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Abstract

Leveraging Machine Learning for Process Monitoring in Environmental Impact Tracking †

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Context: The Environmental Impact Tracker is an application designed in such a way that it will monitor and visualize the data of an individual or an organization that will help them to know about their day-to-day activities that create an impact on the environment. This will elevate individuals and organizations to make and take informed decisions that promote sustainability.

Objective: Traditional methods of environmental monitoring can be time-consuming, resource-intensive, and limited in scope. Therefore, to effectively address these complex problems, we need accurate and efficient methods to assess and track environmental impact. In simple words, we will analyze data from different sources and quantify the environmental impact of human activities or an organization.

Material/Methods: Starting from the collection of the data from the various sources and after collecting the data, we will clean the data and make it suitable for ML algorithms. Then, different types of learning algorithms based on their purposes will be tested on the prepared data, for example, regression algorithms like linear and random forest regression, classification algorithms like SVMs and random forest classifications, clustering algorithms like K-Mean and Hierarchical Clustering and CNNs; these algorithms will identify the relation between the activities and environmental parameters. The trained model will identify the trends in environmental data and predict future impacts based on current activities and trends.

Conclusion: This project uses the power of machine learning to create a complete system to keep an eye on our environment. It helps common people, organizations, and the government understands the impact of their actions on the environment. This allows us to make decisions that are good for the environment, prevent problems before they arise, and choose the right ways to move forward. This project shows that as we progress, we can also use technology to protect the environment.

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