RECON

Fighting Crime through Data Integration: Monitoring Crime through Data Integration

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AIM:

To develop mechanisms for crime visualization and prediction in conjunction with the crime contributing factors of an urban landscape.

DESCRIPTION:

Many of today's cities—especially those that are growing very quickly—experience a convergence of factors that increase the risk for destabilizing levels of violence if they are not appropriately addressed. In the present discourse of urban issues discussion, assessing cities through the lenses of safety against criminal offenses is necessary. As per the data published by the National Crime Record Bureau (NCRB), in 2019, the Crime incidence per one lakh population has increased by two percent from 2018. Indian Police Department is understaffed with the police to population ratio of 138 as compared to United Nations minimum standard of 222. An efficient policing using the power of data and technology can be used to derive maximum from the deficient departments. Understanding the urban context of crime occurrence is equally important to the steps taken to put the violators under law. Several established theories like Social Disorganization Theories, Sub-Culture Theories have tried to narrow it down. Depending upon the type of crime, they have their root-cause, say, violent crimes occur due to adverse social environments where violence can be treated as normal. The relationship between crime and socio-economic parameters has been established qualitatively but quantitative assessment has been lacking due to data paucity or lack of data standardization. The tool (S.A.C.) is designed to aggregate crime data from the Police Department and socio-economic data from line departments of Urban Local Bodies. The tool will help the decision makers and administrator to visualize crime spatially in the city and sort relationship between the socio-economic indicators i.e. Literacy, Employment, Municipal Services availability, etc. of the urban landscape. The spatial aspect i.e. place of incidence and type of crime, can help understand the spatial concentration of crime in a city with respect to time, seasons, and city cultural events. The idea is to build a tool which can be expanded to a predictive modelling tool for crime, with data maturity. The tool sorts usability to the Police Department and Line Departments of ULB in terms of pre-emptive surveillance, social program and policy framing and infrastructure implementation. For piloting the tool, crime involving children has been selected along with school dropout rate and slum household density as a use case. Machine learning - based data mining software which generates mathematical model to calculate (predict) values of crime rate had been used to demonstrate the use case and validate the project idea. The project has the scope to be scaled across other types of crime and more economic, physical infrastructure indicators across all Indian cities as per data availability.

EXPECTED OUTCOME:

- Digital Crime Analytics and Prediction Tool (Decision Making Tool)
- Spatial Visualization of crime and socio-economic factors.
- Identify relation and generate report.
- Highlight critical socio-economic factors responsible for crime hotspots.
- Predictive modeling of crime using Machine Learning.