PROJECT DOCUMENTATION: -

PROJECT TITLE: REIMAGINE-WASTE

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Basic Aim:-

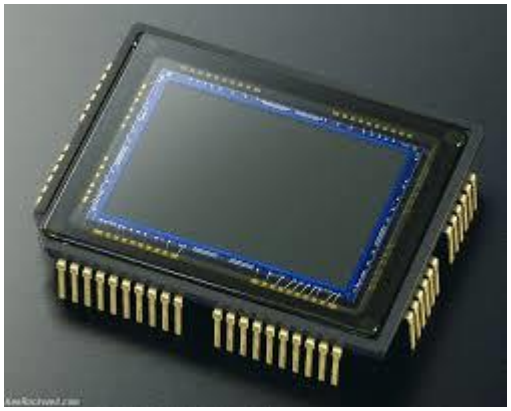
To equip a Trash Can with Features like tracking the amount of garbage in a trash can, checking if the Trash can has any damage, Waste segregation in trash bins by the use of Voice control and checking for any Update in the number of Bins. All these features of the Trash Can are governed by a Website which is Responsive in nature, i.e. supported in all devices.

Theory:-

Hardware:-

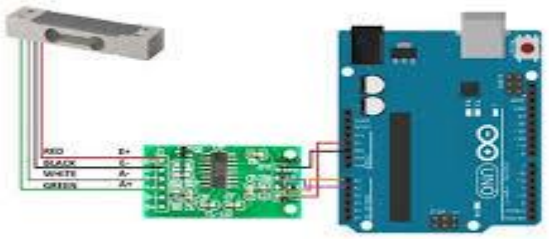
Image sensor

Most popular combination for detection and tracking an object or detecting a human face is a webcam and the OpenCV vision software. This combination may be the best in detection and tracking applications, but it is necessary to have advanced programming skills and a mini computer like a Raspberry Pi.



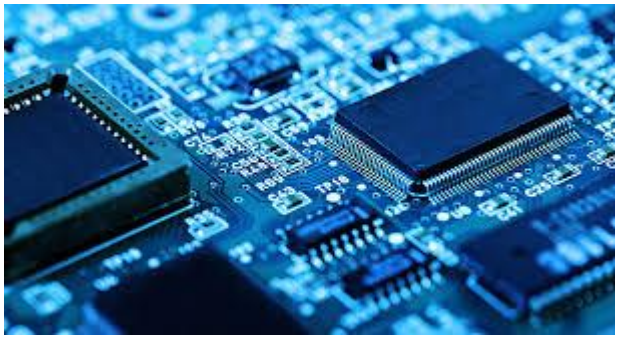
Load sensor

The Load Sensor measures the weight of an object and it can weigh up to 50kg weight.



Microprocessor: -

A microcontroller is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals. The one we can use is Arduino Uno.



Arduino is a single-board microcontroller designed to make the process of using electronics in multidisciplinary projects more accessible. The hardware consists of a simple open source hardware board designed around an 8-bit Atmel AVR microcontroller. An Arduino board consists of an Atmel 8-bit AVR microcontroller with complementary components to facilitate programming and incorporation into other circuits.

An important aspect of the Arduino is the standard way that connectors are exposed, allowing the CPU board to be connected to a variety of interchangeable add-on modules known as shields. The software consists of a

standard programming language compiler and a boot loader that executes on the microcontroller.

Possible Implementations:-

- Calculating Amount of Trash

  This Trash Can has a Unique Feature of measuring the weight of garbage in a bin by using Load Sensor. A variable weight is set as the limit and if the weight of the can crosses this limit, then the Municipality can take some action on educating that area people about the need of managing Resources efficiently and to use less Waste.

- Checking for any damage in the Trash bin

  The Trash Bin has a unique feature, which tells the user if the bin has any damage or not. This is done by checking if the Weight of the bin is gradually decreasing with respect to time, which means there is a damage in the can and it needs a replacement.

- Waste Segregation using Voice Control :-

  The Touch sensor senses the presence of any object nearby and activates the voice control. This Voice Control asks the User for the Type of waste and Directs the User to the specific Trash Can. This uses a Voice bot and it will be an interactive user face.

- Updating Number of Bins: -

  This feature helps in replacing old bins or adding new bins and this information is updated in the feedback database.

Future Implementations: -

The Smart Trash Can can be used to create an awareness among the Public on the importance of reducing waste usage and helping the Environment.

It can be used to prevent the Overflow of Waste, from the Bins onto the road and thus maintain Cleanliness and Hygiene.