Nowadays, digital transformation emphasizes the use of webcams as sources of information about outdoor conditions, primarily due to their wide availability and potential in meteorology. The work focuses on the analysis and validation of real-time webcam images, which is crucial for the automated provision of information about current meteorological events to users worldwide. The main goal of the work is to achieve efficient analysis and validation of images, providing information with maximum accuracy and minimal delay. Within the scope of the work, an introduction to the issue and an overview of existing methods and technologies are presented. The main parts of the work concentrate on selecting methods and approaches for data processing, which are essential for designing an efficient system. The implemented system, based on selected sophisticated machine learning techniques, is designed to excel in real-time data processing and emphasizes achieving maximum efficiency and effectiveness.