can be detected and information about its number can be obtained [41].

2.4. Motion Detection

One of the fastest and simplest motion detection methods in video images is the method based on the comparison of two frames. By comparing the previous and next frame pixels in the video, the different pixels are marked. If the difference is large, it means the movement rate is high. It is preferred because of its speed and simplicity in studies requiring only motion detection application. It was used in this study to detect the mobility of the flame. This method alone cannot detect the flame, but the presence of motion can be obtained with this method.

2.5. Convolutional Neural Network

CNN is a deep learning method created by considering the vision mechanism of living things. It is frequently used because successful results are obtained in studies such as motion detection, image classification, and object detection on the image [42, 43].

Table 2. Performance metrics

ABBREVIATION	FORMULA
ACC (Accuracy)	$ACC = \frac{TP + TN}{TP + TN + FP + FN}$
FSC (F-1 Score)	$FSC = 2 * \frac{PRE * RCL}{PRE + RCL}$
PRE (Precision)	$PRE = \frac{TP}{TP + FP}$
RCL (Recall)	$RCL = \frac{TP}{TP + FN}$

2.7. Cross Validation

Cross validation is a method used to measure the accuracy of classification models. In this method, the dataset is divided into equal parts according to the specified number value. The specified number value is called k. 1/k part of the dataset is reserved for testing, and k-1 part is reserved for training. This process is continued until each part of the dataset is used as the test segment.