

LITERATURE SURVEY

Date	19 September 2022
Team ID	PNT2022TMID27336
Project Name	Project – smart waste management system

TOPIC :Smart City Waste Management System using Internet of Things and Cloud Computing

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Indiscriminate disposal of solid waste is a major issue in urban centers of most developing countries and it poses a serious threat to healthy living of the citizens. Access to reliable data on the state of solid waste at different locations within the city will help both the local authorities and the citizens to effectively manage the menace. In this paper, an intelligent solid waste monitoring system is developed using Internet of Things (IoT) and cloud computing technologies. The fill level of solid waste in each of the containers, which are strategically situated across the communities, is detected using ultrasonic sensors. A Wireless Fidelity (Wi-Fi) communication link is used to transmit the sensor data to an IoT cloud platform known as ThingSpeak. Depending on the fill level, the system sends appropriate notification message (in form of tweet) to alert relevant authorities and concerned citizen(s) for necessary action. Also, the fill level is monitored on ThingSpeak in real-time. The system performance shows that the proposed solution may be found useful for efficient waste management in smart and connected communities.

TOPIC : Monitoring for efficient waste management in Metropolitan Cities

Author: Manju Mohan , RM. Kuppan Chetty , Vijayram Sriram , Mohd. Azeem , P. Vishal and G. Pranav.

Published on : September 30, 2019. The Academic Society of Convergence Science Inc

Waste bins are part of our lives for decades and mostly its condition are overflowing due to improper waste dumping, collection and management, which leads in foul smell and unhygienic condition, thus inherently results in environment pollution. Therefore, in this paper, design of a Waste Bin with real time monitoring is presented and a smart waste management system is proposed using the recent technical advancements of automation and Internet of Things (IoT). The capacitance sensor in the bin continuously monitors the level of the bin in real time and communicates to the central cloud where the bins are connected. Ultrasonic sensor is used to open and close the lid of the bin whenever the persons are nearby the bin. Such smart bins are connected to the cloud, where the bin status are communicated, recorded and monitored by the local bodies through and android app or a centralized server. Thus the designed smart bin and proposed waste management system have better level of smartness compared to existing ones in metropolitan cities in a centralized manner.

TOPIC : IoT (Internet of Things) - Based Smart Garbage Management System: A Proposal for major Cities of Bangladesh

Author: Abhijit Bhowmik, Md. Saef Ullah Miah, Mohaimen-Bin-Noor

Published in : AJSE Vol:19, Issue: 01. 30th April 2020.

There are many IoT based researches but researches on garbage management system based on IoT are not sufficient. Insufficient and inefficient garbage management system causes severe environmental problem. It also makes the air toxic. This problem has become a common problem in the world especially in Bangladesh. Dhaka city, the capital of Bangladesh lacks well organized and efficient garbage management system. Maximum roads of Dhaka city are surrounded by garbage. The bad smell of garbage affects people's mental health, inhaling toxic causes many diseases. Lack of dustbins, throwing of garbage here and there, misuse of dustbins are making city life very unhealthy and also causes a threat to environment. The dustbins are being stolen or damaged which is also a great problem. In this paper, we proposed about an efficient garbage management system based on IoT. This research works aims to provide a minimal solution to this problem using the IoT technology. We propose for a smart garbage system, which consists of sensors, RFID, IR sensors, admin and user website, Wi-Fi module etc. These smart bins will monitor the level of garbage when it will reach 75% of its capacity, it will give notification to the admin website, so the authority concerned can collect the garbage from the bins timely and there will be no overflow of garbage as the authority will get notified earlier. There will be a feature in user website that will let the user know about the nearest smart garbage bins current condition, so if there is any condition that the garbage bin of their place is full they can use the nearest bin. This research work also aims to have secured smart garbage bins, as there is chance the bins to be stolen and damaged so in this research we talk about security of the sensors and the bins will have cement body. So this research is for implementing an

efficient garbage management system which will reduce expense on this sector, misuse of bins. Making a clean country, pollution free environment with an efficient and well organized garbage management system can bring a new era. It is highly anticipated that the proposed garbage management system will be able to reduce financial cost in this sector as well as reduce problems related to waste management.

TOPIC : Smart waste management system

Author: Shyamala S.C, Kunjan Sindhe, Vishwanth Muddy, Chitra C N

Published in : September 2016 IJSDR | Volume 1, Issue 9

SMART WASTE MANAGEMENT SYSTEM which is proposed here is to implement a smarter way of conventional waste management using smart sensors to gather fill-level data, presence of garbage around the dustbin and stinking condition from containers and garbage bins, and send it to servers in real time. An authorized phone number which are present in Waste Management Centres gather fill-level and other information sent from multiple containers which are situated throughout a city/locality. The data acquired as above, can be used to systematically plan route-map to collect garbage. The information from bins to the authorized number is sent using communicating modules (GSM/GPRS module). The entire operation is controlled using Atmega328P 8-bit microcontroller. This report showcases a potential design for an IoT gateway that can be used to provide a framework for a smart waste management system.

TOPIC : iEcoSys – An Intelligent Waste Management System

Author: Pedro Reis, Filipe Caetano, Rui Pitarma, and Celestino Gonçalves

Published in : Springer International Switzerland 2015 .

. At present, only a few small cities have implemented procedures for collecting rubbish in an innovative way. Thus, it is urgent to implement measures that initiate sustainable behavior, with the active participation of citizens, ensuring the conservation of resources through the reduction and recovery of waste. This paper describes the system iEcoSys (Intelligent Ecologic System), an intelligent waste management system, developed by the authors. It is a technological tool that identifies the waste produced individually, using RFID tags embedded in rubbish bags – the iBags. When depositing waste, the recycling center identifies and weighs each bag and the collected data is sent to a server system using ZigBee communication standard. When the information reaches the server system, it is inserted into the database management system, making it possible to know the deposited waste in the iEcoSys internet portal, and even order new iBags. Making the cities smarter and promote sustainability by changing the

paradigm of receiving for the recycled rubbish instead of paying for the waste produced, is the contribution of this study.