Development of cloud system for IOT Applications

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Abstract—Internet of things (IOT) has become a huge opportunity. IOT has many useful applications. One of the major problems that IOT currently faces is the storage and management of the vast amounts of data that will be generated by the IOT enabled appliances/machines. This paper focuses on identifying the work already done for finding potential solutions by using cloud based storage in IOT system. In this system there is an IOT air pollution monitoring System within which we will be able to monitor air value done by internet server using net and may activate alarm once the air value goes down on the far side an exact level, means that once there square measure enough quality of harmful gases measure within the air like co2, smoke, alcohol, benzene, NH3, temperature and wetness, it'll show the air value in PPM in web-page so we will be monitoring it terribly simply. During this IOT project, will be monitoring the pollution level from anyplace using computer. We can install this method anyplace and accurate data from devices using internet using HTTP Protocol.

Keywords— Internet of things (IOT), cloud based storage.

I. INTRODUCTION

With the advent of 5G, Internet of things (IoT) has become a huge opportunity. IoT has the potential to transform the way of living of millions of peoples. IoT has many useful applications. It is also one of the best technologies for industry 4.0. IoT requires very high speed internet and this problem can be solved by 5G. One of the major problems that IOT currently faces is the storage and management of the vast amounts of data that will be generated by the IoT enabled appliances/machines.With the advent of 5G, IoT has become a huge opportunity.

IoT plays a very important role in smart agriculture. IoT sensors are capable of providing information about agriculture fields. This is an attempt to identify potential research gaps by studying the research done in this field. Since the use of IOT will be widespread among humongous number of machines, each machine will be producing vast amounts of data. This will lead to the problem of data storage and data management. The motivation of this project is to mitigate this problem as efficiently as possible. Use of cloud for storage and management of data can mitigate these problems. Furthermore the security and encryption of data being stored also has to be maintained.

The causes of pollution measure carbonic acid gas, monoxide gas, pollutant, Lead, Ammonia, Particulate Matter, Ground Level gas. The Internet of things permits objects to be detected or in dominant. Things, in the IoT, refers to create of devices like heart observance implants, vehicles with intrinsic sensors, etc. Development of pollution observance system will facilitate to control and live pollution connected parameters. Variety of the ways that controls pollution parameters measure. We have a tendency to measure reaching to implement pollution detection in vehicles is pollution is high or low owing to combustion of fuel in vehicle. We have a tendency to measure reaching to build it up and implement it using Node MCU and different elements. This methodology is turning into more and more important in pollution detection in vehicles. The Vehicles end up carbonic acid gas (CO2), monoxide gas (CO). We have a tendency to actively pattern electronic text Transfer protocol HTTP for act and transferring data and to boot assures that data is not manipulated and one hundred pc transmission of knowledge.

II. PROJECT DESCRIPTION

A. Proposed system:

The system to observe the air of setting using microcontroller, IOT Technology is projected to boost quality of the air. With the using of IOT technology enhances the method of watching numerous aspects of

setting like air quality watching issue projected. Here, using the MQ135 it provides the sense of various style of dangerous gas and DHT11 it provides the Temperature and wetness vary and small controller is that the heart of this project. That management the whole method.

B. Origin of the proposal:
India being the fourth largest electrode of greenhouse gases little surroundings makes its time to create peoples attentive to matters Gas sensing and observation refers to the method of ceaselessly pursuit the a in concentration of various air part.

C. Statement of the problem:
Growing urbanization and no of business cities build it a demand to possess a detailed concern of the surroundings. exhausting to stay observation unendingly bound sites like industries, busy traffic signals, villages liable to wearing away & high ammonia concentration etc.
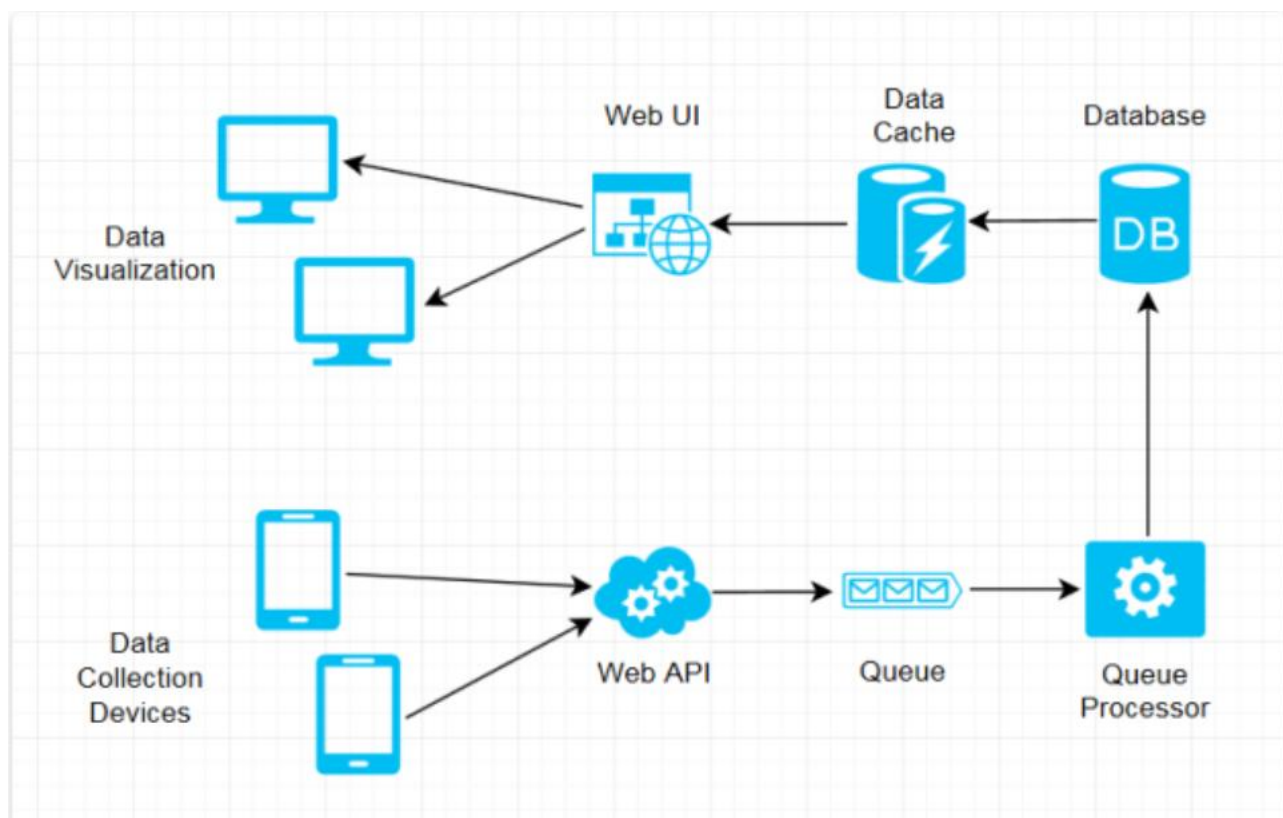

Fig.1 Flow Chart

III.   TOOLS/TECHNOLOGY AND IMPLEMENTATION

Hardware:

- Gas detector:
  In MQ135 gas sensing element, SnO2 is present, which is a sensitive material with lower conduction in the clean air. When the target flammable gas exists, the sensors conduction will increase by raising the gas concentration. MQ135 gas sensing element has high quality of Ammonia, and Benzes steam. It is used as a toxoid gas detection device, which applies to ammonia, aromatics, Sulphur, benzoyl vapour.

- Temperature-Humidity Sensor User Manual:
  DHT11 Digital Temperature & Humidity Sensor is a temperature-humidity compound sensor with calibrated output. The sensor includes two sensing component. Each DHT11 sensor is calibrates an extremely accurate humidity-calibration chamber. The calibration coefficients are stored in the form of programs, and during the internal signal detection process of the sensor the calibration coefficients are called. Easy and fast system integration is provided by the single-wire.

Features Sensor	DHT11 (Temperature sensor)
Operating voltage	3.3V-5.5V
Humility measuring range	$°C$)
Humility measuring error	+-5%
Temperature measuring range	0$°C$-50$°C$
Temperature measuring error	+-2$°C$
Dimensions	29.0mm*18.0mm
Fixing hole size	2.0mm

- Node MCU:
  Microcontrollers have small internal memory which is not enough to save sensors generated data for long time, either you have to use some external memory device or can save the data on some cloud using internet.

Software:

Operating System - Windows
Domain - Internet of Things
IDE - Arduino
Language - Embedded C, HTML, CSS, Java script
IoT Protocol - HTTP Protocol

- Arduino IDE:
  It is a software program runs on the PC for embedded micro-controller design.

- Embedded C Programming:
  It is a language extension of C Programming which was developed to address the common issues between C extensions for different embedded systems.

- Google firebase:
  It helps the developers to build real-time applications for IOT.which is one of the mobile platform by sending messages and notifications. It is also known as GCM.

- Html:
    1. HTML stands for Hyper Text mark-up language.
    2. HTML is a structure of web content mistreatment mark-up.
    3. HTML is an area of building blocks with mark-up language pages.
    4. HTML parts area unit delineate by tags.

- CSS:
    1. CSS is a language that describes the design of associate hypertext mark-up language document.
    2. CSS describes however hypertext mark-up language parts ought to be displayed.

- JavaScript:
  JavaScript is that the artificial language of hypertext mark-up language and therefore the internet.

- HTTP:
  Monitoring the board over net, a webpage is meant that uses JavaScript to urge information from the board mistreatment HTTP POST technique. The webpage identifies the board by a tool ID associated connects to the Particle's Cloud Service through an access token.

IV. CONCLUSIONS

The research presents to observe the toxicity within the air atmosphere is meant victimization Node MCU, IoT technology is enforced to regulate the air quality. By victimization IoT technology the method of observation the toxicity of air and dominant the assorted gases within the atmosphere is projected during this paper. The employment of MQ135 sensing element senses varied venturous gases and Node MCU is that the heart of this application, that controls the entire method. Wi-Fi module controls all the method to the web and monitor is employed for displaying all the net pages over the web. I may use two or more sensor in future.

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