AUTOMATIC DUSTBIN

**ABSTRACT :**

In this recent world, urbanization has increased tremendously. At the same phase,

there is increasing amount of in waste production. Waste management has been a

crucial issue to be considered. This report is a different way to achieve this good

cause. In this report, Automatic dustbin is built on a microcontroller based platform Arduino -

Uno board, which is interfaced with Ultrasonic sensor. It will stop overflowing of

dustbins along roadsides and localities as smart Dustbins are managed in

Once these smart bins are implemented on a large scale by replacing the traditional

bins, the waste can be quickly managed to its efficient level as it avoids unnecessary

lumping of wastes on roadside. Foul smell from these rotten wastes that remain

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. The goal of this project is to keep our environment clean. It also aims at

creating a clean as well as green environment.

**INTRODUCTION:**

**About the Domain**

Though the world is in a stage of up gradation, there is yet another problem that has to be dealt

with. Garbage! Pictures of garbage bins being overfull and the garbage being spilled out from the

bins can be seen all around. This leads to various diseases as large number of insects and

mosquitoes breed on it [1]. A big challenge in the urban cities is solid waste management. Hence,

smart dustbin is a system which can eradicate this problem or at least reduce it to the minimum

level. Our present Prime Minister of India, Sri Narendra Modi ji has introduced the concept of

implementing 100 smart cities in India. “Swachh Bharat Abhiyaan” was initiated to ensure a clean

environment. Majority of viruses and bacterial infections develop in polluted environment [5].

Safeguarding the environment using technology sources is needed at present. Majority of the

public environment seems to be polluted with the waste material. So, modernization of the

restaurants is needed by imparting the smart technology. Amounts of waste are largely determined

by two factors: first, the population in any given area, and second, its consumption patterns.

About the Definition

The smart bins are used as ultrasonic sensors which detect the garbage. The container is divided

into three levels of garbage being collected in it. Every time the garbage crosses a level the sensors

receives the data of comes garbage to the bin. This data is further goes to the servo motor threw the

Arduino Uno circuit board. Placing the ultrasonic sensors at the top of the bin, like on the cover of

the bin [2]. The comparison is done with help of microcontroller. After analyzing the image an

idea about level of garbage in the can and from the load cell sensor, weight of garbage can be

known. Accordingly, information is processed that is controller checks if the threshold level is

exceeded or not. This is convenient to use but economically not reliable. Instead of using plenty

of bins in an unordered fashion around the city, minimal number of smart bins can be used. Using

only one sensor at the surface level instead of three not only makes it affordable but also achieves

the same result [6, 8, 14].

THERE IS THE COMPONENT OR DEVICE USED TO MAKE THIS PROJECT:

* Arduino Uno x 1
* Ultrasonic Sensor x 1
* Servo Motor x 1
* Breadboard

Description

Arduino uno: is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a [microcontroller](http://en.wikipedia.org/wiki/Microcontroller)) and a piece of [software](http://arduino.cc/en/Main/Software), or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board.

The Arduino platform has become quite popular with people just starting out with electronics, and for good reason. Unlike most previous programmable circuit boards, the Arduino does not need a separate piece of hardware (called a programmer) in order to load new code onto the board -- you can simply use a USB cable. Additionally, the Arduino IDE uses a simplified version of C++, making it easier to learn to program. Finally, Arduino provides a standard form factor that breaks out the functions of the micro-controller into a more accessible package.



Ultrasonic sensor:  is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal. Ultrasonic waves travel faster than the speed of audible sound (i.e. the sound that humans can hear). Ultrasonic sensors have two main components: the transmitter (which emits the sound using piezoelectric crystals) and the receiver (which encounters the sound after it has travelled to and from the target).  is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal. Ultrasonic waves travel faster than the speed of audible sound (i.e. the sound that humans can hear). Ultrasonic sensors have two main components: the transmitter (which emits the sound using piezoelectric crystals) and the receiver (which encounters the sound after it has travelled to and from the target

Servo motor:  a small device that has an output shaft. This shaft can be positioned to specific angular positions by sending the servo a coded signal. As long as the coded signal exists on the input line, the servo will maintain the angular position of the shaft.



Bread board: A breadboard (sometimes called a plugblock) is used for building temporary circuits. It is useful to designers because it allows components to be removed and replaced easily. It is useful to the person who wants to build a circuit to demonstrate its action, then to reuse the components in another circuit.

BREAD BOARD



PROGRAMING CODE

#include<Servo.h>

Servo myservo;

int pos=20;

const int trigpin=5;

const int echopin=6;

long duration;

float distance;

void setup()

{

myservo.attach(11);

pinMode(trigpin,OUTPUT);

pinMode(echopin,INPUT);

myservo.write(pos);

}

void loop()

{

//serial.begin(9600);

digitalWrite(trigpin,LOW);

delayMicroseconds(1);

digitalWrite(trigpin,HIGH);

delayMicroseconds(1000);

digitalWrite(trigpin,LOW);

duration=pulseIn(echopin,HIGH);

distance=0.034\*(duration/2);

//serial.println(distance);

if(distance<10)

{

myservo.write(pos+160);

delay(3000);

}

else

{

myservo.write(pos);

}

delay(1000);

}

Conclusion :

This project work is the implementation of Automatic Garbage Fill Alerting system using ARDUINO UNO ,ULTRASONIC SENSOR AND DC SERVO MOTOR.