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Electrical transmission line pole safety by using GSM technology

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ABSTRACT:

This paper explains the safety of transmission poles using relays and current transformers. sometimes the current flows through the transmission pole also due to more sag of transmission lines or pressure of temperature (mostly in rainy seasons) if any human being or animal touch that pole the death will happened on the spot of that human being, and also many currents will be loss that time. So, for human safety, using the relay, current transformer and GSM system we can save the life of peoples and animals. This project mostly uses full in rural areas. The installation cost and maintenance cost will definitely less than the value of any life of people or animal.

The current is one of source of energy. May it be renewable or non-renewable, if the current is renewable then it is good but if it is non-renewable then the losses of current, we need to reduce. The transmission poles are support to the transmission lines of current, it is high tension lines, flows high amount of current like 11kv to 33kv. That line needs sag for flowing of current easily but sometimes extra sag applied throw MSEB committee, which can harm to the trees or human beings. Due to that extra sag sometimes, the transmission lines touch to the transmission poles and extract current starts flowing throw the pole and the current goes towards the ground, in this way the losses are happens.

The trip circuit relays and current transformer helps to stop the current losses. A current transformer (CT) is a type of transformer that is used to reduce or multiply an alternating current (AC). It produces a current in its secondary which is proportional to the current in its primary. Current transformers, along with voltage or potential transformers, are instrument transformers. The protective relays are a device that detects the fault and invites the operation of the circuit breaker to isolate the defective elements from the rest of operation system. In this circuit the relay will detect the abnormal conditions and they will give command to the trip circuit, &current will stop flowing throw the pole.

The Internet of Things is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

***Keywords: GSM, current transformer, relays, transmission poles, current losses, death of human being*.**

INTRODUCTION:

Using relay and current transformer we can save the wastage of current. There are many types of CT's but in this research, we can used instrumental type of current transformer which can sense the current and give command to relay of trip circuit. Mostly in rainy seasons the weight of water is heavier due to that weight the sag is also increases between two poles of transmission. The line touch to the pole and current flows throw the poles which very harm full for living things like human beings, animals, trees etc.

The current always flows throw the low resistance path, and rain water moisturised soil and wet transmission pole is definitely low resistance path as compare to transmission lines, so current will flows to words the ground. That time the current will losses in many amounts of. And if any living thing unfortunately touch that pole, they will lose their life on the spot. This +situation is mostly happened in many illiterate villages or peoples & small children, who does not know that [don't touch the electricity poles]. this research the most use full in rural areas for example, near to school, in main city areas, near collages, and etc.

In this research the main components will use is current transformer, trip circuit relay, and the last one is GSM system.

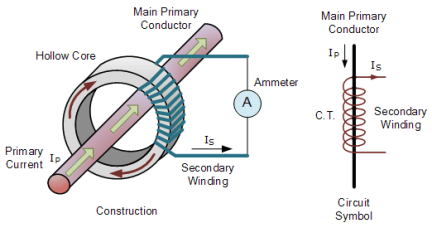
2.Working of current transformer:-The current transformer is a simple device which sense the current or increase or decreases the current throw the help of primary and secondary windings. when current flows throw the primary windings, the flux creates and starts flowing throw the secondary windings, if secondary winding is more than primary windings then it is step-up transformer, and if the secondary winding is less than primary then is can be step-down transformer. As we know, the current transformer senses the current same to same like that the potential transformer sense the voltage.

3.Working of trip circuit relay:-Relays are work as the switch, to on and off the circuit. When the extract current flows through the current transformer they will sense the current as per their rated value which connected to the relay, the relay will immediately give command to trip circuit. The trip circuit will be closed at that time and current will stop flowing through the pole.as well as the supply which is goes throw the pole to that particular area will also stop. And red light will get on, that will be indicate the sign of dangers.

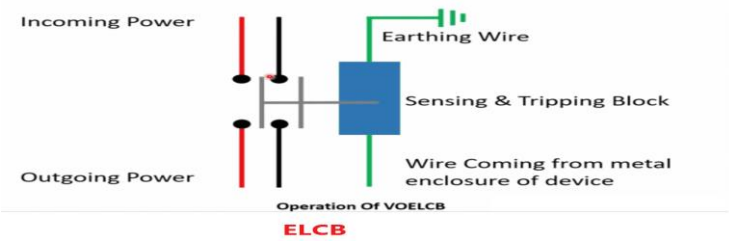
4. Working of GSM:-Basically, the GSM stands for global system mobile communication system, In this research the GSM system is works as inform to the MSCB workers, that the supply of the pole no__ is stopped because of some fault, so that the worker also easier to search the fault and pole in area, when worker solve that fault, the trip circuit automatically or manually will get open. And supply starts flowing as before the faulty condition.

The Global System for Mobile Communications (GSM) is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation (2G) digital cellular networks used by mobile devices such as mobile phones and tablets. It was first deployed in Finland in December 1991.]By the mid-2010s, it became a global standard for mobile communications achieving over 90% market share, and operating in over 193 countries and territories

The type of transformer which we can used for this research is instrumental type of transformer



The relay which we can used in this research is ELCB stands for earth linkage circuit breaker.

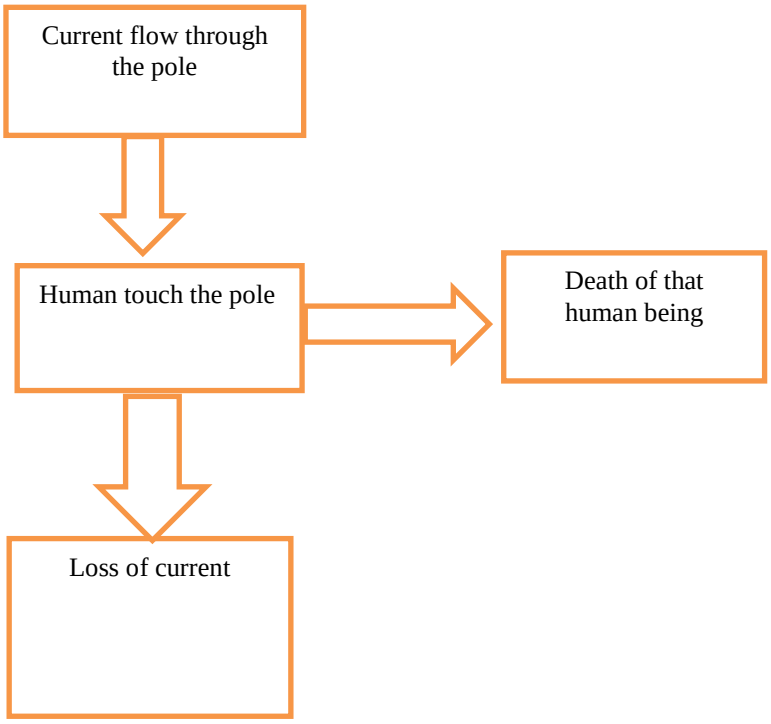


Problem Statement

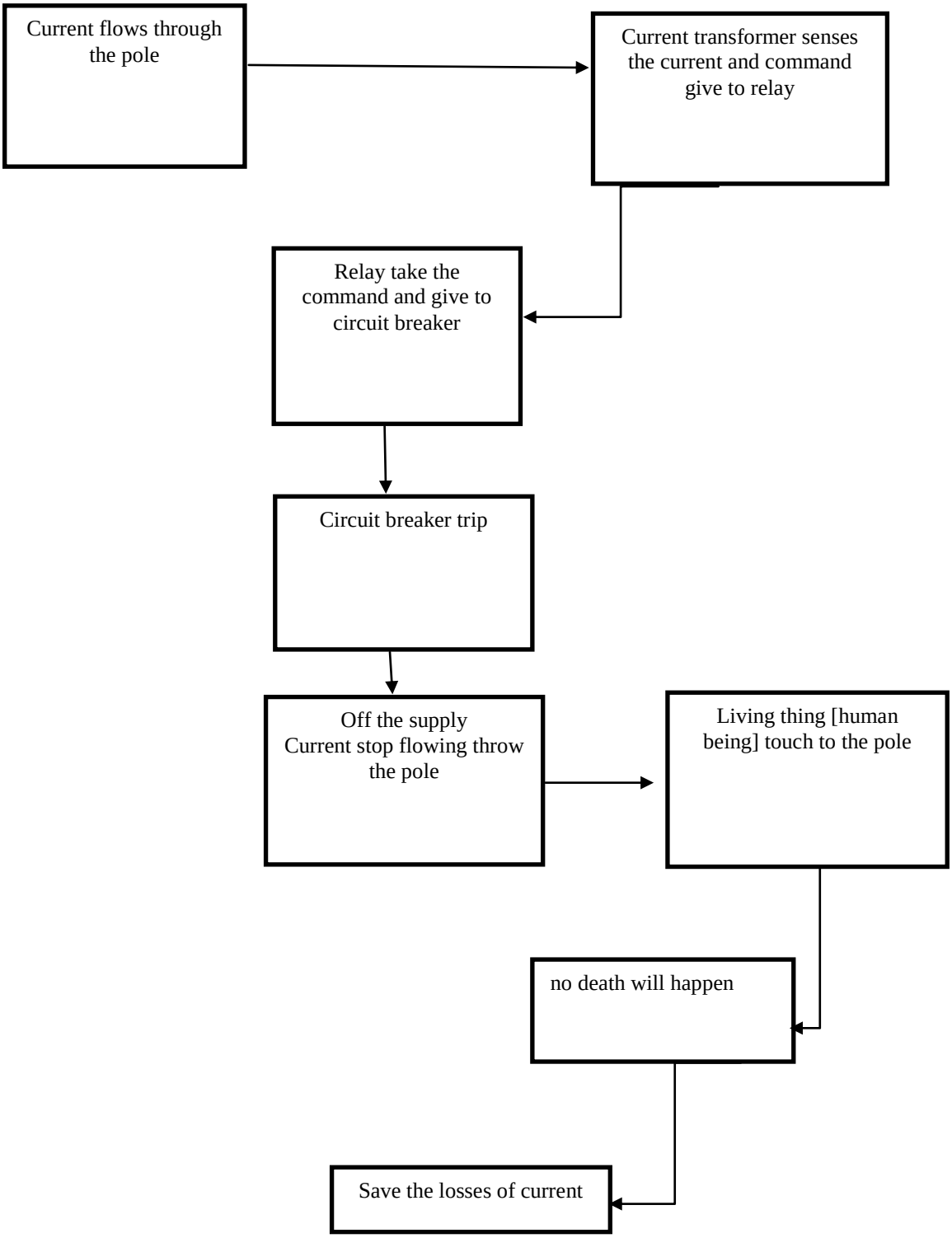
The transmission poles are support to the transmission lines of current, it is high tension lines, flows high amount of current like 11kv to 33kv. That line needs sag for flowing of current easily but sometimes extra sag applied throw MSEB committee, which can harm to the trees or human beings. Due to that extra sag sometimes, the transmission lines touch to the transmission poles and extract current starts flowing throw the pole and the current goes towards the ground, in this way the losses are happens.

Proposed technology

- Current condition



- After applying this re



ADVANTAGES:

1. Reduces the losses in transmission line
2. Save the life of peoples
3. Save the human efforts for searching the fault
4. Save the time for searching the pole
5. Save the electricity
6. Increases theefficiency
7. No need of maintenance
8. Save maintenance cos

DISADVANTAGES:

1. Capital Cost will increase.

CONCLUSION:

This research paper concludes that the new technology about safety of transmission and distribution poles and reduce the losses of the current of the transmission lines. From the help of current transformer, relay and GSM technology

APPLICATIONS:

For smart city project this research will definitely use full and help full for the country, saving of electricity will also part of the smart city project under respected PM narendra modi sir.

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