

RES-NRSC-2022-007

Name of ISRO Centre/Unit

National Remote Sensing Centre, Hyderabad

Title of the research proposal

Village Level Web Enabled Data Analytics Tools for Geospatial Database of rural assets using open source tools.

Name of Co PI from ISRO Centre/Unit

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Area of Research

Spatial Pattern Analysis, Development and Planning of rural assets

Summary of the proposed research and expected deliverables

Geo-tagged data is emerging as an important source of information, both in traditional and big data analytics. Rich repository of geotagged data is available in Bhuvan portal which is highly amenable to spatial analysis and research for rural development and planning. It possesses 3V properties such as Volume, Velocity and Variety that are attributed for any big data sources. These geo-spatial assets exceed the capacity of current computing systems and hence need for specialized computing platforms such as big data platforms and data analytic tools. Further, to deliver various decisions making models on the basis of available heterogenic data sources, pattern driven data analytical techniques such as machine learning and deep learning techniques could also be deployed on the top of the big data platform.

By incorporating prediction models such as decision tree induction, clustering and others in the existing Bhuvan-Rural applications, effective online decision making activities would be benefited for various stakeholders such as Government officials and policy practitioners.

Scope of the Work:

The project envisages providing click of mouse solution to perform spatial pattern analysis of rural works implemented under various programmes over the area of interest based on administrative unit upto the village level. It would use the geotagged data of Bhuvan rural applications as an primary input. Since the data is collected dynamically by the field staff on near real time basis, the analysis will also be taken up on the dynamic basis defined in terms of the timeline (date specific) by the user. The project is expected to help the researchers and decision makers in understanding the project impacts on ground by providing them with spatial variation of works executed.

Deliverables:

Enhanced visualization of Geo-tagged assets using exploratory spatial analysis tools both in time and space domain.

Web enabled reporting of spatial pattern of works implemented in the form of Dashboard to assist the decision making and implementing models for land and resource planning towards improving rural livelihoods.