EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRES

PROBLEM STATEMENT

1. Forest fires are a major environmental issue, creating economic and ecological damage while endangering human lives. There are typically about 100,000 wildfires in the United States every year. Over 9 million acres of land have been destroyed due to treacherous wildfires. It is difficult to predict and detect Forest Fire in a sparsely populated forest area and it is more difficult if the prediction is done using ground-based methods like a Camera or Video-Based approach. Satellites can be an important source of data prior to and also during the Fire due to their reliability and efficiency. The various real-time forest fire detection and prediction approach, with the goal of informing the local fire authorities.

2. Forest fire has a severe effect on wildlife animals, humans, and the ecological system. According to the survey conducted by forest authorities, every year huge loss is caused due to forest fire accidents. The idea of this project is to build an early detection and prevention system for a forest fire to preserve nature.

3. The forest fire has become a threat not only to the forest's wealth but also flora and fauna and the ecology of the environment of the region. The main cause of forest fires can be categorized under natural and man-made classes. High atmospheric temperature, lightening, and dryness (low humidity) offer a positive environment for a fire to start which are the natural causes of a forest fire. Fire is also caused by Man-made sources like naked flame, cigarettes, electric sparks, etc.

4. Forest fires are a matter of concern because they cause extensive damage to the environment, property, and human life. Hence, it is crucial to detect the forest fire at an earlier stage. This can help in saving the flora and fauna of the region along with the resources. Also, it may help to control the spread of fire in the initial phase. The task of monitoring the forests is difficult because of the vast territory and dense forest. The wide-ranging adverse ecological, economic, and social impacts of forest fires including forest degradation are:

   ➢ loss of valuable wood resources
   ➢ deterioration of catchment areas
   ➢ loss of biodiversity and extermination of flora and fauna
   ➢ loss of wildlife habitation and exhaustion of wildlife
   ➢ global warming