**Machine Learning Models**

| **Model** | **Accuracy (%)** | **Negative - Precision** | **Negative - Recall** | **Negative - F1-score** | **Neutral - Precision** | **Neutral - Recall** | **Neutral - F1-score** | **Positive - Precision** | **Positive - Recall** | **Positive - F1-score** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Logistic Regression | 53.76 | 0.49 | 0.43 | 0.46 | 0.49 | 0.45 | 0.47 | 0.59 | 0.67 | 0.63 |
| Support Vector Machine | 53.20 | 0.49 | 0.44 | 0.46 | 0.47 | 0.47 | 0.47 | 0.60 | 0.64 | 0.62 |
| Naive Bayes | 48.12 | 0.55 | 0.25 | 0.35 | 0.59 | 0.08 | 0.14 | 0.47 | 0.91 | 0.62 |
| Random Forest (n=300) | 53.07 | 0.54 | 0.38 | 0.45 | 0.43 | 0.80 | 0.56 | 0.74 | 0.44 | 0.55 |
| Gradient Boosting | 53.89 | 0.55 | 0.36 | 0.44 | 0.45 | 0.64 | 0.53 | 0.62 | 0.59 | 0.61 |
| Ensemble Classifier | 52.70 | 0.49 | 0.40 | 0.44 | 0.49 | 0.36 | 0.42 | 0.55 | 0.72 | 0.63 |
| AdaBoost with RF | 54.20 | 0.60 | 0.27 | 0.38 | 0.46 | 0.70 | 0.55 | 0.61 | 0.62 | 0.61 |

**Deep Learning Models**

| **Model** | **Accuracy (%)** | **Negative - Precision** | **Negative - Recall** | **Negative - F1-score** | **Neutral - Precision** | **Neutral - Recall** | **Neutral - F1-score** | **Positive - Precision** | **Positive - Recall** | **Positive - F1-score** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| FacebookAI XLM-Roberta | 68.00 | 0.73 | 0.77 | 0.75 | 0.65 | 0.55 | 0.60 | 0.65 | 0.69 | 0.67 |
| DistilBERT (DistilBERT Base Uncased) | 52.00 | 0.55 | 0.60 | 0.57 | 0.50 | 0.41 | 0.45 | 0.50 | 0.54 | 0.52 |
| Google BERT (BERT Base Multilingual) | 64.00 | 0.70 | 0.68 | 0.69 | 0.61 | 0.64 | 0.63 | 0.60 | 0.59 | 0.60 |
| Bangla-BERT Base | 65.00 | 0.68 | 0.70 | 0.69 | 0.63 | 0.59 | 0.61 | 0.64 | 0.65 | 0.64 |