DRY AND WET WASTE MONITORING USING IOT

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Abstract : A Smart city is considered smart due to its to its inherent intelligence in dealing with its resources and environment. It makes effective use of available "Information and Communication technologies", especially the "Internet of things (IOT)". Internet of Things inputs the required intelligence into basic building blocks of the city and helps make it smart. In this paper dry and wet waste management system is implemented using IOT with different microcontrollers is implemented for making the city smart.

IndexTerms - **IOT, WIFI.**

I. INTRODUCTION

Waste management is very much helpful these days and is the most important concept for building the smart cities. Smart cities possess massive potential in completely turning around the operational efficiency of the city. IOT is the technical foundation for the building up the smart cities. Waste management became the global problem due to rapid increase of population and also due to lack of awareness in the public.

In present days internet and its applications became the integral part of human life and in the field of IOT, the Objects communicate and exchange information to provide advanced intelligent services for users.IOT is an advanced automation and analytics system which exploits networking, sensing big data and artificial intelligence technology to deliver complete systems for a product or service. When applied to any industry or the system these systems allows greater transparency, control and performance.

II INTERNET OF THINGS

The internet of things (IOT) can be defined as a network of physical objects or people called "things" that are embedded with software, electronics, network, and sensors which allows these objects to collect and exchange data.

Working of IOT

The entire IOT process starts with the devices themselves like smartphones, smartwatches, electronic appliances like TV, Washing Machine which helps you to communicate with the IOT platform. The below figure shows the general working of IOT

Fig 1: General Working of IOT

III FUNDAMENTAL COMPONENTS OF IOT

The basic fundamental components that are involved in the process of IOT are as follows

Sensors/devices: the key components that help to collect live data from the surrounding environments are sensors and devices. The complexity of this data has various levels and some of the sensors like temperature monitoring, which have various levels according to the variations in temperature levels in the environment.

Connectivity: By using various means of communication mediums like mobile or satellite network, blue tooth, WIFI, WAN all the sensors to be connected. The data that is collected is sent to a cloud infrastructure.

Data processing: The software performs processing on the gathered data , once the data is uploaded in to the cloud. This process may include checking the reading on devices like AC or identifying objects using computer vision or video..

User Interface: The information needs to be available to the end-user in some way which can be achieved by triggering alarms on their phones or sending them notification through email or text message. The user sometimes might need an interface which actively checks their IOT system. For example, the user has a camera installed in his home. He wants to access video recording and all the feeds with the help of a web server.
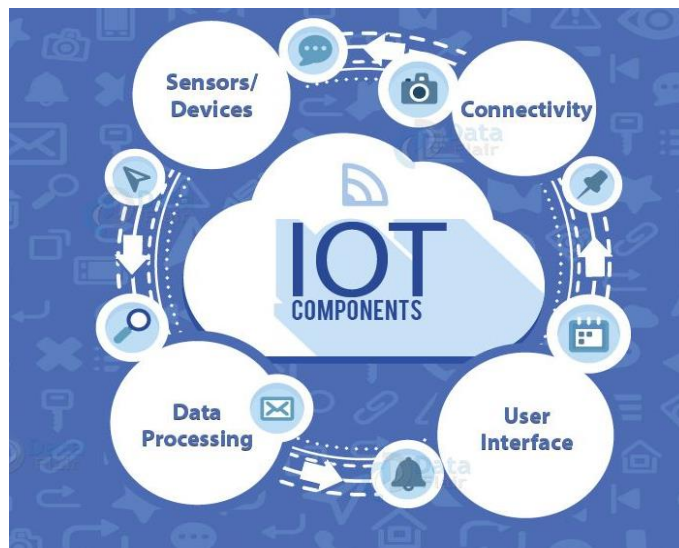

Fig 2: Fundamental Components of IOT

IV LITERATURE SURVEY

The paper [1] Smart Garbage Management in Smart Cities using IoT proposed a method as follows. The level of garbage in the dustbins is detected with the help of ultrasonic sensors system, and communicated to the authorized control room through GSM system. Arduino microcontroller is used to interface the sensor system with GSM system.

Another method for garbage management is introduced [2] as follows. A dustbin is interfaced with microcontroller based system having IR wireless systems along with central system showing current status of garbage, on mobile web browser with html page by Wi-Fi. Hence the status will be updated on to the html page. There by to reduce human resources and efforts along with the enhancement of a smart city vision

Garbage monitoring and alert system using IoT pranitaaher, sampada kokane, sandhya korade [3] describes the IOT based system in which number of dust bins situated troughout the city so in order to that it will take less time and efforts to clean the dustbins as control system is going to send the messages through GSM and updates of dustbins whether its full or not onto webpage pervasively. To design the system they are had used PIC microcontroller and Arduino Ethernet Shield. Ubiquitously data could be captured from anywhere and anytime so utilization of resources happened. Whatever the sensors provided it will detect garbage level in percentage and status can be displayed or uploaded on web accordingly action can be taken by particular co-ordinator

V PROPOSED METHOD

In the present scenario government has implemented these dry and wet dustbins in the cities and in rural areas. And it is not possible all the time that the municipal authorities monitor whether the dustbin is filled or not. So to manage this, the dustbins are attached with sensors so that it can able to identify the status of the dustbin automatically.

Ultrasonic sensor detect the garbage levels in dustbin and update to web server page automatically, if dustbin full the data automatically gives alert message to the municipality department through internet communication. IOT module interfaced to the controller through which the data is available in the internet. The level of garbage in the dustbins is detected from ultrasonic sensor and the ultrasonic sensor provide the real time results with using ESP8266 Wifi Module send it to the web application.

Fig: Ultrasonic Sensor

Humidity sensor is used to find the moisture levels of the dustbin and once the dustbin is filled with the garbage according to the level of the garbage in the dustbin different leds that are connected will glow and the same data is processed through cloud.
The data can be monitored from anywhere and can be accessed anytime. The overall block diagram is shown in below figure.
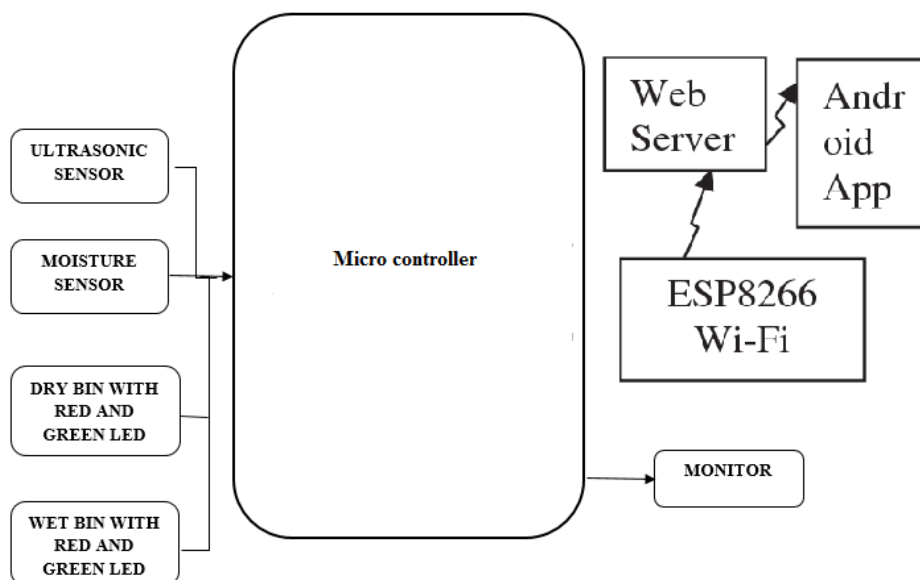

Fig: Block Diagram of Proposed Architecture

WI-FI Modem

This module has a powerful enough onboard processing and storage capability that allows it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development upfront and minimal loading during runtime. Its high degree of on-chip integration allows for minimal external circuitry, including the front-end module, is designed to occupy minimal PCB area. The ESP8266 supports APSD for VoIP applications and Bluetooth co-existence interfaces, it contains a self-calibrated RF allowing it to work under all operating conditions, and requires no external RF parts.

CONCLUSION

The developed system provides garbage monitoring for dry and wet bins. The collected data is uploaded through cloud and the status is informed to the municipal authority when the dustbins get filled. For better society and environment this can be implemented in cities, offices, apartments and hospital areas for smart garbage system for smart cities.

REFERENCES

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