Retraction

Retraction: MEMS Multi Sensor Intelligent Damage Detection for Wind Turbines by Using IOT (J. Phys.: Conf. Ser. 1916 012045)

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This article (and all articles in the proceedings volume relating to the same conference) has been retracted by IOP Publishing following an extensive investigation in line with the COPE guidelines. This investigation has uncovered evidence of systematic manipulation of the publication process and considerable citation manipulation.

IOP Publishing respectfully requests that readers consider all work within this volume potentially unreliable, as the volume has not been through a credible peer review process.

IOP Publishing regrets that our usual quality checks did not identify these issues before publication, and have since put additional measures in place to try to prevent these issues from reoccurring. IOP Publishing wishes to credit anonymous whistleblowers and the Problematic Paper Screener [1] for bringing some of the above issues to our attention, prompting us to investigate further.

[1] Cabanac G, Labbé C and Magazinov A 2021 arXiv:2107.06751v1

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MEMS Multi Sensor Intelligent Damage Detection for Wind Turbines by Using IOT

K M Majidha Fathima, R Sharan Raj, K Rahul Prasad and S Guru Balan
Department of Computer Science and Engineering, Sri Krishna College of Engineering and Technology, Coimbatore, India.
majidhafathimakm@skcet.ac.in

Abstract. Maintenance and monitoring of wind turbines have become a promising challenge for large dimension turbines. Even a small damage can result in integrity of the system. This paper gives a solution using nondestructive SHM technique to recognize the damages of turbine along with the difference in the properties before and after damage. The information obtained from the sensor helps in robust reading of condition of the blades and produces alarm sound at the stage of severe damage.

Keywords: MEMS Sensor, Thing-Speak, Collect, Act, Damage

1. Introduction

The main objective of this paper is to monitor and check for damages occurred in the wind turbine by using the MEMS sensors to correct the damages immediately with the help of IOT modem. Now-a-days wind power is a one of the rapidly growing energy and the several parts of wind turbines continue to deploy [1]. We need for more efficient energy harvesting; Day by Day need of wind mill are raised. The structure of turbines has become more challenging and critical. In this work we have acceptable device like vibration devices temperature sensors, force device is associated in degreed torsion device unit area hooked up on the right position on the turbine’s components an RFID module associate degree RF tag unit area hooked up with every half for establish it unambiguously. The live change of rotary engine parameters is finished to central server, a sensible mode is employed to connect the sensors and central server. The top user will able to analyze and observe the knowledge through a sensible image methodology [2].

2. Proposed system and architecture

To avoid the economic problems and to supply more convenience to the users, we are employing a microcontroller as a knowledge acquisition. As a user to control and monitoring process is carried out. The software part includes the web server for real time to monitoring any systems [3]. The programming part is much simpler when compared to other tools. The sensors are used to collect the various information and send it to the controller. The temperature sensors and accelerometer sensors are used to measure the temperature. By using Universal asynchronous, the receiver and transmitter are connecting both Arduino Microcontroller and Internet of Things Figure 1-3.
Figure 1. Dataflow Diagram.

Transmitted side

Receiver side

Figure 2. Transmitter Side
3. Existing system

Today due to increasing human resources the necessity for energy resources is additionally increasing. Nowadays human resources are increasing, so we need the additional resource energy. The surplus number of resources has been decreasing [4]. Hence here is an urge to find any alternate resources. This wind energy are used to convert wind energy into electrical energy. Wind energy are often converted to a useful sort of electricity by using Wind turbines.

4. Hardware components

4.1 Arduino Micro-Controller

Arduino is a Hardware component. It is used to write a program. Arduino allow to use Hardware program and software program. It is a free software for developing the electronic gadgets. Arduino is one of the best gadgets for practicing the electronics programs [5]. It permits both software program and hardware program. It is the one of the major electronic gadgets. Now a days all electronic device we can see the Arduino micro controller Figure 4.

4.2 LCD

LCD is the one of the most important gadgets in electronic instrument. Day to Day life we can see the led devices. now a days it is easy to see the LCD gadgets like traffic board, smartwatches, mobile phones
etc. Different types of LCD panels are available [6]. Using this panels to develop or update the LCD gadgets. Here we using the LCD for display the wind turbines voltage, temperature values, slant values etc. At the same time in LCD devices having some damages occurs Figure 5.

![Figure 5. LCD](image)

4.3 Accelerometer

Accelerometer sensors is used to calculate the velocity. Here we used for measuring the speed of wind turbines. Accelerometer sensors are calculating the accurate speed of wind turbines. Accelerometer sensors are able change the speed and directions of wind turbines. Here wind turbines are turn round in different speed in different climate. so, we want to measuring the voltage of wind turbines Figure 6.

![Figure 6. Accelerometer Sensor](image)

Sensors play a major role in the devices that we use in our homes, smart watches, automobile sector, mobile phones, industrial equipment and smart city infrastructure. These sensors are used to detect and measure the information through the things. The data is communicated through numerical value and electrical signal.

5. Collect

5.1 Using Thing Speak to Collect the Data

Here we using many hardware components at the same time to see the data in software programs that’s why we using thing speak platform. Thing speak enable sensors, instruments and websites. Thing speak is private and public platform for seeing a data here we using private platform. Public platform is payable one. Thing speak are collect values from IOT kit through network connection.
5.2 Using MATLAB To Analyze and Visualize the Data

It is an Algorithm Development Sensor Analytic. Thing speak get the data using data aggregation method through network connection. To get quick access to the data, it would be stored within the cloud. To explore and visualize data online analytical tools are used here.

5.3 Using Thing Speak to Visualize and Analyze the Values

Here Thing speak is used to visualize and analyze the values through network mode. Thing speak is majorly used for IOT programming. At first, it collects the values in the IOT devices through Wi-Fi Mode then it can visualize and move to analyze whether the data is perfect are not. Again, it moves to test the data if any errors occur it will correct and finally it will show the outcome of a data.

6. Act

6.1 Response

Response values might be easier such as collect the sensor values (specified in block) from the Arduino and data sent to the web server via Wi-Fi module.

6.2 Using Thing speak to Response the Value

The Things-Speak collect the values through a Wi-Fi mode. It can response the update values also. We can simply calculate the values through Network mode.

7. Conclusion

How the employment of IOT a Most worthy future technical paradigm is finished is shown during this paper, by applying associate IOT enabled technique for the condition observance of turbine. once we follow the standard ways that for this purpose meets such a large number of difficulties like unsought period of time, frequent checking suffers sizable number of labours, valuable and also the standing of rotary engine remains unknown between the amount of checking’s however once we apply the projected model real time condition observance of turbine is feasible, therefore the faults will simply and early have known, it helps to enhance the lifetime of rotary engine and reduces the operation and maintenance value. during this work associate integrated framework of various sensors, varied communication networks, embedded devices and a turbine are used.

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