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IMPLEMENTATION OF SENSING AND DETECTING THE POLLUTION RATE IN CLOUD SERVICE PLATFORM USING IOT

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ABSTRACT:

In cloud computing environment, air and sound pollution are causing more issues on the client platforms. The growing air and sound pollution is one of the serious issues in service access platforms. The pollution increasing in many areas which is mainly caused by transport, civil works in the industry. According to WHO (World Health Organization) noise pollution is the second cause of illness for environmental reasons. Air pollution is in the top position in that category. Though lot of problems happening with these pollutions many users are unaware of the effect and consequences of the pollution. Without having the knowledge about the pollution, people making more pollution and suffering with the pollution unknowingly. It has become necessity to detect and monitor the pollution for healthy living and better future. To overcome with these issues, proposed work implements an IoT based system, where it detects the harmful gases and noise present in the cloud environment. The system can detect the harmful gases and noise in the particular area to free form the client's level service access in a harmless manner. Based on the IoT sensors and its control components pollution rate has been reduced among the cloud datacentres.

Keywords: Cloud service provider, Data center, Pollution rate, IoT sensors, Actuators, Cloud client, Cloud service utility finder

I. INTRODUCTION

In this era of modernization, technologies are advancing rapidly. Every day clients realize some new technology coming in market to simplify our lives more than ever. Back in time checking the pollution in a particular area was a very difficult task which was not very

efficient also. With the increasing pollution and advancing technology various new methods were introduced to keep an eye on the rapid increase in pollution more efficiently. Internet of things is one of the latest works that has been done in this path. The increment in use of internet and the interaction of human with machine gave rise to IOT. It allows exchange of information among various devices like fridge, washing machine, automobiles, watches etc. This exchange of information takes place with the help numerous sensors. The account for the success of IOT is its efficiency and makes it a feasible technology at low cost. Air and sound pollution are two main constituents that have the most adverse effect on humans as well as the entire earth. Therefore it is very important to check and control it. Traditional methods involve manual work in detecting the pollution without use of sensors which will be too difficult to get the real time data of the pollution.

II. LITERATURE SURVEY

Sadman Shahriar Alam ; Akib Jayed Islam et.al, " Design and Development of a Low-Cost IoT based Environmental pollution Monitoring System". This paper implemented the framework of designing the low cost service model for monitoring the pollution system in IoT environment. It emphasizes the operational implementations on finding the service level functions in the client specific environments. [1]

Md. Shaedul Islam, "An Intelligent System on Environment Quality Remote Monitoring and Cloud Data Logging Using Internet of Things (IoT)". This paper deals with the process of environment quality remote monitoring and data logging in cloud using IoT principles. It specified the process of implementing the QoS verification on the client access platforms to enable the remote monitoring system on the resource access method. [2]

Baihaqi Siregar ; Ahmad Badril Azmi Nasution et.al, "Integrated pollution monitoring system for smart city". This paper demonstrated the application based findings in the smart cities by getting the knowledge on how integration has taken place to monitor the pollution level for optimizing the control segment across the service regions. [3]

III. PROPOSED WORK

The proposed work will facilitates all the functional components which are required to perform the client level data access without causing the pollution in global service access

nature. In this system the Raspberry pi3 will act as a working platform. Pi3 module includes 802.11and wifi, Bluetooth 4.0, and a quad core 64-bit ARM contrext A53 running at 1.2 GHz. pi3 is having 4 USB ports and it has the memory upto 1GB.it has 400MHz videocore IV GPU. It will be having 40 GPIO pins. The sensors will be connected to the Raspberry pi3 module at the GPIO pins. These sensors will get the pollution caused gases and noise reading by sensing it from the atmosphere and transfer it to the pi3 module.

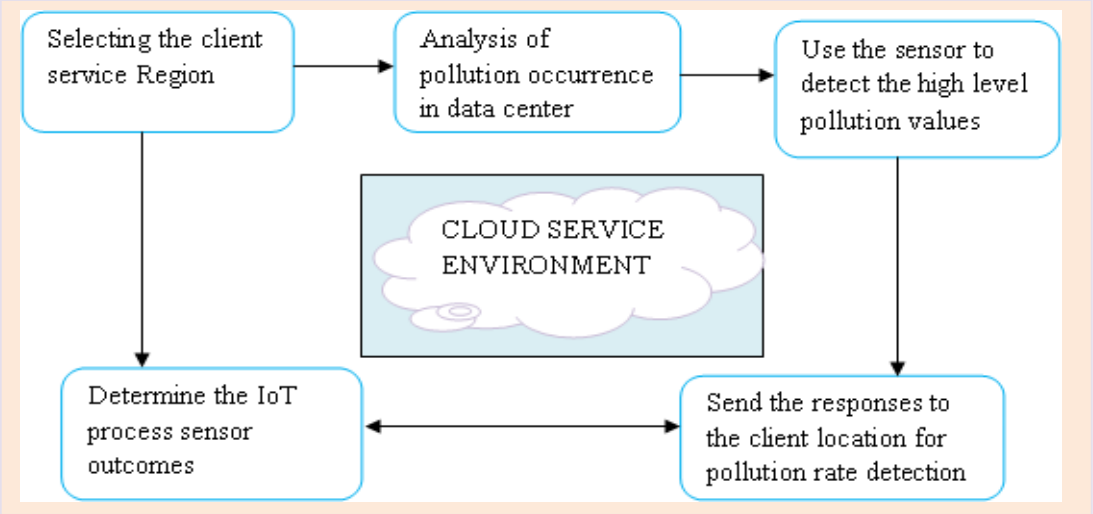

Fig: 1 Illustrating Proposed System Architecture

An above figure 1 depicts the process the functional elements of finding the sensors adoption for the various cloud services to implement the type of sensors process. Distinct set of sensors may apply to find the pollution rate on the client platforms.

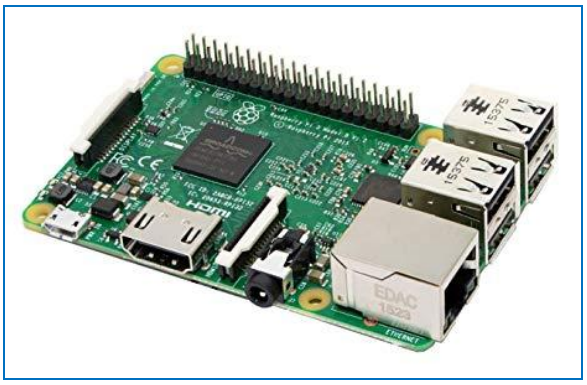

Fig: 2 RASPBERRY PI3 Processor for Detecting and Controlling Pollution

This module will make the data processing by analyzing the pollution level in the atmosphere and it compares with the normal level. If the reading obtained by the module from the sensors is more than the normal readings then immediately it will give a notification to the user. So

that user will have a clear idea about the pollution. Since the raspberry pi is the working platform and it has the inbuilt wi-fi the data transmission is high as compared to other technologies like zig-bee and Bluetooth.

The following sensors were used in the process of pollution detecting mechanism which is listed below:

- Shinyei PPD42 Particulate Matter Detector.
- MQ-2 Gas Sensor.
- MQ-9 Gas Sensor.
- MiCS-2714 Gas Sensor (NO2)
- MiSC-2614 Gas Sensor (Ozone)
- Keyes DHT11 Temperature and Humidity Sensor.

All the above processes migrates the operational implementation to effectively identify the generic pollution process integration in the cloud client access platforms and to specify the process segments and control segments on the service level information.

IV. IMPLEMENTATION WORK

The air and sound pollution monitoring system works with raspberry pi3 microprocessor and microcontroller with version 3. Raspberry pi3 will act as a heart of the system by which we can get the data processing and data transmission with the help of in built wifi. The sensors which are connected to the pi3 module will sense the details of the pollutants from the atmosphere and will give to the module. The pi3 module will make the data processing and analysis of pollution level. Based on the pollution levels of the atmosphere pi3 module will give the updates of the pollution. By this people will be having an idea about the pollution and they can be conscious of their health.

Type of Sensors	IoT sensor Performance status	Predicted rate of pollution level (%10)
MQ-2 Gas Sensor	Optimized	8.92
MiSC-2614 Gas Sensor	Iterated	9.045
Shinyei PPD42 Particulate Matter Detector	Determined	9.63
MQ-9 Gas Sensor	Optimized	8.97
M-1 Prediction sensor	Optimized	9.18

Table: 1 Predicted Outcomes of Pollution Rate with IoT Sensor

An above table signifies the process of functional objective values of optimizing the user's data by comparing with the pollution rate. In this process, errors of input ranges, accuracy and pollution signal ratio has been determined in the dataset contents and map the values with the existing datasets.

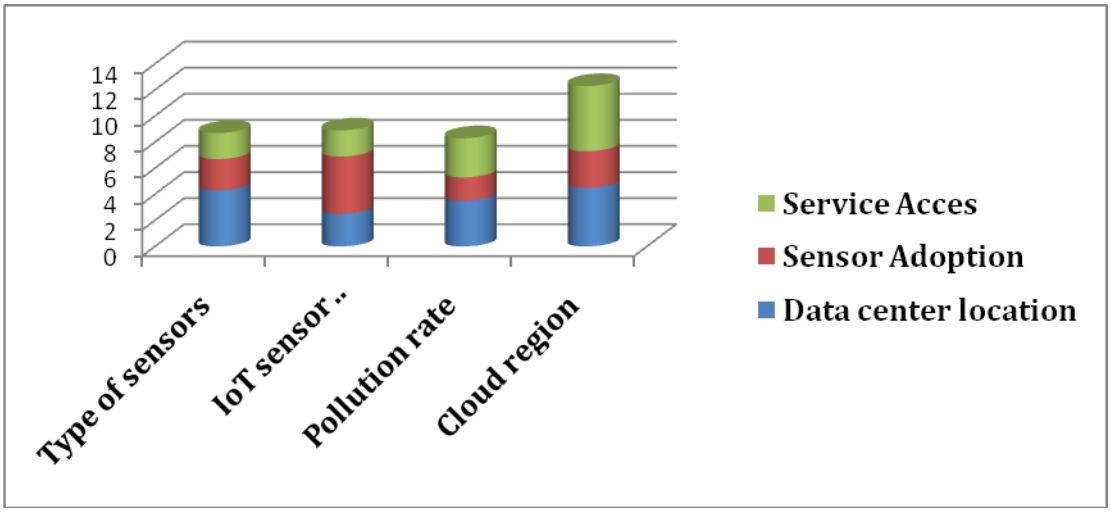

Fig: 3 Graph View of Pollution detection Process

The generic processes are evaluated under the strong set of data center region to optimize the navigation key sensor for the pollution for air and sound rate. Implementation process to examine the implication parameters of service outcome to establish the access constraints in the sensors based navigation control.

V. CONCLUSION

In cloud platforms, using the services from the provider location provides more security part in service regions. The client can easily optimize the process values in the service oriented platforms to iterate the process of sensors based pollution finding mechanism. It helps to the users to make use of the services from pollution free environment.

REFERENCES

[1] Sadman Shahriar Alam ; Akib Jayed Islam et.al, " Design and Development of a Low-Cost IoT based Environmental Pollution Monitoring System", 4th International Conference

on Electrical Engineering and Information & Communication Technology (iCEEiCT), Year: 2018, Pages: 652 – 656

[2] Md. Shaedul Islam, "An Intelligent System on Environment Quality Remote Monitoring and Cloud Data Logging Using Internet of Things (IoT)",2018 International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2), Year: 2018, Pages: 1 – 4

[3] Baihaqi Siregar ; Ahmad Badril Azmi Nasution ; Fahmi Fahmi,"Integrated monitoring system for smart city", International Conference on ICT For Smart Society (ICISS), Year: 2016,Pages: 49 - 52

[4] Li Guan ; Hung-Lung Huang,"Objective Determination of AIRS Cloud Mask using Co-Located MODIS Cloud Mask Information",2008 2nd International Conference on Bioinformatics and Biomedical Engineering, Year: 2008,Pages: 3819 - 3823

[5] Long Wang ; Xiaoqing Wang et.al, " Study on construction seismic damage loss assessment using RS and GIS",IEEE International Geoscience and Remote Sensing Symposium, Year: 2007, Pages: 4663 – 4666

[6] Peng Zhang ; Xuchun Wang, et.al, " Visualization damage evaluation system research of structure in subsidence area based on GIS", Second International Conference on Mechanic Automation and Control Engineering, Year:2011, Pages:274-281