The challenge of developing an acceptable voting system that can reduce the manipulation and falsification of election results has been a major issue in Nigeria over the decades. The consequences of the perception of voting fraud have led to social upheavals with negative implication for the polity. Post-election experiences, such as eruption of violence, prolonged litigation and sometimes culminating in the collapse of the democratic experiment, have informed the muting of ideas to create a leak prove voting system to surmount the challenges of electoral manipulation. The open ballot system was adopted in the Third Republic to reduce incidences of election rigging associated with the secret ballot system which was in use before then. This was modified and used to conduct the aborted 1993 presidential election in Nigeria. Though most analysts saw the modified system as an improvement over the voting systems previously used in the country, the secret ballot system re-emerged in the Fourth Republic and for fifteen years has been in use with its attendant fraud-prone shortcomings. Calls for improvement informed the recommendation by the Uwaise Commission and the National Conference for adoption of electronic voting system. This paper employs secondary sources and descriptive analysis in the gathering and analysis of data respectively. Findings reveal the unsuitability for the Nigerian political environment, of the various voting systems adopted in the country, particularly, the secret and the open ballot system. It therefore advocates a faithful application of the system of electronic voting which has been found capable of eliminating the flaws of traditional voting system and enhancing the credibility of election results in the country.