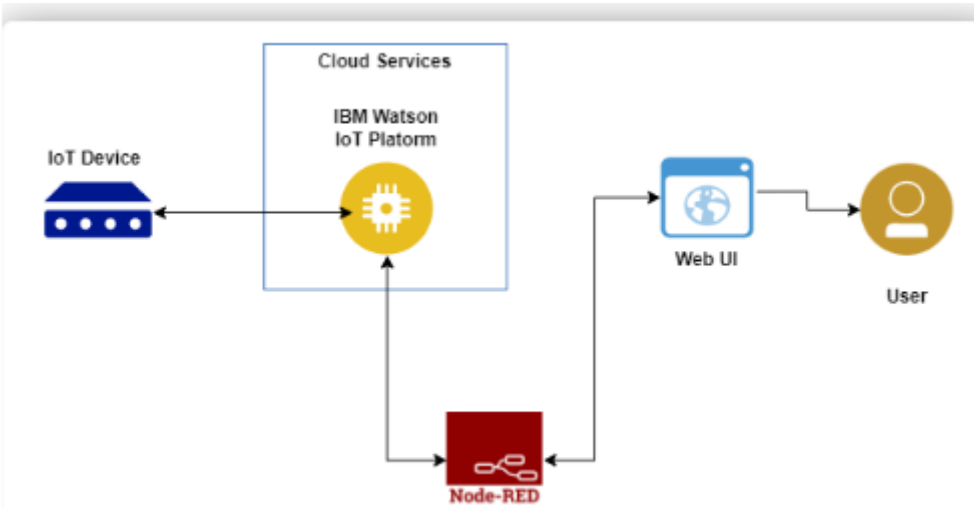
Project Design Phase-I
Solution Architecture

Date	06 May 2023
Team ID	NM2023TMID19394
Project Name	Smartcity waste management systems with connected trashcans

Solution Architecture:



IoT sensors: The first component of the solution would be IoT sensors installed inside the trash cans. These sensors would be responsible for measuring the level of waste inside the trash cans and sending that data to a central server. The sensors could be based on various technologies like ultrasonic, infrared, or pressure sensors.

Gateway devices: The data collected from the IoT sensors would need to be sent to a central server for processing. This would typically be done using gateway devices that act as intermediaries between the sensors and the server. These gateway devices would need to be installed near the trash cans, and would be responsible for collecting the data from the sensors and forwarding it to the server.

Central server: The central server would be the brain of the system, responsible for processing the data collected from the sensors and generating insights that could be used to optimize waste management operations. The server could be hosted in the cloud, and would need to be able to handle large amounts of data from multiple sources.

Data analytics and visualization: Once the data is processed, it could be analyzed to identify trends and patterns that could be used to optimize waste collection and disposal operations. This analysis could be performed using machine learning

algorithms that can identify the most efficient routes for garbage trucks or suggest the best time to empty a particular trash can. The results of this analysis could be visualized in dashboards and reports, which could be accessed by waste management officials.

Integration with other systems: Finally, the waste management system would need to be integrated with other city systems to provide a comprehensive view of waste management operations. For example, the waste management system could be integrated with the city's transportation management system to optimize garbage truck routes, or with the city's energy management system to optimize waste-to-energy operations.

Overall, a smart city waste management system with connected trash cans would be a complex IoT solution that involves a range of components working together to provide real-time insights into waste management operations.