**IoT-Based Intelligent Waste Bin**

**Abstract:**

Increasing waste generation has become a significant challenge in developing countries due to unprecedented population growth and urbanization. From the literature, many issues have been investigated that signify direct connection with the increase in waste material generation and related difficulties to handle it in a smart city. These issues are the resultants of an improper collection and disposal mechanism used for waste material, the increase in moving trends of peoples toward big cities and lack of intelligent technology used to support the municipal solid waste management system. Consequently, the management of waste material has become a challenge due to a large amount of waste littered everywhere. Furthermore, various problems also occur due to the existing systems that are not only inadequate and inefficient but also their non-scientific procedures involved in the solid waste management. In this paper, an IoT-based smart waste bin monitoring and municipal solid waste management system is proposed. This system helps to solve the problems associated with management of waste material and the IoT-based waste collection for the smart city as discussed above. The proposed system is capable in the collection of waste effectively; The IoT-based device performs the controlling and monitoring of the electric bins. These devices are wirelessly connected with the central hub via Wi-Fi to transmit the information about the bins filling level with the existing location. The significant advantage of the system is to collect waste material on time in order to avoid the overflow of bins that would help in saving the environment from pollution.

**Block diagram**

Server

ESP8266

Power Supply

Ultrasonic level Sensor

IR Sensor

Wi-Fi Network

Servo Motor