

# 'IOT Based Real Time Power Theft Analyzer'

Sawta A. Gaikwad, Harshal R. Borgude, Akash R. More, Vishal M Khairnar, Prof. Yogesh R Patni

*Dept. of Electrical Engineering, MET's IOE, Nashik, Maharashtra, India*

**Abstract:** Power theft is a major issue to all the energy supplier companies and no effective solution available to detect power theft so reduced this problem to a great extent, IOT based real time power theft analyzer for distribution transformer will make all the power theft data available. Amount of theft power can be calculated by comparing data of all respective meters and apparent power at output of distribution transformer. Measured power by all the meter will be transmitted through transmission lines in different time slots and separated from system of 230v, 50Hz by using high pass filters. As real time power theft can be monitored so it will become easy to analyze, detect and reduced power theft of particular area.

**Keywords:** Theft, Analyzer, IOT, Transformer, Filters.

## I. INTRODUCTION

In this invention data transmitter and high pass filters are connected to transmit real time apparent power of each meter and data will be transmitted through distribution line at higher frequency than power frequency. Number of meters with above mentioned energy meter transmitter and high pass filters will be connected. High pass filter is used to block the power frequency of 50Hz and 230v and to pass data of apparent power through transmission lines at higher frequency. Distribution transformer is provided with CT and PT to measure the total apparent power taken by all connected loads and output of CT's and PT's is given to IOT base controller. Also transmitted data of all the meters will be received through same high pass filter connected at distribution transformers and this data signals are also given to IOT based meters. Each meter will send data of apparent power in different time slots so data of each meter will be identified. IOT based controller is programmed in such a way that it will separate data of each meter and also measure the apparent power at output of transformer. Then data received from all the meter is the apparent power of all meters. It is subtracted from apparent power at output of the transformer and losses of all the distribution line will also subtracted. Now the answer of the subtraction will show the total amount of power theft on that transformer. IOT based energy meter will upload all the data of power theft to respective server in particular time interval. IOT based meter connected at distribution transformer will supplied with separate DC power supply of 5v.

## II. INVENTIVE STEP OF INVENTION

As energy meter will transmit the data on the basis of either frequency modulation or amplitude modulation and transmitted data through power line so installation cost of single unit will be very less. As this invention will use full to

provide amount of power theft at each distribution transformer so it will easy to detect and catch the power thief. No need to make any large changes in running system only small addition of transmitters and filter is needed. Real time, area wise amount of power theft as well as history of power theft of particular area will be made available.

## III. BLOCK DIAGRAM AND DESCRIPTION

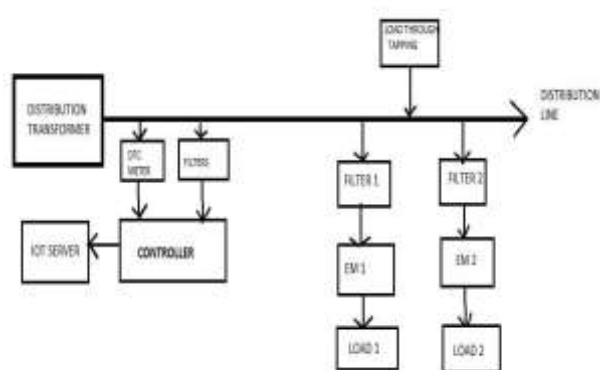


Fig.1 Basic Block Diagram of System

The energy meter and filters Block of one customer to measure and transmit data of power in particular time interval. Energy meter will measure power and data transmit to distribution line through high filter. Load through tapping block indicate illegal load which is connected without energy meter. Filter at Distribution transformer side received transmitted data from energy meter. The IOT base controller to measure the power and decode all the signals of energy meter. IOT server is the platform where all the data of power theft will reflect.

## IV. CONCLUSION

Power theft is the major issue in power system and to deal with such issue real time monitoring system is the best solution. That's why by comparing power consumption of all the meters and distribution transformer meter through embedded system and the difference between both is that the theft power can be monitor through IOT server.

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