DEL PROJECT - SMART DUSTBIN

A smart dustbin is a normal dustbin that with mounted technology equipment, which consist UV sensor, Arduino, Servo motor etc. It is implemented with a simple working system. When the person comes closer to the smart dustbin the dustbin cap will automatically open for your waste and after some time it will automatically close.

COMPONENTS

1.Arduino UNO

2.UltraSonic Sensor Module

3.Servo Motor

4.A small Dustbin with hinged lid

5.Connecting Wires

ARDUINO UNO

Arduino is an open-source electronics platform based on easy-to-use hardware and software. It focuses on using microcontrollers in advanced electronics by building microcontroller boards. Arduino boards are able to read inputs and turn it into outputs such as activating a motor, turning on an LED.
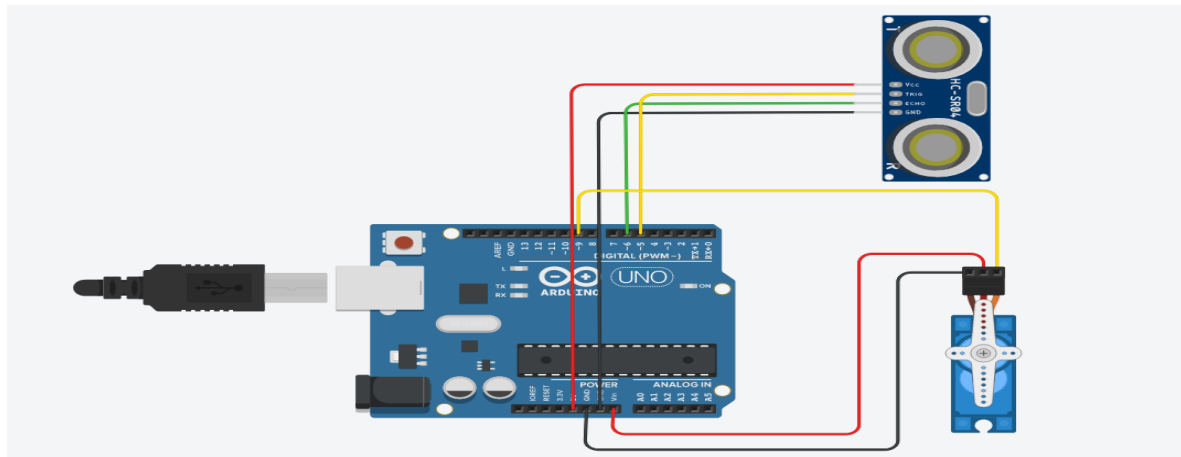
ULTRASONIC SENSOR

An Ultrasonic sensor is a device that can measure the distance to an object by using sound waves. It measures distance by sending out a sound wave at a specific frequency and listening for that sound wave to bounce back. By recording the elapsed time, the distance is calculated.

SERVO MOTOR

A servomotor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. It consists of a suitable motor coupled to a microcontroller for position feedback. Servo motors are small, have built-in control circuitry and have good power for their size.

CIRCUIT DIAGRAM EXPLANATION

The circuit diagram for smart dustbin contains three main components: Arduino Uno, Power supply and an Ultrasonic sensor. The Ultrasonic sensor pins echo and trig are connected to Arduino Uno pins 5 and 6 respectively. The servo motor data pin is connected to the 9th pin. The VCC pin is connected to 5V on Arduino Uno and both the grounds are connected together.

WORKING

Smart dustbin works on the principle of object detection using an ultrasonic sensor. The ultrasonic sensor transmits sound waves. These waves get reflected whenever an object comes into vicinity of the sensor.
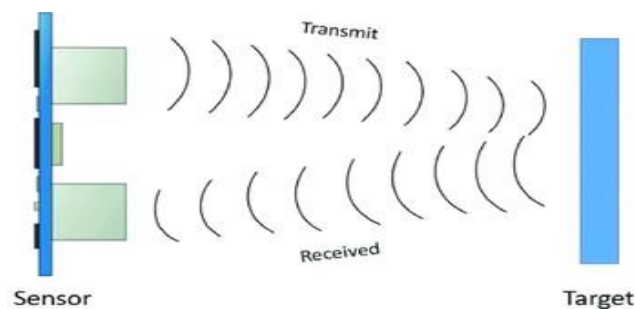
The smart dustbin uses an Ultrasonic sensor to detect objects in front. Then it sends the signals to Arduino Uno. The Arduino understands the signal and sends a signal to the Servo motor which opens

the flap on top of the dustbin. Here we have a program to open the lid for sometimes and then automatically closes.

APPLICATIONS

Hygienic disposal of waste. Automatic sensor-based operation with zero manual intervention.

REFERENCES

https://www.flyrobo.in/blog/smart-dustbin-arduino