

TRANSFORMER THEFT PROTECTION

Concept:- Transformer Theft Protection.

Many domestic transformers have undergone different thefts, technically called as vandalism or sabotage of transformers, it is necessary to understand transformers internal parts are more vulnerable to thefts.

In our research we have found that in most tribal, remote agency areas agricultural fields have 3-phase transformers subjected to lack of vision for maintenance and they are more prone to thefts.

More skilled vandals, or should I say daredevils, focus on the transformer core and oil, which have more value for sale and export.



fig. Showing vandalized transformer core.

The electricity dept. Officials are far away from vicinity of transformer base, which makes the device easy for thefts. Department incurred a enormous loss up to date, revealed by a research inst.

Farmer indirectly affects by above case, As replacing or repairing of damaged device takes time span he should make a halt for yield generation as farming depends on water which in turn depends on power availability.



fig essentially showing core arrangement of transformer

To be statistical there are many practical cases demonstrating vandalization of transformer thefts, below link showing recent article dated 7-7-2016 produced in country.

["Gone in seconds"-thehindu article.](#)

We have fair solutions for above considered cases. Copper core part, transformer essentially costs high as a scrap. The dismantle procedure takes a short span of time say 5-10 minutes, in the least time we have to possibly make an obstruction for this anti-social act.

For this equipping IR-SENSORS set, G.S.M modem kit, prefixed mobile no's, an auxillary buzzer circuit or an alarm makes a solution path.

Beam sensors to detect the approach, integrated alarm system, CCTV and shock detectors to detect vibrations and shifts. The detectors are then connected to a central command unit for monitoring and response can also be used as an auxiliary soln. Path.

DESCRIPTION OF IDEA;

We have found that near vicinity of transformer base we are going to initiate 2-3 IR sensor sets(*transmitting and receiving type*), when any suspect come near the vicinity of IR rays, A disturbance of signal flow between them occur.

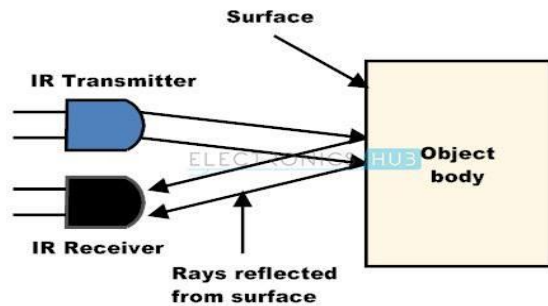


Fig. showing IR sensors.

Now the disturbance in signal flow induces a reference signal to G.S.M. modem, We are programming the G.S.M modem IC chip such that if any reference signal received or occur, induct a carrier signal and send a text message or place a telephone call to the prefixed numbers an initiate alarm for 3 times if equipped.



GSM circuit.

Fig. Showing IC chip which is equipped in

Text message will be prefixed, probably a necessary message(*transformer is in sabotage*) will be shown or it may be changed if necessary. Phone call dialer number will be residing farmer handset or of electricity dept. Officials.

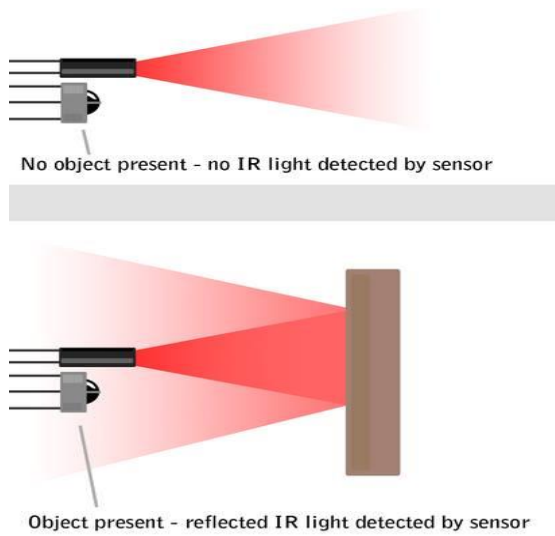


Fig. Showing IR sensors operation.

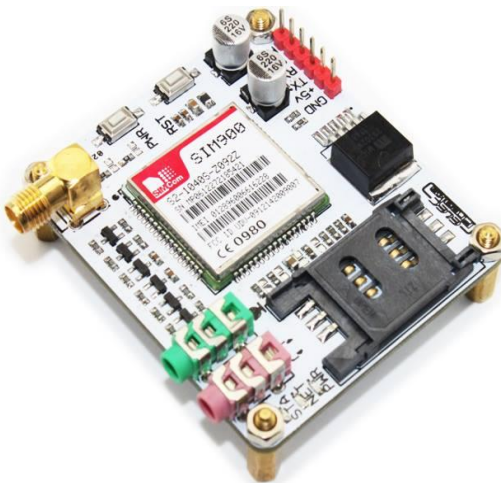
Case:1

"If any animal approaches nearby transformer base" ?

For the case considered, we are making IR sets locus to transformer tank area.

Case:2

No one knows where IR sensors, activating kit is placed. Except the incharge or circuit installer.



with an IC and a GSM SIM.

Fig. Showing G.S.M modem kit equipped

We are in agog to make a prototype design for above idea, and happy to improve constructive developments.

THANK YOU FOR READING MY THESIS

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