Nowadays, two different types of sensor networks are available for fire detection, camera surveillance and wireless sensor network. The development of sensors, digital camera, image processing, and industrial computers resulted in the development of a system for optical, automated early recognition and warning of forest fires.

Different types of detection sensors can be used in terrestrial systems [[6](https://journals.sagepub.com/doi/full/10.1155/2014/597368#B6-2014-597368)]:

**(i)**

video-camera, sensitive to visible spectrum of smoke recognisable during the day and a fire recognisable at night,

**(ii)**

infrared (IR), thermal imaging cameras based on the detection of heat flow of the fire,

**(iii)**

IR spectrometers to identify the spectral characteristics of smoke,

**(iv)**

light detection and ranging systems—LIDAR (detection of light and range) that measure laser rays reflected from the smoke particles.

The variant optical systems working according to different algorithms designed by the producers, all have the same general concept in smoke and fire glow detection. Simply, the camera produces images every while. The image consists of a number of pixels, where the processing unit tracks the motion in images and checks how many pixels contain smoke or fire glow and then the processing unit sends the results for another algorithm to decide whether or not to produce an alarm for the operator.

