Remote Sensing is a method of examination used in the study of the Earth resources with no physical contact. It is a method by which the characteristics of the land below are recorded from space and sky. The proper assessment of natural and cultural resources of the Earth, their sustainable exploitation in most effective ways and continuous monitoring of the changes in these resources are fundamental for being a developed country. For a sustainable land use and urbanization, data about the unstable natural environment must be collected and monitored at regular intervals and in order to do these, remote sensing (RS) and geographical information systems (GIS) are employed. Images obtained through RS method can be analyzed for the accurate use of the data available. This study seeks to determine the spatial development in and around the city of Isparta through digital imaging processing techniques on different satellite images. Images from the satellites ASTER and LANDSAT has been utilized to monitor the quarters of Isparta and the city plan, and the ERDAS IMAGINE 9.1 program was also used in the study. The spatial development of the city of Isparta was studied thanks to the satellite images obtained in the years 1987, 2000 and 2010 and this study was integrated into GIS. Having analyzed how much change occurred and what were the main trends, important information was obtained which will be used as source for future studies to be carried out on Isparta. It was observed that the residential areas increased, while the amount of forested land and agricultural areas decreased during the period studied.