IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Iot Based Smart City Monitoring System

Abdul Azeem[1],N Hima vardhini[2],B.S.N.S.Jahnavi[3],K.Supriya[4]

[1]Professor, [2,3,4,5] UG Students

Department of ECE, Andhra Loyola Institute of Engineering and Technology , Vijayawada

Abstract: **A Smart city is the future goal to have clearner and better amenities for the safety and security purpose of society. Here network-level performance analysis and implementation of the smart city using Internet of Things. The world is about to witness revolution in the communication and technology after internet in the form of IoT. They will be used to create smart environment for people globally. IoT has become one of those things that has slowly made its way into almost all aspects of all sectors and made more suited for the changing world. Almost anything can be made better with the wonders of IoT and many of times at relatively lower prices. The use of IoT products will be the great advantage to boost the mission of setting up the smart cites in the India. The paper focuses on the aspects of applying IoT Products of various smart solutions to set up the smart cities in the India. Some of the domines have been discussed in the paper. Also, the projected solutions that can be implemented is showcased. The key to set up the smart cities successfully is depend upon how the technology has been integrated to solve the complex problems being faced by the society at large.**

Our project's primary goal is to provide a solution to the problem in a smart way using Internet of Things. In smart city there are lot of parameters that are very challenged to solve, Here the considered parameters are Air quality, weather monitoring, waste management, parking slots. This paper mainly helps the people with smart solutions.

Keywords: **Esp32s microcontroller, IoT Technology, servo motors, Blynk platform, Wi-Fi mode user.**

I. INTRODUCTION

A smart city is a technologically modern urban area that uses different types of electronic methods and sensors to collect specific data. Information gained from that data is used to manage assets, resources and services efficiently, in return, that data is used to improve operations across the city. This smart environment is created by connecting devices to the internet and making them interact. The intended smart city IoT system can monitor the principle parameters and provides the solution to cope up with urban challenges and to improve the quality of life of citizens.

II. LITERATURE SURVEY

Although there are many research works on smart city monitoring system, here in this chapter we have critically analyzed and summarized several research works and projects, which are more recent and relevant and similar to project. This literature survey will logically explain the system.

1. Application of IoT products in smart cities of India

This paper focuses on the aspects of applying IoT products for various smart solutions for setting up smart cities in india. Some of the domains have been discussed in the paper. Also, the projected solutions that can be implemented have been showcased. The key to set up smart city successfully depends upon how the technology has been integrated to solve the complex problems being faced by the society at large.

2. A smart IoT platform for Air Quality Monitoring

In this paper it mainly concentrates on the Air quality monitoring. The AirQ platform is a smart and cost effective solution for air quality monitoring. The AirQ device is portable, low-cost and provides real-time and location-specific air quality data. It supports wireless data communication technologies including WIFI,4G,Bluetooth, LoRa, etc. Here they have developed an ontology based backend to support data management and the implementation of smart data analytics algorithms.

3. Reasearch on the Application of Face Recognition Technology in public service of smart city

This paper proposes a novel application method of face recognition technology. This method is based on a variety of information science and technology, big data technology and so on, Which improves the accuracy of traditional face recognition technology. The research results show that this method can not only effectively give full play to the application of face recognition technology in all aspects of smart city public service, but also improve the modernization and intelligence of smart city public service.

4. IoT and Mobility in Smart Cities

This article refers to the smart sensors technologies in IoT mobility and their implementations. The challenges encountered in citizens privacy and protection of their personal data as well as the possibility of IoT use for the prevention of pedestrians accidents. The installation of smart sensors and cameras provide specialists with a p[lentiful of data. The results of their usage can be studied and bring conclusions regarding a more appropriate architecture of public transport networks , control of traffic violations and vehicle tracking through platforms that could observe traffic using the consolidation of information selected by smart sensors.

5. Monitoring of Electric Buses within an Urban Smart City Environment

A practical experience on monitoring the data generated by electric buses is presented, focusing on energy consumption, charge and state of the batteries. The work is carried out in the framework of a global smart city strategy developed by the H2020 smart city Lighthouse STARDUST project. The crucial role of the data collections and transmission from electric buses has become evident in this work, so the adopted solutions are covered in detail. various key factors for the practical implementation of the necessary communication infrastructure together with the monitoring system architecture are also discussed.

6. Research on the Application of Electronic Technology of Internet of Things in Smart City

In order to realize the ap[cityplication of the electronic technology of the Internet of things in the smart city, this paper puts forward a novel application method of the electronic technology of the Internet of things, Which integrates a variety of advanced science and technology, wireless radio frequency technology and cloud computing technology, and can accurately analyze the construction process of smart city. The research results show that this method can fundamentally realize the application of the electronic technology of the Internet of Things in the smart city, give full play to the advantages of the electronic technology of the Internet of things, and promote the construction process of the smart city.

II. PROBLEM STATEMENT

In a city when we explore the things we can observe many parameters that have some problems. Those are eradicated with the help of Internet of things which monitors the data continuously and uploads the data at user friendly. For the considered parameters there are certain solutions with the help of Internet of things. The pollution is very high that it should be monitored and when it comes to waste management the level of the bin is filled every time it creates health issues to people and animals near by. Due to heavy traffic there is a parking problems. These few issues are overcome with the help of advanced technology into its complex infrastructure.

III. MOTIVATION

When we discuss Internet of Things, we refer to smart devices that are connected to one other or the internet usually collecting and sending data over the internet. The main goal of a smart city is to optimize city functions and promote economic growth while also improving the quality of life for citizens by using smart technologies and data analysis. The value lies in how these technology is used rather than simply how much technology is available. The creation of this smart environment is when the devices that are connected to the internet interact with other connected devices. This smart environment is created by connecting devices to the internet and making them interact. The rapid growth of urban populations has given rise to concerns about the effective management of the city. Notable concerns arising from rapid urbanization include: waste management, human health concerns, traffic congestion, inappropriate infrastructure and similar public safety issues. The survey estimates that half of the world's population lives in cities, and to avoid a resultant crisis, new ways of managing and operating the city are necessary. This has given rise to discussions of the smart city, especially as this trend is expected to continue for years.

We embed sophisticated sensors and chips in devices to make them smarter, these devices in turn start transmitting data out of which we extract the data that may be valuable in knowing how these things or devices work together. Simply stating the what we talked about till now, the data that is collected from the sensors is sent to the cloud. So, the cloud we talk about here is a huge, interconnected network of powerful servers that performs services for businesses and for people Almost anything can be made better with the wonders of IoT and many a times at relatively lower prices.

IV. SYSTEM ARCHITECTURE

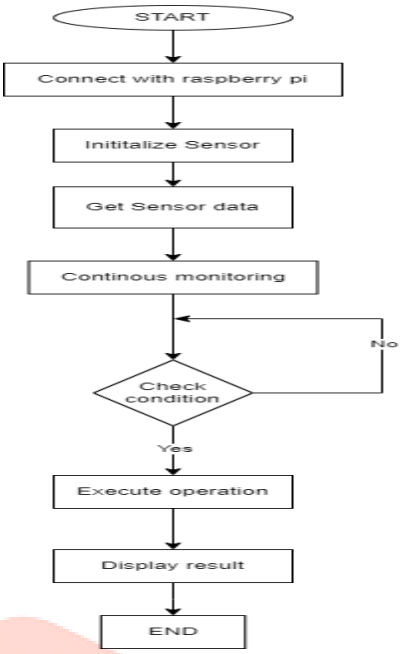

FIG 1: ARCHITECTURE

V. BLOCK DIAGRAM

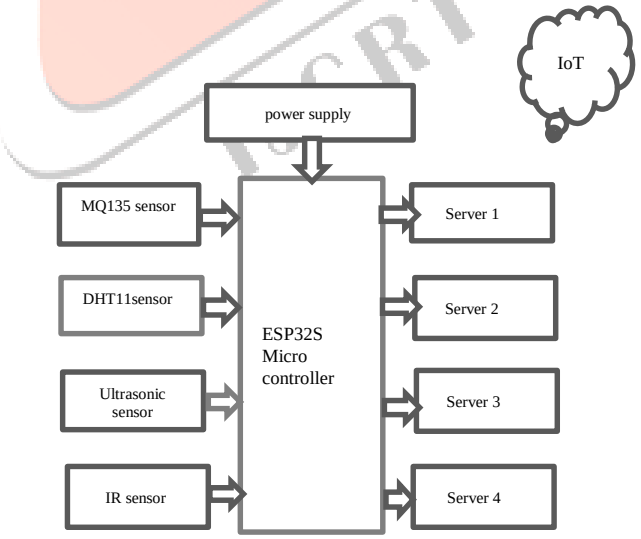

FIG 2: BLOCK DIAGRAM

VI. ALGORITHM

1. Start
2. INITIALLY, the system is powered with the proper amount of power supply.
3. Here the buck converter is used to supply the equal amount of power among the all sensors.
4. When we place the system in the public polluted content then we can monitor the harmful content present in the air at IoT platform.
5. Like wise we can monitor the weather conditions on blynk platform.
6. when it comes to waste management, when the bin level is full then it notifies to the municipal authorities to registered account.
7. The parking slots are observed to park the vehicle and when it times of payment the gates are opened according to their payment actions.
8. The gates are opened only if the payment is made properly with correct amount. Here servo motors are taken as gates.
9. Once the system is on, it continuously checks all the sensors by the help of microcontroller (Esp32s) in order to perform all the monitoring, detection and report .

Hardware system

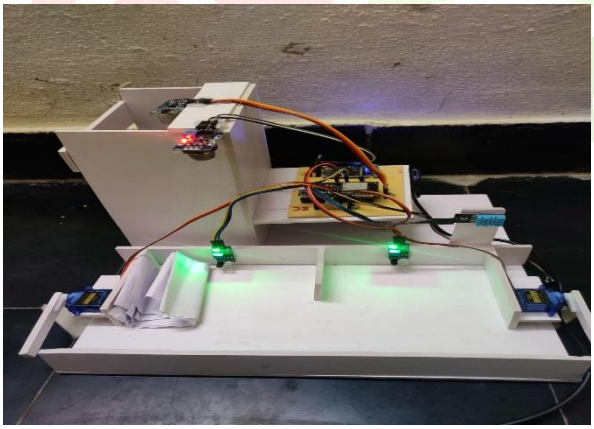

FIG.3:-HARDWARE KITS

VII. CONCLUSION

The primary goal of our project is to monitor and detect the problem causing and to overcome malpractices with help of the sensors and advanced IoT technology. In addition to using different sensors and methodologies there is a chance to solve the problems in a smarter way. There is also a huge chance to extend this type of projects to further higher levels.

VIII.REFERENCES

1. Mohammad N, Muhammad S, Bashar A, Khan MA (2019) Formal analysis of human assisted smart city emergency services. IEEE Access

2. Zhao L, Sun W, Shi Y, Liu J (2018) Optimal placement of cloudlets for accessdelay minimization in SDN-based internet of things networks. IEEE Internet Things J 5(2):1334– 1344

3. Li W, Song H, Zeng F (2017) Policy-based secure and trustworthy sensing for internet of things in smart cities. IEEE Internet Things J 5(2):716–723

4. Ullah R, Faheem Y, Kim BS (2017) Energy and congestion aware routing metricfor smart grid AMI networks in smart city. IEEE Access 5:13799–13810

5. Deebak BD, Al-Turjman F, Aloqaily M, Alfandi O (2019) An authentic-based privacy preservation protocol for smart e-healthcare systems in IoT. IEEE Access 7:135632–135649

6. Tahir Y, Yang S, McCann J (2017) BRPL: backpressure rpl for high-throughputand mobile IoTs. IEEE Trans Mob Comput 17(1):29–43

7. Benayache A, Bilami A, Barkat S, Lorenz P, Taleb H (2019) MsM: A microservice middleware for smart WSN-based IoT application. J NetWComputAppl 144:138– 154

8. Farooq MS, Riaz S, Abid A, Abid K, Naeem MA (2019) A survey on the role ofIoT in agriculture for the implementation of smart farming. IEEE Access 7:156237– 156271

9. Ray PP, Thapa N, Dash D (2019) Implementation and performance analysis of interoperable and heterogeneous IoT-edge gateway for pervasive wellness care. IEEE Trans Consumer Electron 65(4)

10. Rajpoot SC, Pandey C, Rajpoot PS et al (2021) A dynamic SUGPDS model forfaults detection and isolation of underground power cable based on detection and isolation algorithm and smart sensors. J Electr Eng Technol 16:1799–1819