Project objectives

A growing population, urbanization and a scarcity of resources are only a few key issues causing social and environmental problems in the 21st century. Luckily, many green initiatives and sustainable solutions are being implemented in urbanized areas.

Using technology and innovation to optimize current systems will enable cities to become smarter, more efficient and save resources. Due to the growing population, the amount of waste being produced is vast and rapidly increasing. The management of this waste is therefore a significant area for much-needed improvement.

Currently, waste collection systems are in most cases outdated and result in pick-ups that are unnecessary or on the contrary – long-overdue. Unnecessary pickups result in 70% higher annual collection cost. When routes are planned inefficiently, congestion is created and more fuel is required to complete the collection. Overall, this contributes to a 50% higher carbon footprint.

With the use of IoT solutions for waste management, these issues can be solved by creating a more efficient pathway for garbage trucks. IoT sensor technology can be used to indicate when the emptying is actually needed. This customized and dynamic system for waste management can allow businesses, organizations, and citizens to all benefit.

By having a more convenient route garbage trucks spend less time on the road, therefore, congestion in smart cities can be decreased. This means that truck drivers and citizens are saving less time stuck in traffic jams. Additionally, using IoT technology for remote diagnostics also means not having to send staff all the way to monitor assets.

With the huge increase in waste, more resources are allocated to waste collection and handling. If unnecessary collections are eliminated, public spending on waste management can be reduced.

This frees up resources for municipalities to allocate to other initiatives. Moreover, waste is properly handled and sorted and turned into recyclable assets, this provides a further potential income stream.

In this process, if only IR is detected motor will rotate in the direction of the dry waste container if both the sensor detects the waste then it will go to the wet container. Both these containers are embedded with ultrasonic sensors at the top, the ultrasonic sensor is used for measuring distance. This makes it possible

to measure the amount of waste in the containers if one of the containers is full then an alert message will be sent to the corresponding person.