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A Review Paper on IOT Based Garbage and Waste Collection Bin Overflow Indicator

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ABSTRACT
In Metropolitan cities, we saw that the garbgebins puton at open spots are put here and there It makes unlivable condition that is very hard to live specially for a country like india wher e houses and open pit area are so conjusted. To Overcome this issue we Proposed a Project idea on IoT Based Garbage and waste bin overflow indicator. India is a largely Populated Country. the overflow garbage bins create an insanitary situation. This will in addition expedite the emerging of several kind of waste. This will destroy the way of life. To overcome these Problem s a productive and a Practical approach need to come . As the Boom of IoT is creating step by step victorious methods which is remarkable . Differen plans would proposed and had put some serious drawbacks. This review paper is on Garbage and wastecollection bin obverflow indicator.
Keywords: *Internet of Things, Microcontroller, GUI,GSM,LCD,WIFI Module*

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I. INTRODUCTION

The garbage collection issue On As in the fast development of cities around us , we also face the problem of overloaded garbage that is spread all around us .Garbage Management becomes a global problem nowadays. Due to theLack of attention by theauthoritiesthewastebins are completelyfilled.so we have to take responsibility and take fine steps to overcome this problem and as country is being digitalized and clean cities shows how developed a country is, so to overcome this problem . IoTand Cloud Computing is a good step as it increasing day byday. [1].

IoT is technique which is used to control the machines remotely.It is based on artificial intelligence so it reduces the human effort and help to reduce the human task the problem of garbage management is increasing day by day because there is a rapid population growth, disorganizationof the citygovernment,andalackofpublicawareness. At present time we can see that the Dustbins are overflowing and it creates a bad impression in terms of hygiene .It also generate bad odour in the environment which give birth of some deadlydiseases and illness[2]

so to get rid of this situation we have planned to design an "IoT based garbage and waste collection Bins overflow indicators".Inoursystemweareusingmicrocontrollerwhich is interfacedwiththeultrasonic sensors and centralsystem. To check the level of dustbin we use ultrasonic sensors to avoid overflow condition The dustbins placed by the municipalcorporationleads to the number ofhealth,environmental and socialissues. The variouscausesmay be likeimproperdustbin placement , improper management of municipalities and people carelessness toward cleanliness

These major causes are leading to the serious problems like unhygienicconditions,airpollution,andunhealthyenvironment that is creating health diseases.Till now, researchhasbeencarriedoutbydevelopingSoftwareApplicationforindicatingdustbinstatus,and anotherbyShortest path method(SPM) for garbage collecting vehiclebyintegrating RFIDs, GSMs and GISsystems; but apart from this there is no such other atomic ways suggested to reduce the overloading garbage. After considering all the majorfactors,asmartandsolidwastemanagementsystemisdesigned that will check the status of the dustbin and generate a message and call the admin centre and significantly the system has designed to consider a point in mind that we have to literate the people how to use the dustbin properlyandtoautomatically sense and clean garbage that is present outside

This idea offer a indicator system ingarbage clear by maintaining the garbage, generate an indicated signal to the admin web servers for take a quick response to clean the dustbin. It is done by using ultrasonic sensors and

IR sensors using Arduino to check whether the dustbin is full or not if it is full it generate a text message and send it to municipal corporation or admin centre,When the garbage is pick up worker confirm the task of emptying the garbagewith the aid of RFIDTag.RFID tags are a type of tracking system that uses radio frequency to search,identify,track and communicate with items and people The RFID can easily track and provide real time data about inventory and location.The whole project is up held by embedded module integrated with IOT and RFTD.

waste management requires facing a number of challenging issues for example spration of organic waste and inorganic waste and before handling this situation we have to sort out the problem of overflow that makes waste impossible to recycle.The present solution only focuses garbage tracking only but our solution not only track the sytem but also indicate the overflow condition and our algos are implemented within the integrated framework which provide a flexible and open source solution[3]

II. LITERATURE REVIEW

The municipalities in developed areas might be successfully and efficiently utilized..But it could not be taken as a meaningfull one. Therefore, a outline was done between many proportion and this reviewpaper ensure study between different strategies for our prescribed System dependent and work on IoT.In this Paper many techniques were introduced and use various sensors.

The paper [9] present waste collection system dependson wasted diminshed data from muncipalities and rural as well as urban areas. The information gathered by sensor is sentover the the server where it is handeled by admins. The compiled form of data is being monitored by admins and further steps were taken accordingly and mange garbage overflow problems Consistently, the professionals got the currently intent on courses in their main instrument. The basic unit of this module ie indeed to gain as a sitution of fact and figures to resolve choice of ground level one major problem is also that collector vans are not come on time so to fascillate them a gps API should also introduced.

Another technique [8], is as follows dustbins and waste bins are located at different place . These dustbins use this work as a instrument which helps in finds the solution of the problem of thegarbage bins for such a big metropolitan city where garbage management is achaalanging issue and very difficult to track the garbage bin is empty or full. The agreement module is outlying in two sections Transmitter area and receiving area. In the transmitter part we are using 8251 microcontrollers, RFT Transmiters and sensors these are mounted to the bin. Wheresensor is used to find the space in the waste container even if the dustbin is fullor empty.

Another way for management Proposed by the executivested is presented [4] paper . A dusbin is intacted with microcontroler based frame havingIR sensor frameworks along with focal frame to demonstrated current scenario of bin, through a Web Page using HTML Wi-Fi. Apparently the status will be updated on to the HTML page.

In paper [6] serve the cleaning p a r t of dustbins as soon as Possible while the garbage level in overflow condition . In the admin Page, IOT is used to track RFID information , follows the collectionvehicle, wastebin observed and other developed encounted advancements.

In [7] creatrs a dynamic system work on strategies undergrounded dustbins. Determine the level of toxics discharge like carbon dioxiode,carbon monoxide,methane diminishes the level of toxic discharged in the ground from truck by makin dynamicly steeringly gradullly sustainable and efficient.

III. PREVIOUS WORK DONE IN THIS PROJECT

2017 PR Naregalkar,Krishna Kishore from International Journal of Advance Research in Electrical and instrumentation Engineering. Developed a "IOT BASED SMART GARBAGE MONITORING in which they used 89S52 microcontroller,ultrasonicsensor,wifi module,B4a software,power supply this system is used to track whether the garbage bin is full or not also the develop a mechanismin which they also get data of wet waste and dry waste that helps to workers to bifergate them easily.

2018 NamanSharma,Nikhil Mishra and Purvi Gupta from Int. journal of Advance Research,ideas and innovationused GSM module and uses sim that send text message to municipal corporation when dustbin is full and also use Gps system that tells the current location

2018 Professor JR Mishra from Bosco Institute of technology Bsngloredevelopeda "Smart garbage monitoring system" use GPS uses ultrasonic sensors to check level of waste IR sensor is utilized to follow and power to DC engine to open dustbin information is travel through http utilizing GSM SKM 808 and also connect a LCD Pannel

2019 DR Ithiram Raza Khan,MehtabAlam,AnujRazdn from School of Engineering and Science JamiaHamdard,New Delhi Indiaproposed a system in which they also used wifi module ,GSM,Aurdino but also add a buzzer if the buzzer is start anybody nearby can press a button that is assamble on it and a sms sent to Muncipal Corporation and admin

2020 S.Raviteja,Suyash Agarwal and P Srinivas Assistant Professor St. Martins Engineering College Hyderabad they proposed a implementation using ESP8266 and using latest versions of firmware,They connect microcontroller,sensors,buzzer on a bread board using jumperwires ,IR sensors is used to track the nearby person and if someone finf lid is open within thehelp of DC motor,As this system reduce the man effort save time reduce man labour and a cheap and robust system and easy to under stand by the person who is incharge of system

2020 Sakshi Thakur from LPU Phagwara,PunjabIndiadeveloped a system that work on Big Data and cloud computing they propose a system that use AI based techniques that help to bifergate the biodegradable waste and non biodegradable waste and what waste is wet or dry and also tackle the problem of system crash by making a good Database using cloud

2020 8th international conference onInfocom technologies and optimization(ICRITO) By S Pandagave a good idea of proposed system that use Cloud computing and Image Processing techniques they not only propsed all these thing that proposed earlirer but also work on to get rid on harmfull gases generated in dustbin due to mixing of organic waste and inorganic waste together they work on a system that uses ultrasonic sensors gas sensor and a buzz alarm.The Proposed work act as a supervision system to check overflow conditions to detect harmfull gases also

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2021 5th International conference on computing methodologies and comm.(ICCMC)BY Prakash Kanade,JPPrasad,Prajna Alvapresented a IOT based trash checking system using aurdino,wifimodule,IR Sensor in which data is retrieve byultrasonic sensor and data is sent using wifi through an application where data is checked by admin or municipality and according to data they manage waste disposal collectionetc.

2020 Indonesian Journal of electrical engineering and computer science ThangavelBhuvneshwari,JHossen,AmirHamzah,PVelerajkumar and OO Hong Jackfaculty of CMR Institute of Enginerring and tech India

They used a system of ESP8266 wifi module ,Aurdino ,LCD screen and a microcontroller based on ATMega2560. A Prototype has been developed using ultasonicsensortodetect the level and weight of garbage collector bin. Thing speak is used to track garbage activity online.They use social networking side to track the garbage level record periodically,When the garbage collection bin overflow message would be received through twitter and administrator easily spot the position and empty the bin

IV. PROPOSED METHODOLOGY

In the work we using Microcontroller ATSAM3X8EBoard,oneGSMmodule,GSMbyGPRSModem Internet is enabld using sim card to access the sim internet we are using GPS and Internet of things webpage with the help ogfgoogle map and code is written in PHP and for data storation we use MYSQL Database.After the dustbin is overfill it will send a message to person of municipality to empty the garbage container

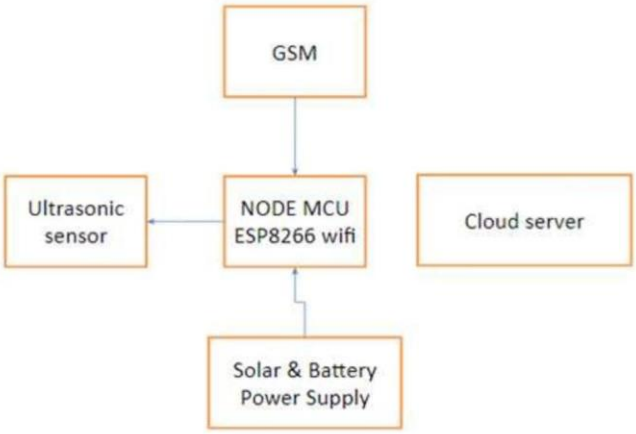

Figure 1. System Architecture

Google map is used to get the update of location whether the dustbin is full or not. Figure 1 and 2 shows the block diagramwhichconsistofMicrocontrollerATSAM3X8EBoard,GSM, CDMA and GPS module, ultrasonic sensor and oneLCDdisplay.Whatevertheprocessisgoingonwilldisplayed on the LCD We connect the ultrasonic sensor on the garbagebox also LED's also attached on it Power is given to GSMModule,inthatboard one networkLED is there Blinkin LED gives a indication that we havtoinsertSIM.GSMmoduleconsistofbridgerectifier,filtercapacitor,LM317adjustablevoltageRegulatorsoitisgetti ngthe4.5voutput.WhereasGPSmoduleconsistof Rectifier ,Capacitor voltage stablizer ,Power supply,LED and LCD

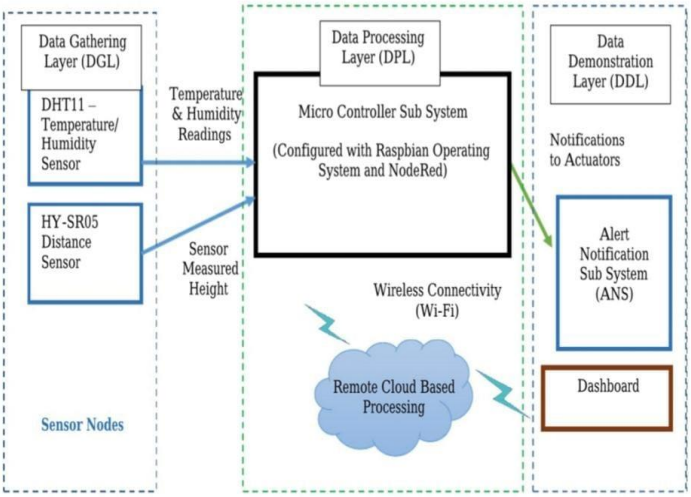

Figure 2. System Overview of model

In Figure 2 sensors are used to check the geometrical veiw of container . Dynamic status of dustbin is show wirelessly on cloud and received by Alert otification system(ANS), pages will used to help the waste collection authority or municipality for the correct detection of area and discharge of the waste. The Vans would thenhave the poer to emotythe garbage and to use it again

V. CONCLUSION

The waste management system uses the Iot technology and it is very helpful for making our cities clean Whenever the dustbin has been filled then the system send an alert indicator to the municipal authorities so that they can be aware about it . This system collect the accurate data on timely basis that can be used further be transferred to management on time to time. It is appreciable to execute our plans and idea of run's central govt. mission of 'SWACH BHARAT MISSION' to enforce it and make up the cleanliness Project

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