**Road detection from remote sensing images using impervious surface characteristics: Review and Implication**

Pankaj Pratap Singh1 and R. D. Garg2

1Research Scholar, 2Associate Professor

Geomatics Engineering Group, Department of Civil Engineering

Indian Institute of Technology Roorkee, Roorkee – 247667 INDIA

E-mail- pankajps.iitr@gmail.com1, garg\_fce@iitr.ac.in2

**Abstract**

The delineation of road network is an emerging area in information extraction from high-resolution satellite images (HRSI). The process of road detection from remote sensing images is complex, but still an interesting and challenging field. To achieve a better level of accuracy, so many factors play important role such as the sensor data of satellite and land characteristics. Therefore the interpretation varies on processing of this data with different heuristic parameters. These heuristic parameters have to be tuned according to the road characteristics in satellite images of the terrain. The process of road extraction may be achieved in a single or multiple operations such as image segmentation (classification techniques), linear segments with constant width (Hough transform and edge detector), snakes (contour based object outlines), removing small blobs and merging relevant road segments (morphological operations), similarity with road templates, etc. Many methodologies have been proposed and implemented to handle the extraction of roads from HRSI. These automated approaches have reduced the time complexity in meaningful interpretation of images. Some characteristics related to impervious and non-impervious surfaces are used as salient features to extract the road area only. These characteristics utilize the spatial, spectral and texture features to increase the accuracy of classified results. Few small and large false road segments interrupt in extraction of corrected road segments due to the similar spectral behavior in heterogeneous objects. Therefore, aforesaid characteristics have been utilized in combination of spectral properties of roads to extract road network only with improved accuracy. This evaluated road network is quite accurate with the help of these defined methodologies.