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Review on Fault Analyzer for Transmission Line

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Abstract: The monitoring of substation requires a person who monitors the fault continuously. Also there are so many substation in a District and state. It is important to detect the fault but the fault cannot be monitor by the higher authority. So our goal is to monitor the fault remotely and update the fault to the cloud . So it is easy to monitor the fault and to provide faster servic. The fault consisting of 3 phase ,1 phase ,2phase and loading. Our system can detect the fault and send these fault remotely.

Keywords: WIFI-MODULE, AVR Atmega 328, Fault Detection.

I. INTRODUCTION

Electricity power is being carried by the transmission lines. These lines travel very long distances so while carrying power, fault occurring is natural. These faults damage many vital electrical equipments like transformer, generator, transmission lines. For the uninterrupted power supply we need to prevent these faults as much as possible. So we need to detect faults within the shortest possible time. Microprocessors and microcontroller based systems used for these fault detection have been advancing rapidly. The proposed paper simulates Numerical over current relay that detects faults using microcontroller and ADC. These relays are more reliable and have faster response than the traditional electromechanical relays and Static relays. They have increased range of setting, high accuracy, reduced size, and lower costs, along with many other functions, such as fault event recording, auto resetting, etc.

II. LITERATURE SURVEY

In these paper. In this project has three sensors potential transformer, proximity sensor, and temperature sensor. The potential transformer is used to measure the voltage, temperature sensor is used to measure the machine temperature and proximity sensor is used to measure speed of the machine . The three sensors are measure the values continuously with the help of ARM controller then update the values in internet with the help of Ethernet adaptor.

In these paper the implementation of a microcontroller-based protection for transformer using multifunctional relay. The model uses various analog devices for conversion purposes and displays the current values as sensed by the micro controller. In this paper two modules were developed, the first module uses potential transformer to sense the AC line Voltage and converts it into DC using a bridge rectifier. The sensed voltage is then fed to the Analog to Digital port of the microcontroller. The signal so obtained is compared with reference value stored in EEPROM of microcontroller and trip signal is activated under fault condition. In Second module MQ9 gas sensor is used to perform combustible gas detection.

III. OBJECTIVES

A. The system can be locate the fault remotely.
B. The system also protect the the distribution transformer .

IV. COMPONENT LIST

A. Current Sensor
(Hall Effect Sensor) – MODULE NAME_ACS712.

B. Relay
SPDT (Single Pole Double Thro) 5V.

C. Wifi_Module
ESP8266 DATASHEET.

D. ATMEGA 328 Microcontroller datasheet.

E. Step Down Transformer (230/9) – 230V Input – 9 volt O/P.

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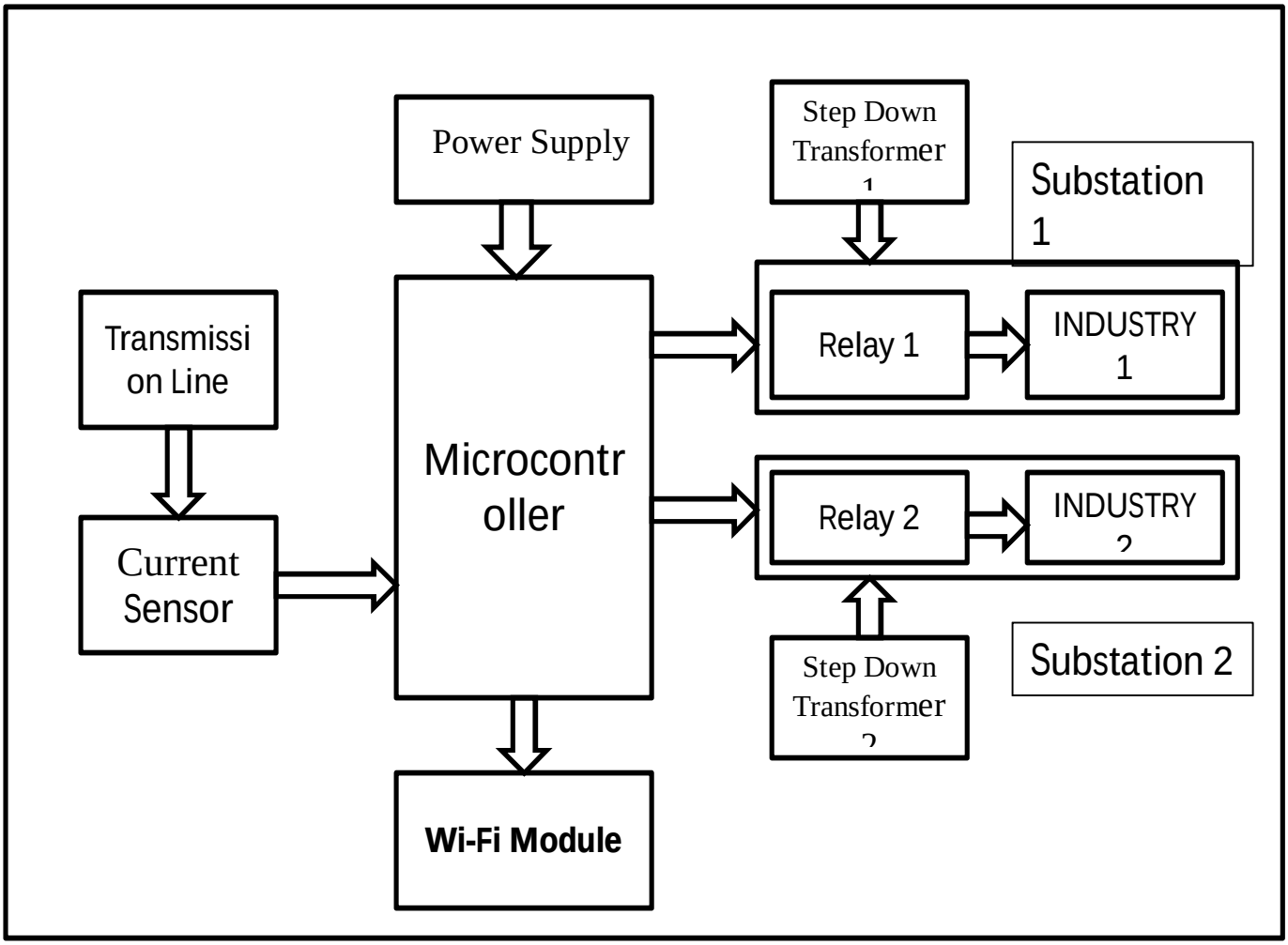
V. PROPOSED METHODOLOGY



BLOCK DIAGRAM

A. The proposed fault monitoring and detection system for transmission line comprises of current sensor ,Wi-Fi module ,step down transformer ,Relay module and Load(i.e. Industry L1,Industry L2).

B. The current sensor used here is ACS712 which detect the current .If the value of current increases beyond the expected value then the microcontroller send alert to the cloud.

C. Substation 1 and substation 2 are shown in the block diagram. Each substation having step down transformer with relay and load.

D. If the fault occurs at each substation then the microcontroller detects the information and send breakdown message via wifi module.

E. Wi-fi module is used to send information over cloud.

F. DC 5volt Power supply is required for relay and microcontroller module.

G. Same power supply is used for current sensor and wifi module.

VI. APPLICATIONS

A. The above system is used in distribution channel in electricity department.

B. These system is implemented in monitoring transmission line and transformer fault.

VII. EXPECTED RESULT

The design of IOT based fault monitoring and protection system is studied. The system will provide the notification and automatically detect the fault.

VIII. CONCLUSION

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The system is efficient to work with electricity department. Multiple system can be implemented and use for fault detection real time monitoring of different parameters is done which can provide safety to the substation and its equipments.

REFERENCES

[1] M. Salamurugan, G.R.Mahendra Sabu," Embedded Web Server Based Industry Fault Analyzer", ©2011 IEEE.
[2] L. Anand K J Anoop K. Kanchana, "Transformer protection using multifunctional relay" 2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI).
[3] Tao Wang, Yigang He, Member, IEEE, Qiwu Luo, Member, IEEE, Fangming Deng, Chaolong Zhang ,"Self-powered RFID Sensor Tag for Fault Diagnosis and Prognosis of Transformer Winding", Sensors-18871-2017 2017 IEEE.
[4] Swapnil Sayan Saha[1], Shekh Md. Mahmudul Islam[2], Anindita Mashsharat[3],"Microcontroller Based Earthquake Detection System for Spontaneous Cut-off of Domestic Utility Lines for Safety Measures "9th International Conference on Electrical and Computer Engineering 20-22 December, 2016, Dhaka, Bangladesh
[5] H.Li, G.W.Rosenwald, J.Jung, and C. Liu, "Strategic power infra-structure defense," Proc. IEEE, vol. 93,no. 5, pp. 918–933, May 2005.

[6] G. Vidhya Krishnan, R.Nagarajan, T. Durka, M.Kalaiselvi, M.Pushpa and S. Shanmuga priya, "Vehicle
[7] Communication System Using Li-Fi Technology," International Journal of Engineering and Computer Science (IJECS), Volume 6, Issue 3,pp. 20651-20657, March 2017.

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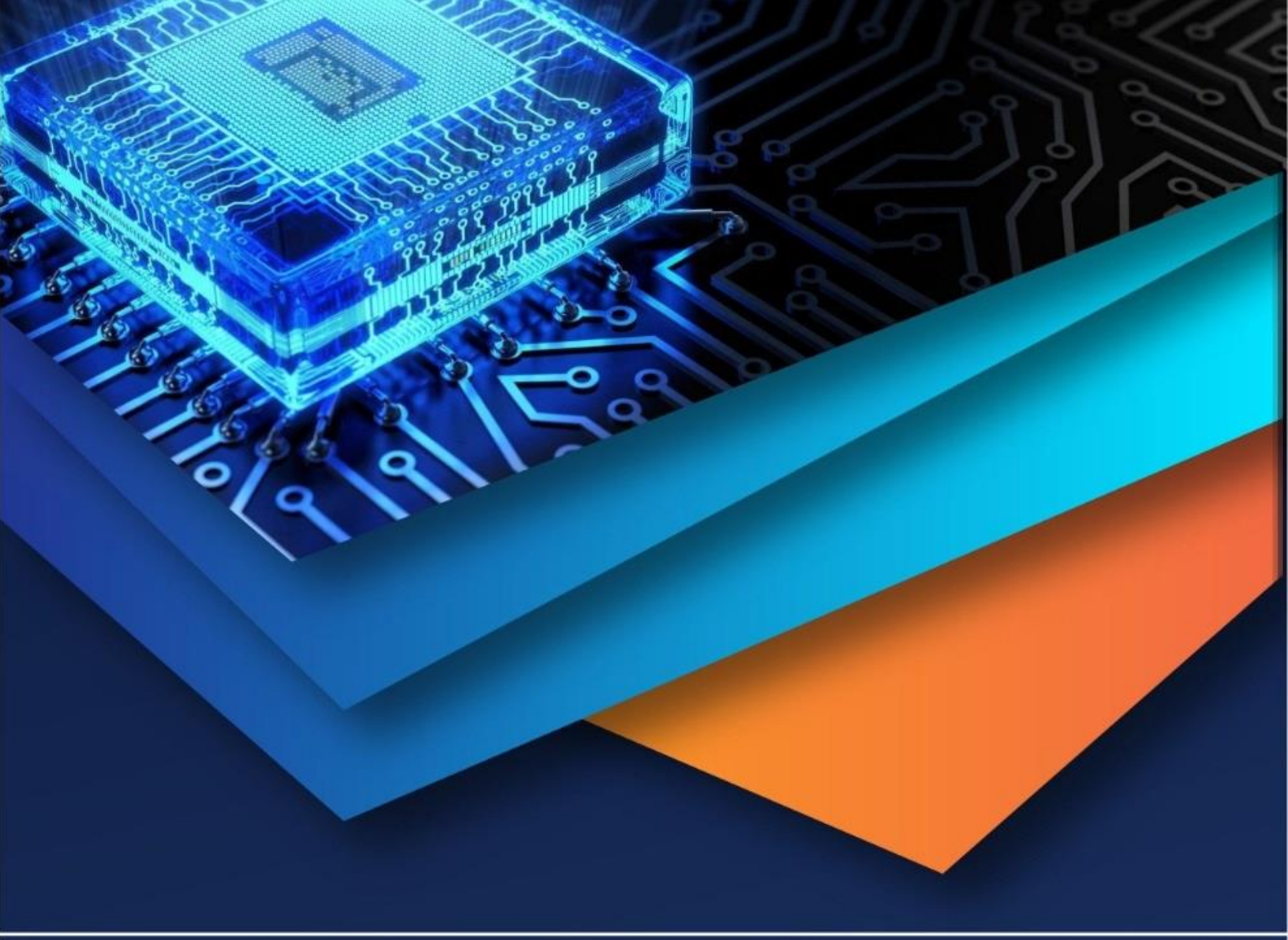

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