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Smart Wi-Fi Dustbin System.

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***Abstract:** We realize that Garbage causes damage to local ecosystems, and it is a threat to plant and human life. To avoid all such situations we are going to implement a project called IoT Based Smart Garbage."When somebody dumps trash into a dustbin the bin ashes a unique code, which can be used to gain access to free Wi-Fi". Sensor check garbage fills in dustbin or not and Router provides Wi-Fi to user. Major part of our project depends upon the working of the Wi-Fi module; essential for its implementation. The main aim of this project is to enhancement of a smart city vision.*

***Keywords:** Robotics, Sensors, Local and Wide-Area Networks Internet, Routers, Software Development Kit (SDK).*

1. Introduction

Many times, in our city we seen that trash was present in out of dustbin. It creates unhygienic conditions for people as well as ugliness to that place leaving bad smell and also Realizing the need of the Internet in everyday life, we decided to give free Wi-Fi to people in exchange of a cleaner surrounding with an unique initiative.
Now days a very fast growth of urban population in recent time. Due to increasing population of cities or states the city or states can faces many problems like environmental problem in which increasing garbage waste, increasing various type of diseases and create health problem. In recent time Garbage waste collection and its management is very critical issue. For that In India 2 October 2014 Indian Prime Minister Mr. Narendra Modi announced Clean India Mission launched by Government of India. In this mission covering 4,041 cities and infrastructure of country.

Inspiring by these mission we proposed the smart Wi-Fi dustbin system for smart garbage waste collection. The work proposed in this paper illustrates how the Smart bin solution empowers cleaning public area like Railway stations, Global store, Colleges, Hotels etc. to detect cleanliness issues in real time. Thus, the system is able to help in increasing overall productivity and cleanliness.

2. Literature Survey

In [1], this paper objective is the study of implementation of smart garbage management system using IR sensor, micro controller and Wi-Fi module. This system provides only the cleaning of dustbins when the garbage level reaches its maximum.

In [2], they came to a point It is important to understand the societal concerns over the increased rate of resource consumption and waste production and therefore the policy makers have encouraged recycling and reuse strategies to reduce the demand for raw materials and to decrease the quantity of waste going to land.

In [3], this paper objective of the study was to determine the characterization of the waste and the current system of management activities. The paper high-lights an overview of the current municipal solid waste management (MSWM) system of Thousand Municipality and it concludes with a few suggestions, which may be beneficial to the authorities to work towards further improvement of the current management systems.

In [4], the proposed system describes that the level of garbage in the dustbins is detected with the help of Sensor systems, and communicated to the authorized control room through GSM system. Micro controller is used to interface the sensor system with GSM system. A GUI is also developed to monitor the desired information related to the garbage for different selected locations. This will help to manage the garbage collection efficiently.

In [5], it describes the application of our model of Smart Bin in managing the waste collection system of an entire city. The network of sensors enabled smart bins connected through the cellular network generates a large amount of data, which is further analysed and visualized at real time to gain insights about the status of waste around the city. This paper also aims at encouraging further research in the topic of waste management.

3. Proposed System

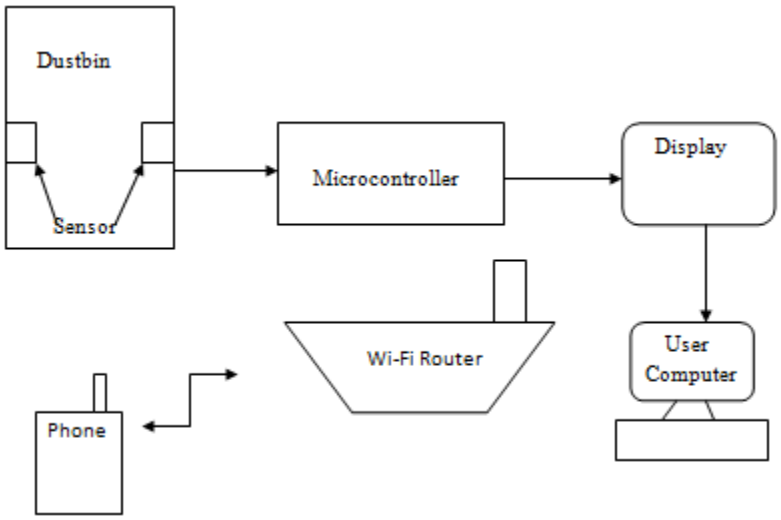

Figure 1: The proposed System Architecture.

This architecture shows overall description of our system. The first part of our system the user simply put the some garbage in to the dustbin. The hardware which is the electronic device is already connected I to the dustbin, after user put the some garbage the sensor identify it and display the unique id for user. User read the number then opens the address of our web application in to the browser. The second part of our system is the web application; user put the unique id in to the textbox and submits. Then system checks the id and compare with database value, if it matches system gives password of Wi-Fi network device to user or if it not matches it send failed message for user. After matches the password user can free to use internet facility. In Smart Wi-Fi dustbin system design two main modules:

1. Hardware Module
2. Web Application.

3.1 Hardware Module

In our system the hardware part is design by the using of the IR sensor, Microprocessor 8051, LCD. In that hard for generating the unique number we use Embedded C language.

3.2 Web Application.

In this system for developing the web application we use the java technology and for maintaining the database of admin details and the passwords data set we use the MySQL database for storing the data.

4. System Features

4.1 Hardware Resource Requirements

- Micro controller: The 8051 micro controller having 8 bit data bus,16 bit address bus, 128 bytes of data memory,4 register, four 8 bit port.
- IR Sensor: IR Sensor work by using a specific light sensor to detect a select wavelength Infra-red spectrum.

- Wi-Fi Module: I ball baton (4 x 10/100mbps LAN ports).
- Display: LCD (16*2 SIZE).

4.2 Software Resourse Requirements

Software required for First part:

- Language: Embedded C.
- IDE: Keil Software.
- Simulation: ISISPROTEUS
- Software required for Second part:
- Language: Java.
- IDE: Eclipse.
- Database: My SQL
- Eclipse

4.3 advantages

- Security

  For security purpose the only provide to user, who have the unique ID which matches the system database values.
- Reliability

  User get the number from the system which is already stored in the system.
- Maintainability

  Maintain the previous password by user and also block the unauthorized user.

4.4 Dis-Advantages

- Need of Good sensor for regular sense dust.

4.5 Applications

This system is used in both private as well as public sector.

- This system used in Government sector.
- This system used in various public sector like Railway station, Bus stop, Colleges, Mall, Multiplex, Shopkeepers, Gardens.

5. Conclusion

In Smart Wi-Fi Dustbin system design two main modules:
1. Hardware module which include Dustbin with sensor, and Display
2. Software module which include Web Application.
3. Also Wi-Fi Router for providing Internet.

They have set with some specific functions:
In this system we have proposed a system IoT Based Smart Garbage. When somebody dumps trash into a dustbin the bin ashes a unique code, which can be used to gain access to free Wi-Fi. Sensor check garbage fills in dustbin or not and Router provides Wi-Fi to user. Major part of our project depends upon the working of the Wi-Fi module; essential for its implementation. The main aim of this project is to enhancement of a smart city vision.

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References

[1] S.S.Navghane, M.S.Killedar, Dr.V.M.Rohokale,"IOT based Smart Garbage andWaste Collection",International Journal of Advanced Research in Elec- tronics and Communication Engineering (IJARECE)Volume 5, Issue 5, May 2016.
[2] Mohd Helmy Abd Wahab , Aeslina Abdul Kadir ," Smart Recycle Bin A Conceptual Approach of Smart Waste Management with Integrated Web based System",978-1-4799-6541-0/14/31.00 2014 IEEE.
[3] Basic Feature, Solid waste Management Project by MCGM.
[4] Arkady Zaslavsky,Dimitrios Georgakopoulos,"Internet of Things: Chal-lenges and State-of-the-art solutions in Internet-scale Sensor Information Management and Mobile Analytics",2015 16th IEEE International Conference on Mobile Data Management.

[5] Meghana K C,Dr. K R Nataraj,"IOT Based Intelligent Bin for Smart Cities.",International Journal on Recent and Innovation Trends in Computing and Communication ISSN: 2321-8169 Volume: 4 Issue: 5 IJRITCC| May 2016, Available @ http://www.ijritcc.org

