GSM Based Distribution Network Automation with Transformers Surveillance for Electric Power Lines

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Abstract- *The demand on electric power supply in the world has increased drastically both quantitatively and qualitatively. This necessitates increases need for a steady power supply with minimum power interruption and fast fault restoration. To meet these demands computer-aided monitoring, control and management of electric power distribution system are to be adopted. Therefore research and development activities world wide are being carried out to automate the electric power distribution system by utilizing recent advancement in the area of Information Technology[IT] and data communication systems. An attempt is made in this paper to describe the functions of AUTOMATED DISTRIBUTION SYSTEM (a recent trend in distribution system), which is modular in nature. These modules may be implemented in stages.*

I. INTRODUCTION

At present days we can see that there is problem in the Electric power generation due to the shortage of rain fall and fuels. Due to this maintenance at the Power station and also at the KEB Stations have become Very important to us. And due to the shortage of power generation it is became very important to make Load shedding at some areas where power consumption is more and also we have to strictly eliminate power theft control

Even at the rural areas we can see KEB station will be at very far places from the villages where the transformers and sub stations have been installed. And the oil maintenance ofthe transformer is important because without the oil the transformers will get burnt. The fuses of those substation may get blown due to the voltage and current fluctuation at the power lines. This may due to some interruption caused at the middle of the power transmission line. These conditions which we have explained above will become major problem if it is not come to know for the KEB station. So we are going to implement this project.

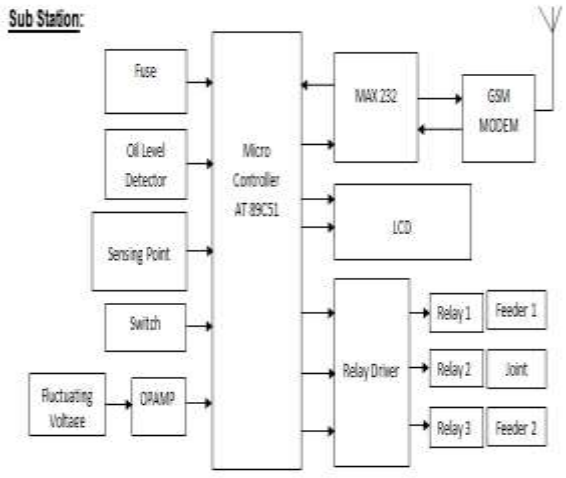
To main aims of this Project is to " **Make Distribution Network Automation by switching the feeders automatically and oil level of transformer is indicated to the station if it is at warning level, To find the voltage fluctuation in the power lines, To indicate the fuse blown at the sub stations to KEB Station. And to indicate Fault detection in the Power lines Using GSM**".

II. WORKING OF Li-Fi

In this above project we have used Two sections one is sub station and another one is base station. The above sub station will be placed at the villages or in the fields where the power lines are used for power transmission. And Base station will be placed at the KEB station where all the controls of power lines will be located usually this Base stations will be far away from the Substation and they communicate each other wirelessly using GSM. And the information from the Substation will be displayed on LCD Provided at the Base station.

In the base station we are going to detect the voltage fluctuation, Fault in the power line, oil level at the transformers.. Fuse blown detector also added Substation. These all detected conditions will be sent to the Base station using GSM which we have shown.

III. BLOCK DIAGRAM



IV. APPLICATIONS

- We can detect the voltage fluctuation and further we can correct it by detecting fault in the power lines.
- We will come to the oil level of transformer when it is in the warning level.
- We come to know about the fuse blown at the Sub Station.
- Automatically test Charge is applied on the Fault detected line.
- If there is major problem in the power line then particular line related feeder will be opened.
- Fault detected joint will be isolated for further work which should be done by line man.
- And automatically switched to other feeder to provide temporary power on the line until line man clear the fault.

V. ADVANTAGES

1. Trouble Shooting in the line will be Faster.
2. There will be increased efficiency in the Distribution network of power line.
3. We have wireless transmission between Substation and Base Station or line man due to this cost of data transmission will be reduced.

VI. CONCLUSION

Distribution Automation function provides a means to more effectively manage the minute-by-minute continuous operation of a distribution system. DA provides a tool to achieve maximum utilization of the utility's physical plant and to provide the highest quality of service to its customers. Obviously, both the utility and its customers are beneficiaries of successful Distribution Automation since DAs are modular; they may be implemented in stages based on financial constraints and
customer needs.

REFERENCES

[1] A.S. PABLA "Electric Power Distribution" 4th edition, Tata McGraw-HillPublishing Company Limited (2001), PP: 129159.
[2] L.V. McCall, "Distribution Automation Functions" Distribution Automation, PP:7-15 (1988).