YCbCr filter: It is used for numerical coding of color information [38]. Y (Limunance) represents Cb (Chroma-blue minus luma), Cr (Chroma-red minus luma). The human eye is sensitive to limunance. It is not very sensitive to Chrominance. Images can be displayed more efficiently with YCbCr. In the study, the Cb value was defined in the range of -0.2 to 0. The Cr value is defined between 0.1 and 0.5.

Median filter: This filter is used to reduce noise in the image. It also ensures that the details on the image are not lost while this process is being applied. It takes the median value of the values of these pixels by looking at the neighboring pixels next to a pixel. In this way, it removes the noise on the image [39].

Otsu filter: It is a filter that can be applied on gray images and ensures that the pixels above a threshold value determined according to the pixel value of the image are white and the pixels below it is black [40].

Finding edge: Since the flame does not have a regular shape, it has many edges and corners. With the Sobel filter, the edges of a shape

the Confusion matrix table, false positive (FP) value indicating the number of positive samples classified as false, true negative (TN) indicating the number of negative samples correctly classified and the number of negative samples classified as false. It has a false negative (FN) value indicating. An example confusion matrix with two classes is shown in Table 1.

Table 1. Two-class confusion matrix

		TRUE CLASS	
		Non-Fire	**Fire**
PREDICTED CLASS	**Non-Fire**	TN	FP
	Fire	FN	TP

Performance metrics are calculated using the values on the confusion matrix. The formulas required to calculate the performance metrics used in the study are given in Table 2.