IoT based Power Theft Detection

Electrical power theft is a major problem in power system network all over the world, which is illegal and should be strictly prohibited. Power theft can be defined as the usage of the electrical power without any contract with the supplier. In order to eliminate power theft, the location of power theft is to be known so that appropriate action will be taken on the legal offenders. The circuit consists of Arduino, GSM, LCD, ESP module and Current transformers. Meters cannot be used for high currents so current sensing is done by current transformers. Two CTs are used, one is connected at load side to measure the current through load and other C.T is connected at supply terminals to measure the current supplied by source. Using IoT, power theft detector kit has been implemented and the same also done using GSM for the purpose of backup protection.

**Introduction:** Generation, transmission and distribution of electrical energy involve many operational losses. Whereas losses implicated in generation can be technically defined, but transmission and distribution losses cannot be precisely quantified with the sending end information. This illustrates the involvement of nontechnical parameter in transmission and distribution of electricity. Technical losses in Transmission &Distribution are computed with the information about total load and the total energy bill. While technology in the raising slopes, we should also note the increasing immoral activities. With a technical view, Power Theft is a non-ignorable crime and at the same time it directly affected the economy of a nation. Electricity theft a social evil, so it has to be completely eliminated. The system prevents the illegal usage of electricity. At this point of technological development the problem of illegal usage of electricity can be solved without any human control using GSM and IoT & Power theft can be defined as the usage of the electrical power without any legal contract with the supplier.
OPERATION:

The circuit consists of Arduino, GSM, LCD, ESP module and Current transformers. Meters cannot be used for high currents so current sensing is done by current transformers. Two CTs are used, one is connected at load side to measure the current through load and other C.T is connected at supply terminals to measure the current supplied by source.

HARDWARE DESCRIPTION:

The following components are used for making the proposed prototype:


ADVANTAGES:

1) Security is automated.
2) Economy of country is saved.
3) Alert can be generated through GSM even in the case of failure of internet.
4) Does not affect the power transfer capability of line.

APPLICATIONS:

1) Used in distribution system.
2) Can be used in AMR

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