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Introduction : Dustbins are containers used to store trash for a smaller period of time. They are often used in homes, offices, streets, parks etc, to collect the waste. Using Arduino, Ultrasonic Sensor and a Servo Motor we have designed a simple system called Smart Dustbin. The lid of the dustbin will automatically open itself upon detection of any obstacle. PROBLEM STATEMENTS As in many places, the dustbins there have lots of waste and as they get filled up other problems such as rotting, foul smell etc. Even sometimes automatic dustbins fails to closes by itself. COMPONENTS REQUIRED: * Arduino Uno * UltraSonic Sensor A device that with the help of sound waves measures the distance of a object. That wave collides with the object and bounces back thus helping in measuring the distance. * SG90 Servo Motor Small and lightweight motor with high output power. Rotates approximately 180 degree with 90 degree in each direction. * Mini Trash Can with Pedal * Connecting Wires * 5V Power Supply * Miscellaneous(glue, double sided tape, etc.) -:IMAGES OF THE COMPONENTS:- 1) ULTRASONIC SENSOR 2)ARDUINO UNO 3) SERVO MOTOR -:SCHEMATIC DIAGRAM:- CODE: #include <Servo.h> Servo myservo; const int servo_pin = 2; const int trig_pin = 3; const int echo_pin = 4; const int inter_time = 200; int time = 0; void setup() { Serial.begin(9600); myservo.attach(servo_pin); myservo.write(90); pinMode (trig_pin, OUTPUT); pinMode (echo_pin, INPUT); delay(3000); } void loop() { float duration, distance; digitalWrite(trig_pin, HIGH); digitalWrite(trig_pin, LOW); duration = pulseIn (echo_pin, HIGH); distance = (duration/2)/38; if (distance < 10) { for(int i = 1500; i >= 700; i-=25){ myservo.writeMicroseconds(i); delay(100); } delay(1000); for(int i = 700; i <= 1500; i+=25){ myservo.writeMicroseconds(i); delay(100); } } } CHALLENGES FACED: 1. Making the motor rotate in a particular angle so that the dustbin lid opens. 2. To fix the motor at the specific position for the particular angle. 3. To fix the ultrasonic sensor. Contribution of Team Members: Yuvraj Parihar : Connection Chiradeep Saha : Interfacing components and coding Ram Sharma : Interfacing components and coding References: https://components101.com/servo-motor-basics-pinout-datasheet https://components101.com/ultrasonic-sensor-working-pinout-datasheet PSG COLLEGE OF TECHNOLOGY EMBEDDED SYSTEMS LAB PROJECT REPORT TOPIC:-SMART DUSTBIN -:Prepared by:- CHIRADEEP SAHA(17Z312) RAM SHARMA(17Z342) YUVRAJ PARIHAR(17Z360) PLAGIARISM REPORT Done in https://smallseotools.com/plagiarism-checker/ Arduino Uno Code :

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