

(54) Title of the invention : Extraction of Main Urban Roads from High Resolution Satellite Images by Machine Learning

(51) International classification :G06K0009620000, G06N0020000000, G06N0003080000, G06N0003040000, H04L0051000000

(86) International Application No :PCT// /  
 Filing Date :01/01/1900

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
 Filing Date :NA

(62) Divisional to Application Number :NA  
 Filing Date :NA

(71)Name of Applicant :  
**1)St. Martin's Engineering College**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 ----

**Name of Applicant : NA**  
**Address of Applicant : NA**

(72)Name of Inventor :  
**1)Dr. G. Jawaherlanehru Associate Professor, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**2)Dr. P Santosh Kumar Patra Professor, Dept. of CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**3)E. Soumya Assistant Professor, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**4)Dr. V. K. Senthil Ragavan Professor, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**5)Dr. R. Santhoshkumar Associate Professor and Head, CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**6)Sai Sathvik Dadi Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**7)Saketh Reddy Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**8)Tumma Anwesh Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**9)Sainapuram Shruthin Reddy Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**10)Pusuluri Pujitha Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**11)Vaddi Tarun Reddy Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**12)Golla Sindhuja Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**13)Sai Manish Reddy Ambati Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

**14)Aligeti Rohit Kumar Student CSE**  
 Address of Applicant :St.Martin's Engineering College, Dhulapally Kompally Secunderabad -----  
 -

(57) Abstract :

This works focuses on automatic road extraction in urban areas from high resolution satellite images. We propose a new approach based on machine learning. First, many features reflecting road characteristics are extracted, which consist of the ratio of bright regions, the direction consistency of edges and local binary patterns. Then these features are input into a learning container, and AdaBoost is adopted to train classifiers and select most effective features. Finally, roads are detected with a sliding window by using the learning results and validated by combining the road connectivity. Experimental results on real Quick bird images demonstrate the effectiveness and robustness of the proposed method.

No. of Pages : 10 No. of Claims : 5