

# Finding the Power Failures at Transformers Using Different Wireless Communication Techniques

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## Abstract

This project enables the power failures at transformers using wireless techniques. In most of the villages, the transformers are failed to transfer the power due to breakage of transmission lines, short circuit of transmission lines and some environmental conditions. It is a time taken process to find out that place where the transmission line breakage occurs. To overcome this problem, we implement this system to provide information (or) to intimate the location details i.e., where the transmission line damage occurs. This system mainly depends on wireless communication devices. It mainly consists of microcontroller, GSM and GPS module.

## Key words:

PIC Microcontroller, GSM module, GPS module and SMS.

## Introduction:

Generally all the people face so many problems due to power fluctuations. These power fluctuations occur due to short circuit of transmission lines, falling trees on lines, and due to some environmental conditions the transmission lines get damaged (or) broken. Because of this reason so many people especially in villages face so many problems without

power. It is more complicated to find where the transmission line has been broken. It takes more time to detect the location. To avoid these problems we develop a system which is depending on the wireless techniques. This system activated when the power is gone in the transformer and the system automatically send a message to the line man or power station.

## Methodology:

This system mainly depends on microcontroller. The microcontroller is worked at 5V only, but the transmission lines are passed nearly 230V. It is not possible to interface the transmission lines to the microcontroller based circuit. So we are using step down transformer to reduce the power to 5V and this supply will be given to the microcontroller. The microcontroller was interfaced with the 5V rechargeable battery, GSM module, GPS module and input from the transmission lines.

The below block diagram represents the overview of our system. This system was connected to the transformer. When the power is down at the transformer, the system gets automatically active, when the power switched from power line to battery power. The battery was rechargeable from the main AC line. When the power is gone the AC power will be downed to zero and then automatically the battery power is on

then the microcontroller was worked based on the battery power. One of the inputs will be given to the microcontroller from the battery line. When the battery power is on, pin of the microcontroller will be high. So the microcontroller activates the GPS and GSM module and sends the information about the position of the transformer to the power station.

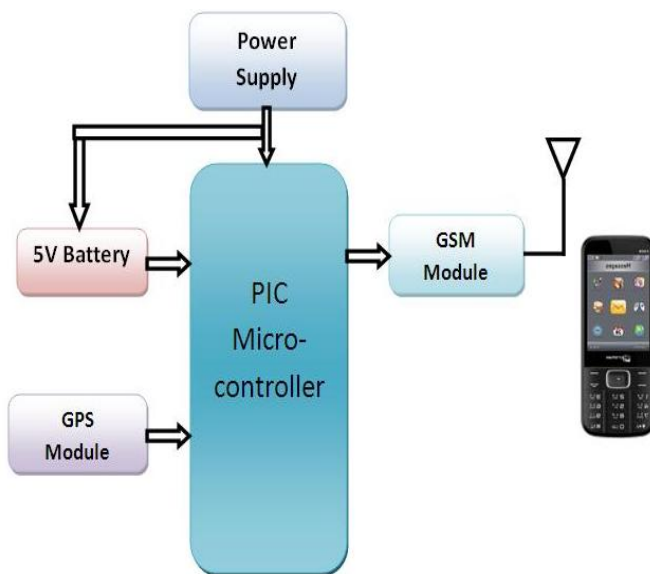


Fig: Block diagram of system

For position checking we are using GPS module. By using this GPS module we know that where the transformer lost the power transmission. By using GSM module we may send the details of the transformer to the power station. Here for sending the data we use SMS service, and it should be provide by GSM and SMS service is a worldwide service. So by using this service we may send the message to anywhere in the world.

### Conclusion and Future scope

This project enables only when the power is not transferred through the transformer anywhere. If the transformer gets fail to transfer the power due to any other

problems, it automatically sends the information to the power station. So by using this project, we can reduce the power fluctuations in rainy seasons and it helps to easily detecting the occurrence of faults and the location where the faults occurs. Due to this, time required for detecting the location where damage occurs can be reduced drastically.

In future, we can implement this system in the villages and even in cities to overcome the present facing problems. We can also develop the system to find out which type of fault can be occurred and details about the type of faults can be intimated to the power stations.

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