



**SCHOOL OF COMPUTER SCIENCE & ENGINEERING**

**A PROJECT REPORT**

**ON**

**SMART CITY WITH IOT**

**MCA VIth SEMESTER**

**PROJECT SUPERVISOR**

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**SUBMITTED**

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## **Abstract**

Abstract - SMART CITY: Day by day problems are increasing to manage these problems our project will help the common man. The problem solver is a web based application which aims at providing a platform to register any complaints regarding the town itself at any time, from anywhere. The application also provides a mechanism to track down the status of work done in response to registered complaints. This system increases quality and speed of service as compared to existing system. The use of GPS and Google maps feature of web based for address location tracking lowers the user overhead of typing the address of exact location of complaint. Our project will help the common people under the province of a municipal corporation to register their criticism about day to day problems in their ward through this website which can also be run using mobile phones and computers. The website contains the complete information about particular city like places to be visited ,site maps route maps, Business environment, Job portal, information about organization that provide transport, Hospitality and total history of the city. This website can be used by any person who is having general knowledge about internet. All the users will be first considered as anonymous user later if he needs any service then he will be treated as registered user. This system provides a registration form for all who wants to get the services. This can be categorized based on the type of users. It provides different registration forms for different categories. In case of students if they need to download any material or to get information about coaching centers and college institutions/Incase of businessmen to get the information about any kind of business/Incase of tourists to get the hospitality facilities/in case of jobseekers to get the information about available job details they need to give their ID & PASSWORD for security purpose. . It also deals with Garbage Collection Management System of city.

Due to rapid population growth, disorganization of city governments, a lack of public awareness and limited funding for programs, garbage management is becoming a global problem. Due to the lack of care and attention by the authorities the garbage bins are mostly seem to be overflowing. It has to be taken into care by corresponding authorities and should think what method can be followed to overcome this. This survey paper shows some effective solutions.

Internet and its applications have become an integral part of today's human lifestyle. It has become an essential tool in every aspect. Due to the tremendous demand and necessity, researchers went beyond connecting just computers into the web. These researches led to the birth of a sensational gizmo, Internet of Things (IoT). Communication over the internet has grown from user - user interaction to device – device interactions these days. The IoT concepts were proposed years back but still it's in the initial stage of commercial deployment. IoT can be used to provide a platform for smart garbage management. The implementation of smart garbage management system using sensors, microcontrollers and GSM module assures the cleaning of dustbins soon when the garbage level reaches its maximum. If the dustbin is not cleaned in specific time, then the record is sent to the higher authority who can take appropriate action against the concerned contractor. This system also helps to monitor the fake reports and hence can reduce the corruption in the overall management system. This reduces the total number of trips of garbage collection vehicle and hence reduces the overall expenditure associated with the garbage collection. It ultimate helps to keep cleanness in the society. Smart collection bin works with the sensors will show us the various levels of garbage in the dustbins and also the weight sensor gets activated to send its output ahead when its threshold level is crossed. If dustbins are not cleaned in time, the details will be forwarded to higher authority.

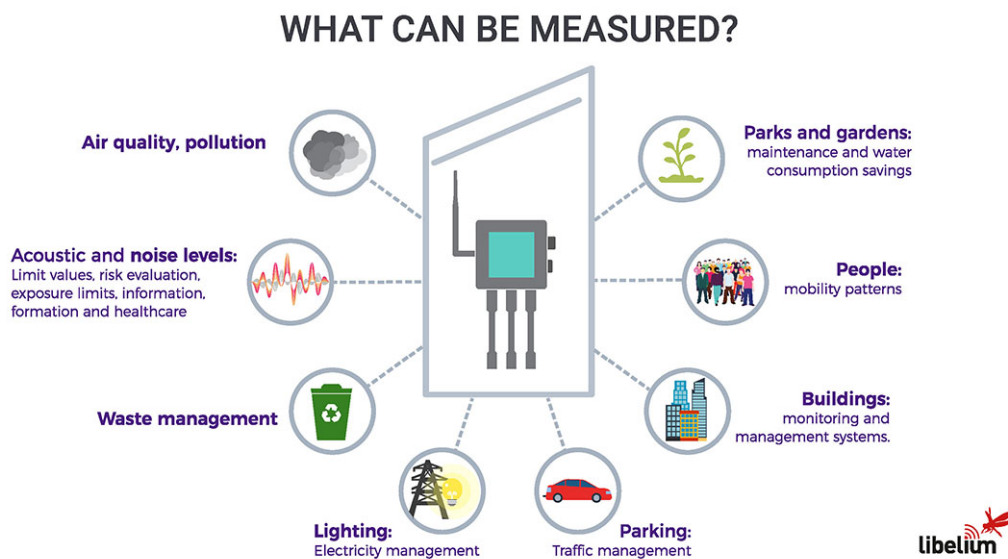
## **Introduction**

### **About Project:**

City Guide is an essential whenever we are visiting a particular city. It gives us the valuable information about the city and saves the time. Our project laid a web based platform for the city guide and can search every place in the city without taking the help of any personal guide. You can search a city for its prominent places of the city user, and can get social and political information of the city, city culture, security, entertainment, Business, Hotels, and Jobs etc. The main aim of this project services provided to the users who have registered in the site. The services regarding to city political, historical, conventional places, bus routes, business companies profile and jobs details.

Our project title is 'SMART CITY', a web-based product used to store the details of particular city and helps all the users who just visit our website. This site also provides all the services like Hotel booking for tourists, Ticket booking, Transport facility providing, business related information, marketing details, city news, shopping detail. The website contains the complete information about particular city like places to be visited, site maps route maps, Business environment, Job portal, information about organization that provide transport, Hospitality and total history of the city. This website can be used by any person who is having general knowledge about internet. All the users will be first considered as anonymous user later if he needs any service then he will be treated as registered user. Overall description consists of background of the entire specific requirement. It also gives explanation about actor and function which is used. It gives explanation about architecture diagram and it also gives what we are assumed and dependencies. It also support specific requirement and also it support functional requirement, supplementary requirement other than actor which is used. It also gives index and appendices. It also gives explanation about any doubt and queries. This system can be used as an application for the handicraft employees and customers of the Handicraft Company to manage the product information. Customer logging should be able to upload the information of the any required product. Customers/Company representatives logging in may also access/search any information of product related. The important concept of smart cities is the waste management which is very much trending and helpful these days. As the concept of smart cities is very much trending these days and the smart cities cannot be complete without smart waste management

system. There needs to be system that gives prior information of the filling of the bin that alerts the municipality so that they can clean the bin on time and safeguard the environment. To avoid all such situations we intend to propose a solution for this problem "Smart Garbage Bin", which will alarm and inform the authorized person when the garbage bin is about to fill. Then message will be send to the authorized person to collect the garbage from the particular area. The authorized person will sends the message from his web application to the garbage collectors by sending a SMS. This system maintains a dry waste and a wet waste separately. This survey involves various smart garbage management ideas that can be easily implemented.



## Overall Description

Overall description consists of background of the entire specific requirement. It also gives explanation about actor and function which is used. It gives explanation about architecture diagram and it also gives what we are assumed and dependencies. It also support specific requirement and also it support functional requirement, supplementary requirement other than actor which is used. It also gives index and appendices. It also gives explanation about any doubt and queries. This system can be used as an application for the handicraft employees and customers of the Handicraft Company to manage the product information. Customer logging should be able to upload the information of the any required product. Customers/Company representatives logging in may also access/search any information of product related. In this

project we also monitor the smart waste management system which will alarm and inform the authorized person when the garbage bin is about to fill. Then message will be send to the authorized person to collect the garbage from the particular area. The authorized person will sends the message from his web application to the garbage collectors by sending a SMS .This system maintain a dry waste and a wet waste separately. This will help to reduce the overflow of the garbage bin and thus keeping the environment clean.

### **Purpose of the Project**

The main aim of this project services provided to the users who have registered in the site. The services regarding to city political, historical, conventional places, bus routes, business companies profile and jobs details. **Smart city** is a web-based product used to store the details of particular city and helps all the users who just visit our website. This site also provides all the services like Hotel booking for tourists, Ticket booking, Transport facility providing, business related information, marketing details, city news, shopping detail. The website contains the complete information about particular city like places to be visited, site maps route maps, Business environment, Job portal, information about organization that provide transport, Hospitality and total history of the city. This website can be used by any person who is having general knowledge about internet. All the users will be first considered as anonymous user later if he needs any service then he will be treated as registered user.

It facilitates communication between users, experts and general public through chat/polls/mail. This will definitely help the users for the purpose of saving their valuable time which can't be got back which is also economically viable. This system provides a registration form for all who wants to get the services. This can be categorized based on the type of users. It provides different registration forms for different categories. In case of students if they need to download any material or to get information about coaching centers and college institutions/Incase of businessmen to get the information about any kind of business/Incase of tourists to get the hospitality facilities/in case of jobseekers to get the information about available job details they need to give their ID & PASSWORD for security purpose. And this project also helps to measured waste management. This will help to reduce the overflow of the garbage bin and thus keeping the environment clean.

## **Purpose and Scope**

“Smart City” is website used to provide information regarding the particular city that includes city-map, history-social, political, business news and other services for registered users.

### **Scope:**

- It can be accessed by unlimited number of users.
- Each user will be assigned a different set of permissions for each module of the system.
- The user can have access to all the information in the site with limited services and provide extra services to registered users.
- Track all the transaction details of the customer.
- Confirmation of end user identity and will verify which users are authorized to receive Support. Maintain history of each customer and their related Maintain history of each customer and their related information.
- Every user must have their ID& PASSWORD for security purpose and AC.NO for transaction purpose.
- All the job seekers must have their Resume document to submit to administrator.
- Only registered members will be provided with communication between user, experts and general public through poll/chat/mails.
- Administrator is created in the system already.
- The administrator has to generate daily/weekly/Monthly reports, of the business and political news of the city.

This site is best designed to be useful through internet to people of different places.

**“Smart City” is also providing to monitor waste management system in particular places.**

- Real time information on the fill level of the dustbin.
- Deployment of dustbin based on the actual needs.
- Cost Reduction and resource optimization.
- Improves Environment quality
- Fewer smells
- Cleaner cities
- Intelligent management of the server.
- Effective usage of dustbins

### **LITERATURE SURVEY**

The Smart City Concept is used in many countries to make their city transform into “The Smart City”. This concept basically would help the citizen it would make their life. Area-based development will transform existing areas (retrofit and redevelop), including slums, into better planned ones, thereby improving live ability of the whole City. New area (Greenfield) will be developed around cities in order to accommodate the expanding population in urban areas. Application of Smart Solutions will enable cities to use technology, information and data to improve infrastructure and services. In this project we are implementing IoT based smart waste management system in smart cities. We are trying to make city clean and green with the help of smart garbage system.



## **Proposed Model**

The Proposed System provides online information about the particular city going to visit. It also provides additional services to the registered user. The development of this new system contains the following activities, which try to automate the entire process keeping in the view of database integration approach.

- User Friendliness is provided in the application with various controls provided by system Rich User Interface.
- The system makes the overall project management much easier and flexible.
- It can be accessed over the Intranet.
- The city information files can be stored in centralized database which can be maintained by the system

We also propose a smart garbage bin using cloud IOT based raspberry pi to identify when the garbage bin is fill by using Ultrasonic sensor we can get the volume occupied and left in the smart garbage bin If the volume is full then the program triggers an alert message through raspberry pi and sends an alert and location of the bin to collect the garbage's. The garbage collector collects the waste and empties the bin.

## **Existing System**

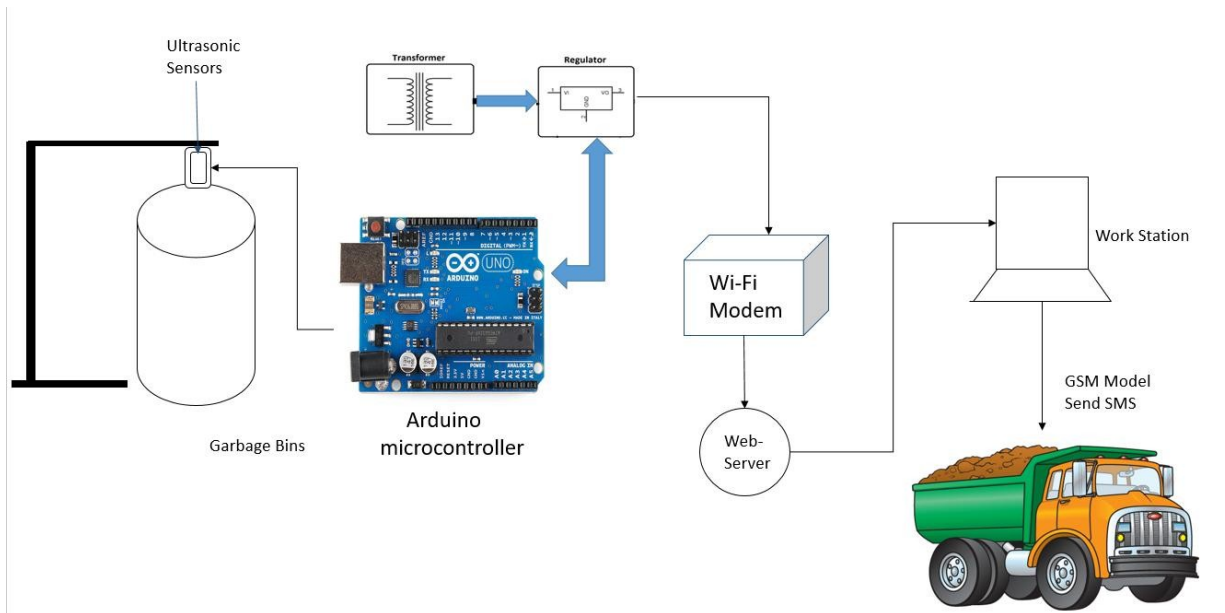
When the dustbin is over flown, there will be heavy pollution in the environment. Due to this bad odor is spreader which causes various diseases to the children. When the garbage is thrown outside across the city, the animals eat those wastes and they are affected by the avoidable diseases. In the existing system it will help to avoid the overflow of dustbin. [1]It gives the information about the level of the dustbin using ultrasonic sensor. [2]It will send the message immediately when the dustbin is full by their unique ID. Then warning message will be displayed. The cost of this existing system is low. The resources are available easily. Improves environment quality by reducing the odor and make the cities clean. It has effective usage of dustbins. It will also reduce the wastage of time and energy for truck drivers. Disadvantage • If containers are not maintained properly they quickly corrode and get damaged. • Adjacent

residents complain about the smell and its appearance. • If collection services are delayed, waste may not be collected or some time it causes considerable nuisance.

## I. SYSTEM ARCHITECTURE

The IOT Garbage Monitoring system is a very innovative system which will help to keep the cities clean. This system monitors the garbage bins and informs about the level of garbage collected in the garbage bins via a web page. For this the system uses ultrasonic sensors placed over the bins to detect the garbage level and compare it with the garbage bins depth. The system makes use of Arduino family microcontroller, LCD screen, Wi-Fi modem for sending data and a buzzer. 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 a web page is built to show the status to the user monitoring it . The web page gives a graphical view of the garbage bins and highlights the garbage collected in color in order to show the level of garbage collected. The LCD screen shows the status of the garbage level. The system puts on the buzzer when the level of garbage collected crosses the set limit. Thus this system helps to keep the city clean by informing about the garbage levels of the bins by providing graphical image of the bins via a web page.



## System Architectures

## RESULT

### User page

#### Registration

Registration Form Screenshot:

Header: Home | Site Map | Login | Logout

Message: Welcome to Online City Guide Registration Form  
It's absolutely quick!

Form Title: Student Enrollment Signup Form

Fields:

- User Name:
- Password:
- First Name:
- Last Name:
- Date of Birth:
- Email Address:

Buttons:

#### Login

Login Form Screenshot:

Header: Home | Site Map | Login | Logout | Search

Message: Welcome to Ranchi City Please  
Login to explore the complete features!

Form Title: Tourist Login Form

Fields:

- User Name:
- Password:

Buttons:

#### Home



## **CONCLUSION**

In this paper, we presented the design and implementation of a web application called Smart City, with which users can get tourism guidance information they need anytime and anywhere. User can attract towards its detailed information, including text, picture and video. User can search the nearby attractions after he or she configure the distance between the current location and the view spots. The city guide application is an important tool for a traveler. Most of the traditional methods are time consuming and required skilled human resource who supposes to guide the tourist in field. The main purpose of the proposed project is to ensuring to save the time of tourist, provide proper guidance and directions to tourist. And also we have implemented real time waste management system by using smart dustbins to check the fill level of smart dustbins whether the dustbin are full or not. In this system the information of all smart dustbins can be accessed from anywhere and anytime by the concern person and he/she can take a decision accordingly. By implementing this proposed system the cost reduction, resource optimization, effective usage of smart dustbins can be done. This system indirectly reducing traffic in the city. In major cities the garbage collection vehicle visit the area's everyday twice or thrice depends on the population of the particular area and sometimes these dustbins may not be full. Our System will inform the status of each and every dust bin in real time so that the concerned authority can send the garbage collection vehicle only when the dustbin is full. The scope for the future work is this system can be implemented with timestamp in which real-time clock shown to the concern person at what time dust bin is full and at what time the waste is collected from the smart dustbins

## **Text Book References**

The following books and manuals provided a lot of help to us in making this project a reality.

- The complete Reference Java2 By Patrick Naughton and Herbert Schildt, TMH Publishing Company Ltd.
- Java How To Program By H.M.Dietel and P.J.Dietel, Pearson Education/PHI

- Data Base Management Systems,Raghurama Krishnan, Johannes Gerhrke,TATA McGraw-Hill
- Software Engineering By Roger S.Pressman,McGraw Hill International Edition Pressman
- KanchanMahajan, “Waste Bin Monitoring System Using IntegratedTechnologies”, International Journal of Innovative Research in Science,Engineering and Technology, Issue 3, Issue 7, July 2014.
- M. Al-Maaded, N. K. Madi, Ramazan Kahraman, A. Hodzic, N. G. Ozerkan, An Overview of Solid Waste Management and Plastic Recycling inQatar, Springer Journal of Polymers and the Environment, March 2012, Volume20, Issue 1, pp 186-194