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# ***WASTE SEGREGATION AND LEVEL DETECTION WITH SMART DUSTBIN***

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Project Report



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## **Abstract :**

Increasing production of waste creates huge problem to the world. Due to this huge waste production, segregation and management of waste is very difficult and challenging to human. In this scenario think about a dustbin that itself force human to segregate the waste, by identifying dry waste and wet waste and ask human to deposit in specified dustbin. It will be amazing right as dustbin itself segregates and manages the waste.

It not only just segregates and manages the waste but also sends an alert message to specified number, that the dustbin is full and ask us to take away the waste to process of recycling/reusing.

This report describes the implementation of this idea with full functional block diagram that connects different sub-modules used in this project. Several specific solutions for this problem are in many ways. However, this idea can be easily implemented with the help of cloud computing and wireless communication modules together.

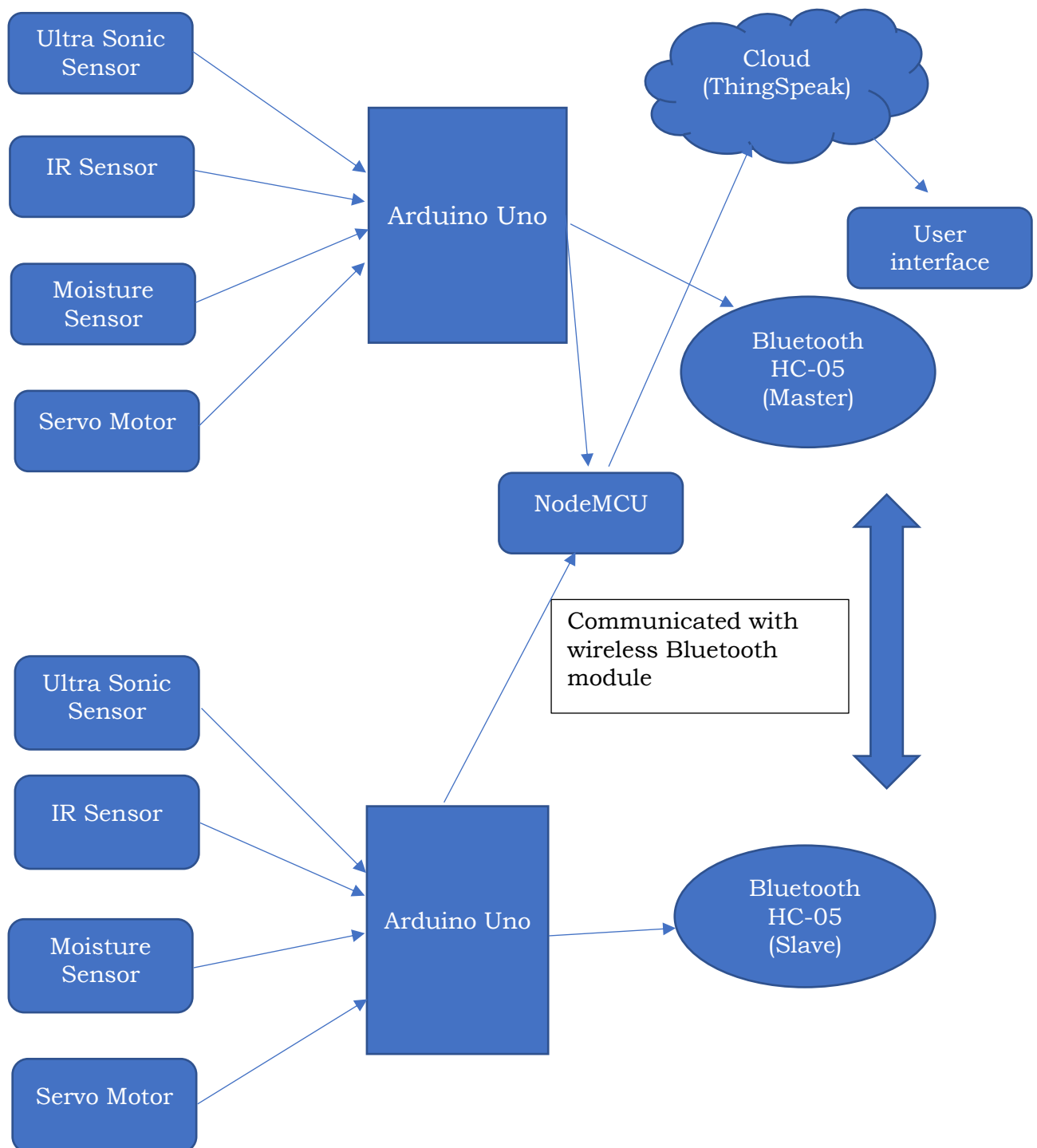
## **Justification :**

Usually, smart dustbin we use to manage the waste and even in segregation process also we use smart dustbin. This project provides an easy way to manage and force human to segregate the waste which includes the communication between the dustbins with the Bluetooth module.

The status of the dustbins can be monitored in user interface with cloud computing and also, we monitor the dustbin level to avoid dustbin overflowing. By using these types of smart dustbin, we can easily manage, segregate and monitor the status of dustbins in a particular locality.

## **Functional Block Diagram connecting the sub-modules of the project :**

Here is the block diagram representation which shows the integration of different sub systems/modules of the project, here we use master slave communication with Bluetooth modules.



## **Components :**

### **Hardware :**

- Arduino Uno
- Node MCU
- Servo Motor (2)
- Bluetooth module (2)
- Ultrasonic Sensors (2)
- IR Sensors (2)
- Moisture Sensor (2)

### **Software :**

- Arduino IDE
- Thing Speak cloud
- Mobile app as user interface (Mit app Inventor)
- Pushover (To get notification)

## **Phase Wise Implementation :**

### **Phase-1: Output for pre-evaluation :**

Demonstration of waste segregation with two dustbins by using Bluetooth wireless communication between those two dustbins.

- Image of hardware for Phase 1 implementation,

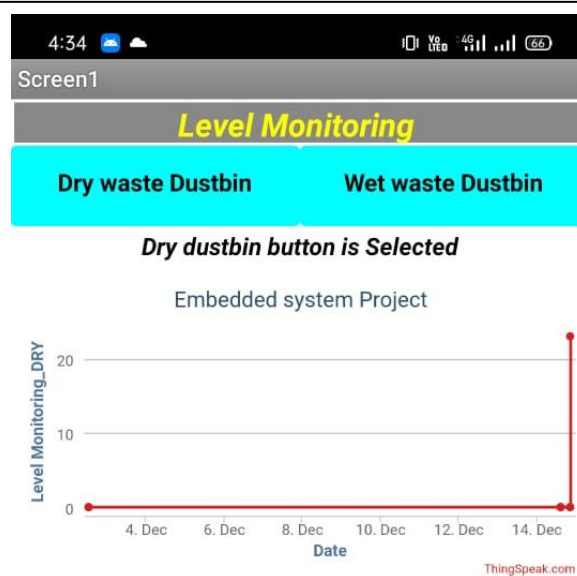


## ***Phase-2: Output for final evaluation :***

Demonstration of waste segregation with level detection in individual dustbins with an app integrated to monitor the status of the dustbins and receives a message to that app if any dustbin is about to fill or it is full.

- Images of hardware and software used for Phase 2 implementation,

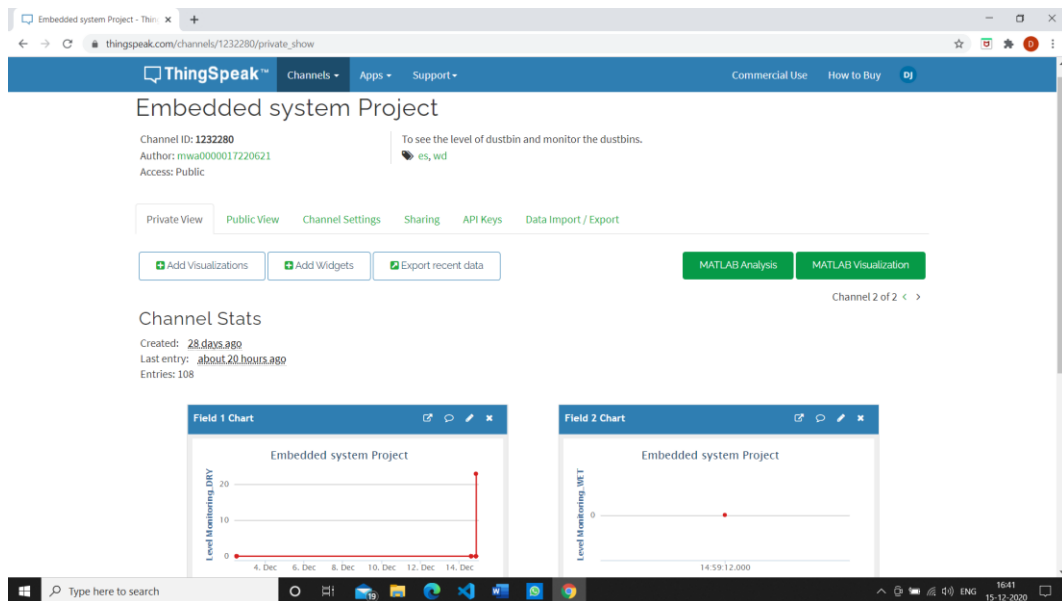
When Dry waste Dustbin button is pressed.



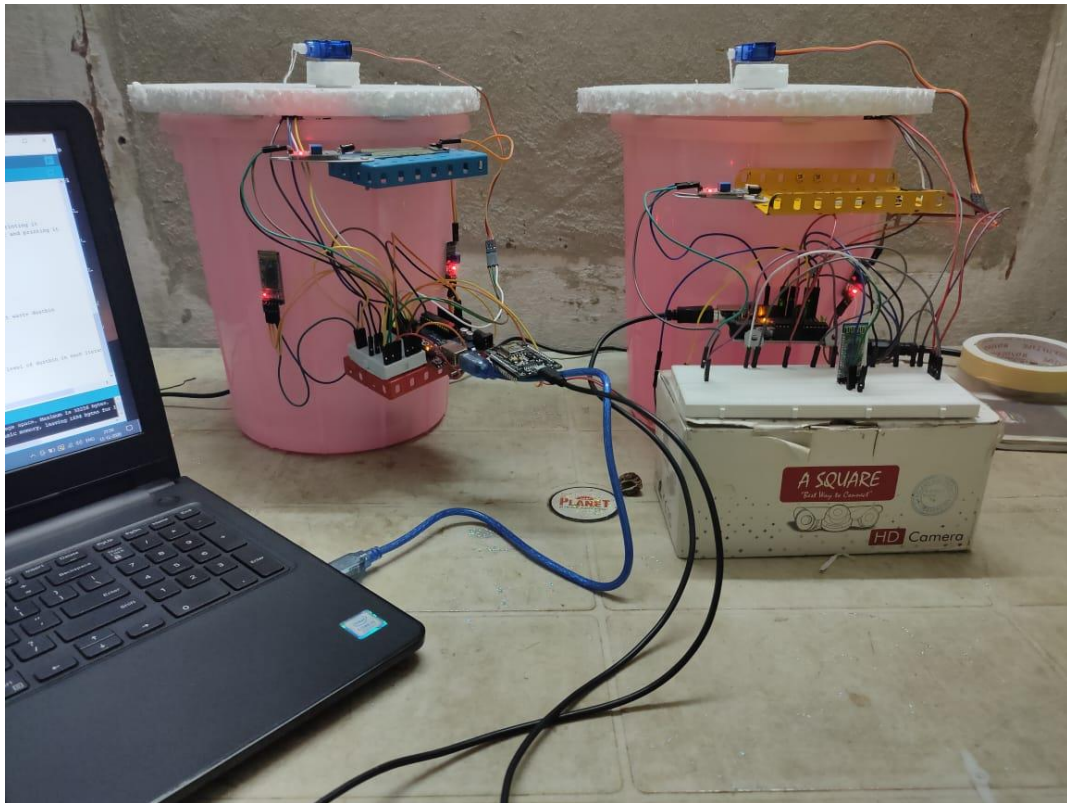
When Wet waste Dustbin button is pressed.



This is the cloud software used for this project and levels of dustbins are seen from this cloud.



This is the image of hardware used in this project.



This is the image of messages got if the level of dustbin is less than 10 cm.

