

Analyzing Internet of Things based Weather Monitoring System

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ABSTRACT

IOT, that is, Internet of things is a vast word which comprises of different hosts that are connected with each other in a network, sharing data and information. This field of computer science is proving to give plenty of revolutionary ideas when combined with various real time scenarios. Internet of Things based weather monitoring systems are very helpful stations that are responsible for forecasting upcoming weather conditions. Weather monitoring through Internet of things is cost efficient too. The information collected through weather monitoring is accessible wherever required with the help of Internet of things. This paper analyzes the issues, challenges IOT based weather monitoring system and define various advantages of how Internet of Things is evolving and fulfilling the human needs.

Keywords : Advantages, challenges, internet of things, issues, weather monitoring system

Computing Trendz (2018). DOI: 10.21844/cttjetit.v8i1-2.11004

Introduction

With the increasing usage of internet in day to day life, people are getting more prone of

being digital and making a proper usage of the services provided by it. Thus, Internet of things is growing with passing time and will become the master of the future Internet. IOT is all about connecting the various devices such as phones, sensors and other devices so that information can be communicated through various channels. This is about bringing all the objects at the same platform. This weather monitoring system is one such IOT based system that will help the social community in a big way. The system being wireless consumes less cost and human load. It has a simple architecture that makes it all the more interesting.

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How to cite this article: Singh S., Nagpal, N. . (2018). Analyzing Internet of Things based Weather Monitoring System. *Computing Trendz* 8(1&2): 20-23

Source of support: Nil

Conflict of interest: None

Literature review

The study was initially done on standard advancements to set up a standard sensor for weather monitoring system. Within this study, there were many reasonable standard sensors picked up taking accounts of various reasonable perspectives like financial and mechanical. The user can use the information obtained from weather monitoring system in past and present time, and can also predict about the possible weather conditions in future. The awareness about upcoming weather forecast (possible natural calamities) will help humans to take the respective safety measures. The data can be represented in graphical manner so as to keep informative records for various analyses.

Internet of Things:

Internet of Things is helpful in almost all fields IBM and Gartner like companies defended JOT as billions of objects that in near future will connect to each other everywhere to give us valuable information in order to improve different process and do predictions. IOT can be defined as -Group of infrastructures interconnecting connected objects and allowing their management, data mining and the access to the data they generate."

Advantages of IOT

Some of prominent advantages of JOT in different disciplines of human life

- It supports the communication between host devices interconnected to each other. In IOT, things can share information or data among devices to its owners specifying its address and characteristics.
- In medical field, the wireless IOT devices can be used to monitor the adverse parameters of patient's health. So, it improves medical care in great manner. examples, the household appliances with the help of our cell phones and other remote controls, which is reducing human work and providing various facilities
- The various wireless devices which are now used for safety and security process, such as, the wireless cameras which can help preventing thefts or providing women security.
- The various tracking devices which are helpful in crime control and even in internet-based applications such as GPS had increased the quality of life.
- Data collected through different IOT devices is

informative and is kept for future records .

Internet of Things is a growing and producing solution for connecting things on the internet and interfacing the entire universe of items in the system. Here commodities can be like sensors, gears, gadgets, etc. The system monitors & administers the temperature, moistness, wind speed and headline and so forth. Similarly, it also monitors the chronological data in an hour and in continuous plan. This data can be displayed on LCD and statistics is sent and after that it arranges the sensor information in form of graphics. Weather monitoring system is an Internet of things based wireless technology which is helpful in recording different natural factors, such as, air, humidity, atmospheric pressure, wind, and etcetera. The information obtained from this device is helpful in various fields. Being a wireless device the information can be accessed from any place in the world. It is a biggest boon for agriculture, as, farmers can know about the weather conditions at their fields without being physically present over there.

IOT Sensors are fundamental parts in numerous applications in day today life for any security checking, activating low estimate, climatic condition checking and so on. In climate observing for example, parameters, such as temperature and stickiness are observed. These new systems also monitor the pressure. humidity, temperatures etc., from the atmosphere and make the system intelligent enough to predict information that would be helpful for society. This innovation has made electronic sensors fit for observing ecological parameters all the more positively.

Issues & Challenges of IOT based Weather Monitoring System

Weather monitoring devices are generally placed in

wide and open area which can be easily attended by anyone and physically vulnerable. It must be protected from outside tampering by organizations, violation by hackers. Also, the data must be saved on devices in any structure. The cost of embedding security in devices is generally high but still it is necessary to encrypt data on these devices.

Data Protection carries a major role as data gets transmitted from the Weather sensors and devices to the gateway and then further to the cloud. Consequently, using encrypted transfer protocols is necessary.

Data that is stored in cloud is fragile as other parts of Weather Monitoring System ecosystem. The platform that is being provided should be strong enough to protect data stored in cloud. Measures included are Encryption, Access Control and so on.

Security vulnerabilities exist every time no matter how much attempt one pays to intensify the product code and hardware.

Authentication and Authorization in context to encryption is necessary to ensure the security of Weather Based Monitoring System devices .

Advantages

Farmers come to know when their crops are planting or harvesting.

Surfers get advanced information when large waves are expected.

When the storm or flood is expected. the area can be evacuated

Aircraft and shipping depends heavily on exact weather forecast estimation of current climate

conditions for a specific area and environment probability.

It is many helpful to the farmers to know the speed and direction of wind before putting their seeds or spraying chemicals on them.

It avoids crop damage in two ways: Wind and crop Damage and drying conditions.

Conclusion

This is a review paper where various aspects of TOT based weather monitoring system have been analyzed. The paper initially defines IOT and weather systems individually. Then it scribes various issues and challenges faced by the community related to bad weather and the systems exposed to security issues, vulnerabilities, data tampering to name a few. The paper finally concludes with list of advantages that the society has with the implementation of JOT based weather monitoring systems.

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