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SMART WASTE MANAGEMENT SYSTEM FOR METROPOLITAN CITIES

PROJECT OBJECTIVE

In the era globalization today, the smart city has become the trend and aim to be achieved by almost every country. To become a smart city, smart waste management is playing an important role in it. Smart waste management is the upgrade or optimization of traditional waste management with information technology. Waste management is the movements and actions that needed to direct waste from its beginning to last disposal. In simplest terms, it can be defined as the collection, transportation, and disposal of garbage, and other waste products.

The Smart Waste Management System is a very innovative system which will contribute to the path towards Smart City. In our city, we usually observe that the trash bins put at open spots are always over-burden. It forms unsanitary conditions to the city and it is not optimize to solve the problem by currently existing waste management in Malaysia. Also, the traditional way of manually monitoring the wastes in dustbins is a complicated process and excessive more human effort with expenses. To avoid all such situations, a project called Smart Waste Management System is implemented.

This system is developed to perform the connectivity of mobile application with Internet of Things (IoT) based dustbins. These dustbins are developed using IoT. IoT is the system of physical devices implanted with software, sensors and network connectivity which empowers these items to gather and trade information. The status of dustbins will be determined using ultrasonic sensor and collected data send through network to the database. The mobile application is used to monitor dustbins and perform route direction to the dustbins.

Nowadays, we can see the traditional waste management system already cannot handle well to the waste. One of the problems that found is inefficient trash collection. For example, some dustbins are overfilled while others are underfilled by the trash collection time. With the presented techniques of gathering and removal it is near unfeasible to direct such quantity of waste in the future as approximately 30% of waste end up on the roads and public places due to unproductive disposing and assembling techniques. Besides, the problem of unoptimized truck routes during inefficient trash collection also causes excessive fuel usage and environmental pollution. Routes utilized by drivers are generally left to their discretion and this is completed except the operating cost reduction and environmental maintenance. This state directs to elevated compilation and transport costs and also to environmental pollution. According to this, the high operating expenses will also be a problem. So, I am developing the Smart Waste Management System which can fulfil the requirement and solve the problem.

In this Smart Waste Management System, Internet of Things (IoT) was used for implementing the project. IoT is a recent technique which allow the interconnection of object with network. The plan of new idea in IT domain is maintaining things internet of mutual. IoT enables to interconnect endless of gadgets via web and it makes a rich circumstance by partner the contraptions with web and outcome them with ability to exchange as well as collect data. IoT depicts the universe of gadgets that are associated for allocating data to one another.