This section presents the outcomes of employing various machine learning models for detecting fire extinguisher devices using acoustic waves.Other models, including Naive Bayes, KNN, Logistic Regression, Decision Trees, and SVM, also demonstrate competitive performance, albeit with slight variations in effectiveness.Figure 5 and Table 1 depict the accuracy metrics for each model, namely Logistic Regression, Random Forest, Support Vector Machine (SVM), K–Nearest Neighbor (KNN), and Naive Bayes.The results show variations among the models, with Random Forest achieving the highest accuracy of 98.33%, followed closely by Logistic Regression with 97.33%, SVM with 97.33%, Naive Bayes with 96.33%, and KNN with 95.83%.The other models, including Logistic Regression, Decision Trees (DT), KNN, and Naive Bayes, showcased precision scores ranging from 92.53% to 97.41%.Conversely, Logistic Regression and Support Vector Machine displayed lower recall rates at 90.33%.Random Forest attained the highest F1 score of 98.34%, followed by Logistic Regression at 92.34%.Other models, such as Decision Trees, SVM, KNN, and Naive Bayes, exhibited F1 scores ranging from 91.76% to 95.34%.