**Introduction**

To implement a smart dustbin built on a microcontroller based platform Arduino Uno board which is interfaced with PIR sensor, Ultrasonic sensor, node mcu which will alert the municipal authority about disposing the waste present in the dustbin by sending mail to the concerned authority.

**Abstract**

In the recent decades, Urbanization has increased tremendously. At the same phase there is an increase in waste production. Waste management has been a crucial issue to be

considered. This report is a way to achieve this good cause. In this report, smart dustbin is built on a microcontroller based platform Arduino Uno board which is interfaced with PIR sensor and Ultrasonic sensor. Ultrasonic sensor is placed at the top of the dustbin which will measure the distance of the garbage from the top of dustbin. Once the garbage reaches a particular level, ultrasonic sensor will activate the node mcu to send mail to the concerned authority until the garbage in the dustbin is squashed. Once the dustbin is squashed, people can reuse the dustbin.

Once these smart bins are implemented on a large scale, by replacing our traditional bins present today, waste can be managed efficiently as it avoids unnecessary lumping of wastes on roadside. Foul smell from these rotten wastes that remains untreated for a long time, due to negligence of authorities and carelessness of public may lead to long term problems. Breeding of insects and mosquitoes can create nuisance around promoting unclean environment. This may even cause dreadful diseases.

**COMPONENTS USED**

1.) Arduino

2.) Node mcu

3.) PIR Sensor

4.) Ultrasonic Sensor

5.) Rack and pinion actuator

6.) Motor Driver

**What we did**

Implemented a smart dustbin built on a microcontroller based platform Arduino Uno board which is interfaced with PIR sensor, Ultrasonic sensor, node mcu which will alert the municipal authority about disposing the waste present in the dustbin.

**FUTURE ENHANCEMENT**

1. Differentiation can be made between dry trash bin and wet trash bin, plastic dry waste and biodegradable waste respectively. To implement this methane and smell sensors can be used. This helps in distinguishing the waste at the source and hence reducing the requirement of manpower.

2. To enhance it further, an automated system can be developed which will be able to pick up waste in and

around the bin, segregate them and put them in respective bins.