Abstract
Agriculture is the main source of economic stability and community sustenance in many developing countries. The incorporation of modern technologies into farming techniques has been slow, despite their crucial importance. This is never more evident than in the critical seed classification process, which has a significant impact on agricultural productivity. To evaluate and categorize seeds, farmers frequently use time-honored techniques that rely on their own experience and traditional knowledge rather than cutting-edge technical instruments. This reliance on human judgment highlights the need for increased access to and use of contemporary agricultural technologies in order to improve productivity and sustainability.
It also highlights the resilience and problems facing agricultural development in these locations.The production of high-quality crops is of the utmost significance to the agriculture sector. Using premium seeds is essential to this accomplishment. Unfortunately, because quality tests are manual and take time, a large proportion of seeds are seeded without passing through rigorous inspections. As a consequence, this reliance on traditional seed classification methods often leads to below-average crop yields. Thus, a method that effectively separates seeds and increases agricultural output is required. This study uses a variety of feature extraction methods, such as factor analysis (FA), principal component analysis (PCA), and linear discriminant analysis (LDA), to address this problem. After extraction the main task is to combine the retrieved features first, then classified them. In order to maximise accuracy, this combined representation was ultimately supplied into a Support Vector Machine (SVM) for classification.