e-ISSN:2582-7219

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

Volume 6, Issue 5, May 2023

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.54

International Journal Of Multidisciplinary Research In Science, Engineering and Technology (IJMRSET)

| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 6, Issue 5, May 2023 |

Smart Dustbin Reverse Vending Reward Machine

Diksha Pagare, Nikhil Nikam, Pratik Chinchore, Prof.Y.S.Rathod

Department of Electronics and Telecommunication, SNJB's Late Sau. Kantabai Bhavarlalji Jain College of Engineering, Chandwad, India

ABSTRACT -These days, with the growing amount of garbage produced and the low Utilizing available landfor trash disposal is one of the key components of an efficient waste management strategy. Environmental awareness is now considered to be a major trend and an essential component of contemporary civilisation. Our initiative will change things by getting them to toss that putting trash on the road is preferable to throwing it in the trash. According to their dropped waste, our reward bin will produce points and categorise them as coupons. The ID's bar code is scanned using a bar code scanner in this intelligent reward container. Therefore, the database will have that person's information.To dispose of the waste, the servo motor is turned on and the dust bin is opened. Waste in the bin is discovered using an IR sensor. A person will benefit by receiving a discount by mail or text message to their mobile phone in accordance with their dropped dump. We think it might make a small difference, but it might shift people's perspectives enough to get them to throw trash in their trash cans.

KEYWORDS: Smart Reward Bin, Servo Motor, IR Sensor, Dustbins..

Software: (Ardino IDE)

.

I. INTRODUCTION

The management of solid waste (SWM) is a significant issue for many metropolitan local governments. Urbanization, industrialization, and economic development in India have increased the amount of municipal solid waste (MSW) generated per person. Effective SWM is a significant difficulty in densely populated areas. Because India is a varied nation with many distinct religious groups, cultures, and customs, achieving sustainable development within a nation experiencing fast population increase and improvements in living conditions is more challenging. Despite substantial progress in the social, economic, and environmental spheres, India's SWM systems have largely stayed untouched. Since 90 percent of residual garbage is currently discarded rather than properly landfilled, the informal sector is crucial in recovering value from waste. There is an urgent For many metropolitan local governments, managing solid waste (SWM) is a major concern. Municipal solid waste (MSW) generation per person in India has increased as a result of urbanisation, industrialization, and economic growth. In heavily populated places, effective SWM is very challenging. It is more difficult to achieve sustainable development within a country experiencing rapid population growth and improvements in living standards since India is such a diverse country with so many unique religious groups, cultures, and customs. India's SWM systems have mostly remained unchanged despite significant advancements in the social, economic, and environmental are- nas. The informal sector is essential for extracting value from waste because 90 percent of residual trash is now thrown away rather being properly landfilled.

II. LITERATURE SURVEY

[1] L. A. Guerrero Due to the rapid increase in the population of our country, there will be more in the waste generation from our daily activities. By continuous increase in the waste generation which makes hazardous gases releasing in the atmosphere without knowing any sign of it. Although of making many smart cities in our country we got to see so much waste on the road itself than the dustbins due to some sort of laziness of our people which makes them to feel like nothing makes the difference of throwing the waste into dustbin or in the roads. Our project will bring the difference by making them throwing that dump waste into the dustbin makes better than throwing on roads. On throwing the waste into our "SMART REWARD BIN" it will generate the coupons according to their dropped dump and classify it into points by making them in simple and after getting the coupon generated, the coupon will automatically sent to a person's personal mobile via Message or Email by using the Raspberry Pi 4 kit and from that which that person can redeem that coupon in any near provision stores or any shopping malls or any groceries. By making this we introducing our SMART REWARD BIN project into our society

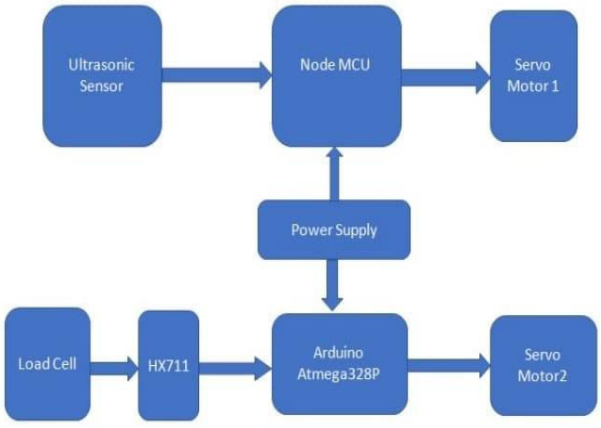
| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 6, Issue 5, May 2023 |

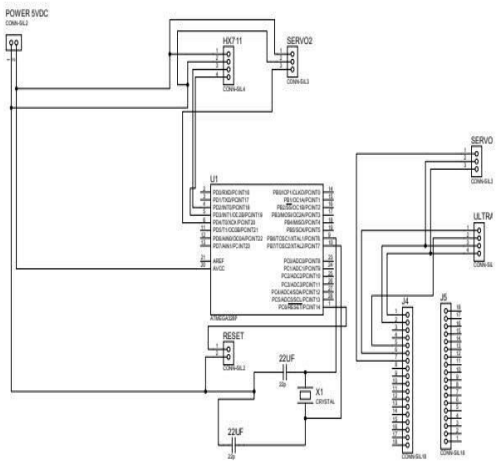
[2] A Smart Waste Bin for Smart Waste Management proposed by In this paper, the system consists of sensors to measure the weight of waste and the level of waste inside the bin. Bluetooth is attached for short range communication. The researchers [2] suggests the method for garbage management which is as follows. In this paper, Arduino UNO to check the level of garbage filled in the dustbin and sends the alert to the municipal web server once if garbage is filled. After cleaning the dustbin, the driver confirms the task of emptying the garbage with the aid of RFID Tag. RFID is a computing technology that is used for verification process and in addition, it also enhances the smart garbage alert system by providing automatic identification of garbage filled in the dustbin and sends the status of clean-up to the server affirming that the work is done. The researchers [3] suggests the method for garbagemanagement which is as follows. In this paper the system makes use of Arduino Uno board, LCD screen, GSMmodem for sending data. The system is powered by a 12V transformer. The LCD screen is used to display the status of the level of garbage collected in the bins. Whereas GSM is built to show the status to the user, monitoring it with SMS. The SMS consists of text related to all garbage bins. The LCD screen shows the status of the garbage level.

The system puts on LCD screen continuously monitoring of garbage with Arduino board. . The researchers [4] suggests the method for garbage management which is as follows. In this paper the bin was connected with a microcontroller-based system which had IR wireless system with a main central system that shows the current status of the garbage bin. The status was seen on a mobile based web browser with html page by using Wi-Fi. in this system to reduce the cost they used weight sensor and on the sender's side they used a Wi-Fi module to send and receive the data. In the end the weight sensor only detects the weight of the garbage in the bin but not the level of waste.

BLOCK DIAGRAM



CIRCUIT DIAGRAM



| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 6, Issue 5, May 2023 |

COMPONENTS

AT mega 328p:

The ATmega328 is a single chip microcontroller created by Atmel in the mega AVR family (later Microchip Technology acquired Atmel in 2016). It has a modified Harvard architecture 8-bit RISC processor core.

Node MCU

. It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module.

Servo Motor

Allow me to walk you through the actual setup and construction of the Smart Dustbin using Arduino now. I'll start with the lid-opening mechanism first. As you probably have figured by now, I utilised a servo motor to achieve this. I have used fast glue to attach a little plastic tube to the servo horn (a single ended horn) that may be used to open the lid. The tube resembles the empty refill of a ballpoint pen. This device needs to be situated close to the dustbin's lid in order to operate. This dustbin setup actually uses an Arduino-based system that was designed and built. I will start with the dustbin lid opening mechanism, which uses a Servo

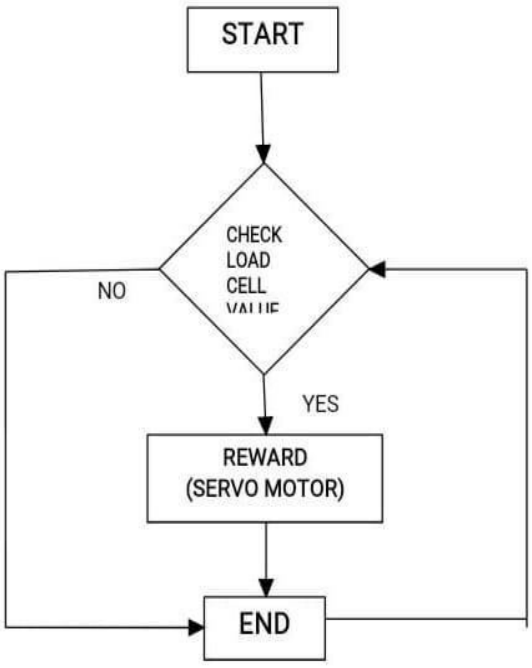
Load Cell

A load cell functions by transforming mechanical force into readable and writable digital values. values. The internal workings of a load cell vary depending on the one you choose. There There are three types of load cells: hydraulic, pneumatic, and strain gauge.

HX711

A load cell amplifier breakout board for the HX711 IC, the HX711 module makes it simple to read load cells and measure weight. You can utilise the HX711 Load Cell Module to build an industrial scale, regulate a process, or do a straightforward presence detection. Capacitor 22uf

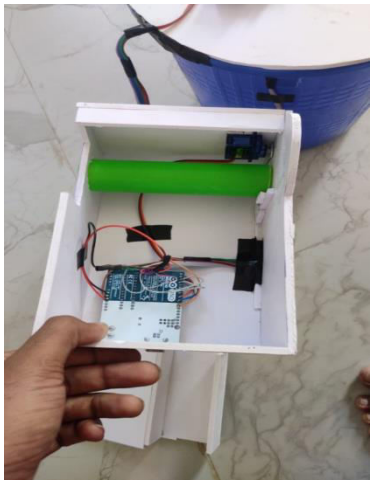
FLOW CHART



| ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 7.54|

| Volume 6, Issue 5, May 2023 |

III. RESULT



A clever trash can that is eco-friendly and will help keep our environment clean. The Swachh Bharat Mission serves as our inspiration. Since technology is becoming increasingly intelligent, we are utilising Arduino to develop a smart dustbin that will help clean the environment. This intelligent trash can management system is based on a microcontrollerbased setup with ultrasonic sensors on the trash can. If trash bins are not maintained, they might lead to pollution that is bad for our health and create an unhealthful environment. In the suggested technique, a smart trash can made of an Arduino Uno, an ultrasonic sensor, a servo motor, and a battery jumper wire has been created. After complete hardware and software setup, the Smart Dustbin programme will now be executed. Dustbin lid will close if someone approaches it.

.

IV. FUTURE SCOPE

In order to test how the community will react to the solution for integrating RVM into UnionCoop Supermarkets and to have the opportunity for further enhancements, this project must be completed in phases. Spreading awareness throughout society by giving public lectures about plastic pollution is a key component of solving this issue. Additionally, workshops regarding plastic pollution and alternatives to plastic bags must be held in schools to raise awareness among the younger generations from an early age. Additionally, by establishing a fair price for reusable bags that appeals to all social groups, the government can encourage individuals to use alternatives to plastic bags.

V. CONCLUSION

We’re going to make some evolutionary adjustments to make this place cleaner. Because of their advanced waste monitoring and trash compaction technologies, smart dustbins outperform traditional trash cans by a wide margin. It is equipped with smart devices including sensors, Arduino, and others. The garbage can’s lid automatically opens when something approaches it and closes after a predetermined amount of time. Society will benefit from its promotion of order and health, and business will benefit from our efforts to make it as widely available and reasonably priced as possible. so that everyone can profit from it, whether they are wealthy or not. I believe that this will result in some changes to technology and hygiene. Consequently, our following project will involve adding another

REFERENCES

[1] L. A. Guerrero et al., “Solid waste management challenges for cities in developing countries,” Science Direct, vol. 33, issue 1, January 2013, pp. 220-232
[2] Towards a Waste-Free Sri Lanka. (2013). DailyFT Website. [Online]. Available:
[3] M. T. H. Shubho, M. T. Hassan, M. R. Hossain and M. N. Neema, “Quantitative analysis of spatial pattern of dustbins and its pollution in Dhaka city — A GIS based approach,” Asian

Impact Factor
7.54

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com