

Rfid Based Food Waste Detection and Alerting Using Gsm Module

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Submitted: 01-05-2022

Revised: 04-05-2022

Accepted: 08-05-2022

ABSTRACT-- Over the years food wasted by people is not measured to reduce the wastage of food. Smart Bin System using GSM module to develop an intelligence bin which can monitor food waste through sensors and gives the information in detail which are connected to the microcontroller. Sensors will measure and calculate the amount of food waste disposed of by every person. Connecting embedded electronic devices through a GSM module. It can be implemented with four steps Computing, Programming, Interfacing and, Networking. RFID Card is the object used by every user for individual identification. RFID Card Reader is used to sense the RFID Card. After Successful detection of RFID Card bin will be opened for the user to dispose of the food waste. The load cell is used to measure the food waste disposed of by that particular user. One-day day food wastage information send to the SMS of the higher authorities as well as particular student food waste calculated and then information send to the parents. LCD Display is used to display the user id and food wastage details. For Power Supply DC Motor is used. Once the bin is full, Information about that will be passed to the Authorities.

I. INTRODUCTION

In India due to the adoption of a mixed economy, the private sectors rose up very fast and thus caused urbanization rapidly. In the 1901 census, the percentage of urbanization was 11.4% whereas in the 2001 census it was 28.53% and in the 2011 census, it rose to 31.16%. According to a report by the World Bank, by 2030, more than 40% of the country's population is expected to be in urban areas.

According to a report of Times of India in 2017, India's urban population produces a whopping 62 million tons of waste every year. From this waste, only about 22 - 28% of waste is treated and the rest remains like that without any

proper care. This causes air pollution harms the environment causes many fatal diseases and leads to slower economic growth. Taken together, the major issue that India's dealing with today is that 'waste management can be classified as solid waste and liquid waste, which in both forms are harmful. It can be further classified as organic waste, e-waste, medical waste, reuseable waste, recyclable waste, hazardous waste. The liquid waste comes mainly from three sources: residential areas, industrial areas, and commercial areas.

Examples like dirty industrial water, home discharges, etc, While solid waste comprises items like metal and tins scraps, food waste, old furniture, etc. The workers come to collect waste in two to three days in India from bins, but the dustbins are full of dust then there are no options to clear the dustbins. It causes the spillage of the waste and thus creates an unhygienic environment and causes many diseases. It is caused as the government does not have any means to check the status of the dustbin if it is full or not before the scheduled waste collection day. As the population is increasing at a very fast rate, this current model or scheme of waste collection does not properly work. The major aim of this paper is to develop a prototype for the future bins where the status of bins based on their depth is sent to the officials once it is full and also to make the lid of the bins open and close automatically as the person arrives so as to improve the hygiene of the surrounding areas.

II. PROBLEM STATEMENT

The situation of waste not being disposed of on the proper time is common. The concerned workers do not the information regarding the status of the bin if it's full or not. This causes an unhygienic environment due to not clearing the waste on proper time and causes foul smell in that

area, which further causes many infectious diseases.

III. EXISTING SYSTEM

The Internet of Things (IOT) shall be able to incorporate transparently and seamlessly a large number of different systems, while providing data for millions of people to use and capitalize. Building a general architecture for the IOT is hence a very complex task, mainly because of the extremely large variety of devices, link layer technologies, and services that may be involved in such a system. One of the main concerns with our environment has been solid waste management which impacts the health and environment of our society. The detection, monitoring and management of wastes are one of the primary problems of the present era. The traditional way of manually monitoring the wastes in waste bins is a cumbersome process and utilizes more human effort, time and cost which can easily be avoided with our present technologies.

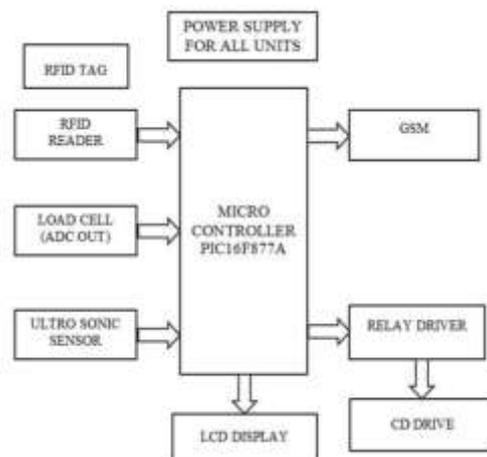
Disadvantages of existing system

- Information is sent through email.
- The single bin is connected to the server

IV. PROPOSED SYSTEM

The proposed system has many advantages over the existing system. In the Proposed System, the user is identified individually by an RFID user card. The RFID card reader is used to detect the RFID card and identify the user individually. After card detection the bin opens automatically, then the user can dispose the food waste. After disposing of the food waste the bin closes automatically. Load Cell is used to measure the food waste and then the measurement is stored in variables. pic board and program are used to connect the smart bin to the computer. The graph is also designed on the basis of the amount of food waste.

V. HARDWARE DESCRIPTION



Picture.: Block diagram

VI. SOFTWARE DESCRIPTION

MPLAB Ide Software

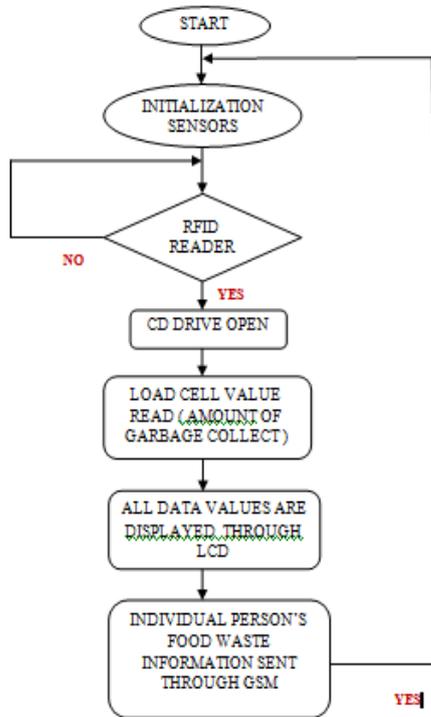
MPLAB is a proprietary freeware integrated development environment for the development of embedded applications on PIC and PIC microcontrollers, and is developed by Microchip Technology.

MPLAB X is the latest edition of MPLAB, and is developed on the NetBeansplatform. MPLAB and MPLAB X support project management, code editing, debugging and programming of Microchip 8-bit, 16-bit and 32-bit PIC microcontrollers. MPLAB is designed to work with MPLAB-certified devices such as the MPLAB ICD 3 and MPLAB REAL ICE, for programming and debugging PIC microcontrollers using a personal computer. PICKit programmers are also supported by MPLAB.

MPLAB 8.X is the last version of the legacy MPLAB IDE technology, custom built by Microchip Technology in Microsoft Visual C++. MPLAB supports project management, editing, debugging and programming of Microchip 8-bit, 16-bit and 32-bit PIC microcontrollers. MPLAB only works on Microsoft Windows. MPLAB is still available from Microchip's archives, but is not recommended for new projects.

MPLAB X is the latest version of the MPLAB IDE built by Microchip Technology, and is based on the open-source NetBeansplatform. MPLAB X supports editing, debugging and programming of Microchip 8-bit, 16-bit and 32-bit PIC microcontrollers. MPLAB X is the first version of the IDE to include cross-platform support for Mac OS X and Linux operating systems, in addition to Microsoft Windows.

VII. IMPLEMENTATION



Picture: Flow chart of this project



Picture : realtime work of this project



VIII. CONCLUSION

The food waste monitor to check the levels of food waste in whether the dustbins are full or not. In this system the information of food can be accessed by the user/authorities from anywhere. When food levels reached the condition details of bin will be stored to the authorities via message sending through GSM and this system will reduce the monitoring system of persons to check the food levels as result this will reduce the solid waste. In this system the wastage deposited by the individual persons can also be monitored. This maintains a clear record of the user details. The user can access the RFID cards. This greatly reduces the time and it also reduces the human effort.

IX. FUTURE ENHANCEMENTS

The present food waste management is impact on public health and environment and quality touch upon the effort toward food waste management in the past. The future enhance of this project is that it will provide the options and various methods for utilization of waste so that the waste can be minimized and properly managed in the future and clean environment and human health. During different industrial, mining, agricultural and domestic activities, huge quantity of solid wastes are being generated as by-products, which pose major environmental problems as well as occupy a large area of lands for their storage/disposal. There is a tremendous scope for setting up secondary industries for recycling and using such huge quantity of food wastes as

minerals or resources in the production of construction materials.

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