

# TRASH COLLECTOR WITH WEIGHING MACHINE

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## Abstract

Normally people show interest in checking their weight when they visit public places i.e; bus-stop, railway station . They spend money to check their weight there. But, here in our project it's not the same , where people just have to throw their trash in our dustbin. And our device will show the weight of the respected person who is standing on the weighing machine. Here, we are not only showing the weight for free but, as well as reducing trash in our society . This makes our project eco-friendly and also grabs people's attention easily

## 1. INTRODUCTION

Smart dustbin with weighing machine has been a topic of many researches students and hobbieistsworldwide . It is a smart dustbin with weighing machine, It is used for checking the weight of the people by throwing the plastic bottles or plastic waste in the dustbin. It allows only the plastic and if we throw the mental it sounds, and will not show the weight. The dustbin is also known as smart dustbin, when we go near the dustbin it automatically opens the lid of the dustbin. The components used in the smart dustbin are buzzer arduino, PNP, ultra Sonic sensor,servo motor ,connecting wires , weighing machine and dustbin.By using these we can make smart dustbin with

weight machine . First we need to fix the servo motor to the dustbin's top, to open the door. We use ultra sonic sensor to detect the people so that when we go near the dustbin ,with the help of ultrasonic sensor and the servo motor it automatically open the top of the dustbin. Now we fix the PNP sensor (metal detector) inside the dustbin by connecting to the arduinoUNO ,it helps when the metal is detected. The weight of the people will not show in the weighing machine and sounds when the metal is detected with the help of buzzer.The weighing machine is also connected to the arduino so when the plastic trash is thrown, it will show the weight of the people. The trash collector with weighing machine is designed to

reduce the pollution in public places. The idea of weighing machine with trash collector will work significantly and also save money for the people which can grab the attention of people very easily and also keeps the place clean. It can hold up-to 10kgs of trash which is a decent amount of capacity and it also alerts after reaching its maximum capacity . The device malfunction may occur sometimes due to heavy load or connection breakdown , which leads to the shut down of the device or the unfamiliar behaviour of the device . Rough handling of the product may be a serious problem , it may cause the breakdown of the product or the components fixed to the dustbin since the product is a bit delicate and not a rough handling resistant device . The buzzer that alerts the service people after reaching the maximum capacity , which leads to chaos in the dustbin and may also stop working. The weight showed on the screen may not be accurate because of the exceeding pressure on the machine can destroy the weighing power of the machine . Besides learning about the theoretical aspects, the project also incorporated a practical side. This includes but is not limited to, using solid works to see how everything was going to fit together, using small- simple circuits, using lab equipment for testing and programming in C. These are a wide array of important skills applicable to

many tasks, in future projects, as an engineer. This project aims to design, construct and program a trash collecting dustbin with weighing machine and implemented the plan to reduce pollution in the environment .

## 2. RELATED WORK

Currently ,there are no similar products like our project . but , there are some existing solutions like dustbins which can detect the metal products and give a message which are used to collect the metal waste . And the other existing solution is the regular weighing machine which collects the coin and shows the weightThe trash collector with weighing machine is designed to reduce the pollution in public places. The idea of weighing machine with trash collector will work significantly and also save money for the people which can grab the attention of people very easily and also keeps the place clean. It can hold up-to 10kgs of trash which is a decent amount of capacity and it also alerts after reaching its maximum capacity .he device malfunction may occur sometimes due to heavy load or connection breakdown , which leads to the shut down of the device or the unfamiliar behaviour of the device . Rough handling of the product may be a serious problem , it may cause the breakdown of the product or the components fixed to the dustbin since the product is a bit delicate and not a rough

handling resistant device . The buzzer that alerts the service people after reaching the maximum capacity , which leads to chaos in the dustbin and may also stop working. The weight showed on the screen may not be accurate because of the exceeding pressure on the machine can destroy the weighing power of the machine . There is no similar product like our's in the market currently. In the existing solutions the weighing machine which is being used in the public places is totally money based which charges money from the people. It doesn't collect any trash like our product, by this the people lose money and the place will remain same without cleaning.

The other disadvantage with metal detecting dustbin is it cannot be used in everyplace and also it cannot show the maximum amount exceeded message . And also it will not show the weight to the people which is not a really good attention grabbing idea. The other disadvantage is that the dustbin is not the public area compatible and people may face problems while using it.

### **3. IMPLEMENTATION**

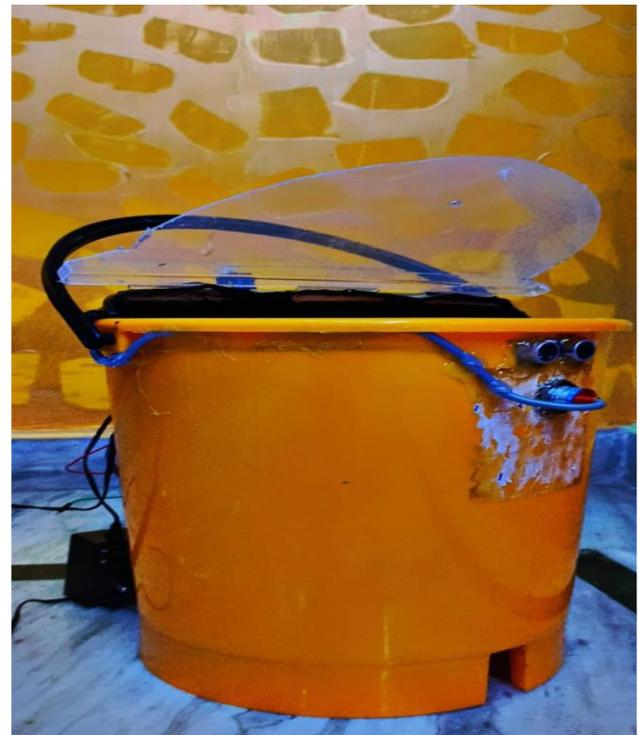
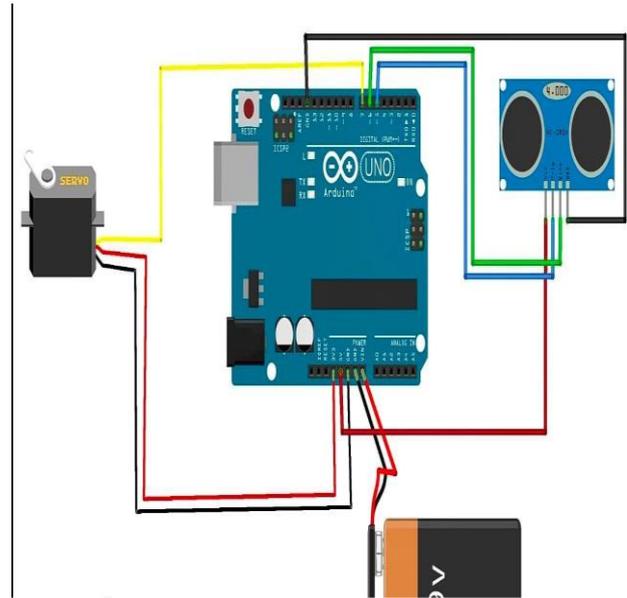
The “trash collector with weighing machine” is a device which collects the metal trash and in return shows the weight of the respected person, which is a good attention grabbing idea Which shows the weight of people for free and also collects

the trash from them. There are many environmental organisations and governments of several countries which are trying to reduce the pollution in the public society . Throwing of trash open in the society has been a serious problem which may lead to formation of new diseases and also viruses . There we were really struck by the problem of trash being thrown everywhere and that leading to affect the people in our society. We came up with a solid working idea which not only collects trash and save money but also gather a lot of public interest . This project will definitely be a good solution to reduce the pollution the society . To basically build a smart dustbin which specifically has efficient abilities like collecting trash and showing weight of the respected person for free. By taking essentially live feedback from the proximity which has ability to sense the metal product or objects and arduino UNO which manages the whole product's working process and control accordingly. The dustbin grabs the attention of the people very well which can also be a significant factor to the product which can reach higher number of people and can also collect the higher amount of trash. It can withstand the weight up to 10kgs and also a rough handling resistant. this project can help the whole world to evolve and

helps the world to go towards better tomorrow .

**4. EXPERIMENTAL RESULTS**

When the person goes in front of the dustbin the ultra sonic sensor detects and the signal passes to the stervomotor,Then the lid of dustbin will open through the stervomotor.while the trash is thrown in the dustbin the proximity sensor will detect that the object is metal or not.The object is allowed to throw in dustbin if it is non-metal object.Then the proximity sensor transfers the signal to the weighingmachine.Then the person can check his/her weight by standing on the weighing machine.



**5. CONCLUSION**

Making the connections for this Arduino based Self balancing Robot particularly is pretty simple in a sort of major way. We just literally have to interface the MPU6050 with Arduino and connect the motors though the Motor driver module, generally contrary to popular belief. The

particularly whole set-up kind of is powered by the 9V li-ion battery in a subtle way. The circuit diagram for the same is shown above. The Arduino and the L298N Motor driver module for all intents and purposes is directly powered through the Vin pin and the 12V very terminal respectively in a subtle way. The on-board regulator on the Arduino board will kind of convert the input 9V to 5V and the ATmega IC and MPU6050 will for all intents and purposes be powered by it, basically contrary to popular belief. The DC motors can run from voltage 5V to 12V, which basically is fairly significant. But we will mostly be connecting the 9V actually positive wire from battery to 12V input definitely terminal of motor driver module, which is quite significant. This will basically make the motors kind of operate with 9V. The following table will list how the MPU6050 and L298N motor driver module is connected with Arduino, generally contrary to popular belief. The MPU6050 communicates with Arduino through I2C interface, so we use the SPI pins A4 and A5 of Arduino in a subtle way. The DC motors kind of are connected to PWM pins D3, D9 D10 and D11 respectively, for all intents and purposes contrary to popular belief. We need to for all intents and purposes connect them to PWM pins because we will be controlling the speed of the DC motor by varying the

duty cycle of the PWM signals, which is fairly significant.

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