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IOT BASED INDUSTRIAL BOILER TEMPERATURE CONTROL

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Abstract

This project is an industrial boiler temperature controller that controls the temperature of the heating element of a device according to its requirements the system uses solar power as the power supply thus the project save the electrical power upto maximum extent The sensed and set temperature value are simultaneously displayed on the computer . it is very compact using few components and can be implemented for several application including conditioners water heater furnace, thermal baths. monitoring the boiler parameters such as temperature, pressure and humidity are of huge importance in power plant. It is not forever possible for constant monitoring in the plant location because of an insufferable industrial environment. In this project it is proposed to develop remote monitoring and control of boiler parameters using wireless communication. The proposed method provides a complete explanation for this constraint in remote monitoring by using various sensors for temperature, pressure and humidity dimension. This method uses Internet of Things (IOT) as the platform of communication. Internet of Things (IOT) will play a major role in the future concept of power plant integration. The planned method will outfit and provide a start-up beginning for this future concept.

Keywords: *IOT-Internet of Things*

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l. INTRODUCTION

A power station also referred to as a generate station, power plant, powerhouse, or generating plant is an industrial competence for the generation of electric power,the term normally being narrow to those bright to be dispatch through a system operator(i.e. the system operator can, by one means or another, alter the planned output of the Generate competence).Most power stations include one or more generators, a rotating machine that convert mechanical power into electrical power.

1.1 Operations of IOT

The different parameters in the boiler such have temperature, pressure, humidity these parameters can be barred using IoT. There is an significant parameters that has to be controlled in the boiler for the safety and to improve the reliability of the boiler. In case if these parameters are not controlled then there will be order for the protection of the boiler these parameter values has to be controlled. So a smart way of control can be done by internet of things.

2. METHODOLOGY

There are three unusual types of sensor such has temperature sensor, pressure sensor and humidity sensor are connected to the arduino board. so that the analog values are converted into digital values and these parameters are related

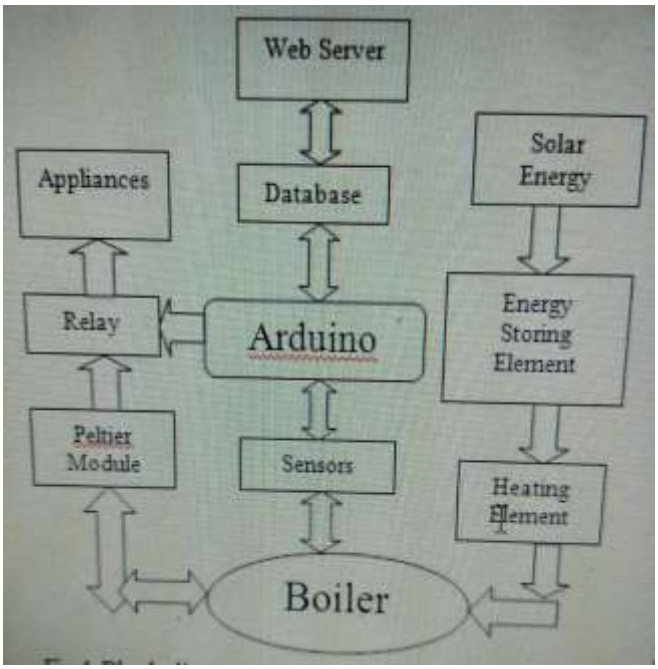

Fig 1: Block diagram of boiler temperature controller

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3. FLOWCHART FOR IOT CONTROL

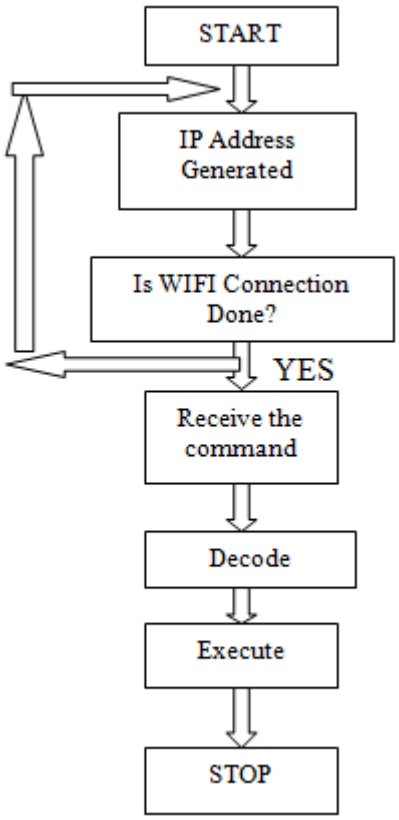

Fig 2: Flowchart for IOT Operation

Initially join the parameters with the arduino the values are made to be displayed in the webpage and the manage operation for the whole process is to be complete through the webpage so the webpage has to be created. In order for the control of the parameter values and for the creation of the webpage C+ coding is done for this webpage .in order to control the parameter values. Once the parameter value exists the high limit then the control action can be taken by the webpage.

4. RESULT

The parameter values such as temperature and humidity values are made to be continuously measured and the measured values are made to be displayed in webpage. If an external trouble is given to the parameter the values are distorted and if the values are exists able to the high level then there will be an occurrence of error in the system. In sort to manage an incidence of fault the manage operation are complete during the webpage.

Fig 3: Schematic view of boiler temperature control

Table: 1

Sr. No.	Parameter	Current(I)	Voltage(v)	Temperature(◦C)
1	O/P Of Solar	300mA	12(V)DC	……..
2	O/P Of Transformer	3A	230(V)AC	
3	O/P boiler	…….	…….	70°C
4	O/P Peltire	2.2A	3.3V	…….
5	O/P of furnance	……	……..	100°C

5. CONCLUSION

An important parameters such has temperature, humidity are continuously monitored. One of an important thing is to maintain these parameter values at the set point level if not there will be an incidence of error in the system. In order to manage the parameter values these values are made to be displayed in monitor and the webpage is formed and restricted.

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REFERENCES

[1] De Paola.A,M.Ortolani, Lo Re Anastasi G.and Das S. K.,(2014),'Intelligent management systems for energy efficiency in buildings: A survey',ACM Computing Surveys, Vol. 47, No. 1, pp. 23-26.

[2] Nguyen.T.A and Aiello M.,(2013) 'Energy intelligent buildings based on user activity:A survey', Energy and buildings, Vol. 56,No. 2. pp. 244–257.

[3] Nyarko.K and Wright-Brown C.,(2013),'Cloud based passive building occupancy characterization for attack and disaster response', in Proc. IEEE. Conf. Technologies for Homeland Security(HST), pp. 748–753.

[4] Melfi.R Rosenblum B. Nordman B. and Christensen K.(2011) 'Measuring building occupancy using existing network infrastructure', in Green Computing Conference and Workshops (IGCC), pp. 1–

[5] Erickson. V.L. Carreira -Perpin M. and Cerpa A. E. (2014), 'Occupancy modeling and prediction for building energy management', ACM Transactions on Sensor Networks (TOSN), Vol. 10, No. 3, pp. 42-65.

[6] Chintalapudi.K. Padmanabha Iyer A. and Padmanabhan V. N. (2010), "Indoor localization without the pain," in Proceedings of the Sixteenth Annual International Conference on Mobile Computing and Networking, New York, USA: ACM, pp. 173–184.

[7] Yourself. M and Agrawala A. (2005),'The Horus WLAN location determination system', in Proceedings of the 3rd International Conference on Mobile Systems, Applications, and Services, New York, pp. 205–218.

[8] Nyarko.K and Wright-Brown C. (2013),'Cloud based passive building occupancy characterization for attack and disaster response', in Technologies for Homeland Security (HST),IEEE International Conference, pp. 748–753.

[9] Bahl.P and Padmanabhan V. (2000), 'RADAR an in-building RF-based user location and tracking System ',Nineteenth Annual Joint Conference of the IEEE Computer and Communications Societie .Proceedings, Vol. 2, No. 2, pp. 775–784.10. Nakamura .A,F. Loureiro, and Frery A.C. (2007), 'Information fusion for wireless sensor networks: Methods, models, and classifications', ACM Computing Surveys (CSUR),Vol.39,No.3,pp.992-1023.