networks, now it is easy to detect the fire in large areas as soon as possible