ISSN: 2581-9674

International Journal for Development of Computer Science and Engineering (IJDCSE)
Volume-1, Issue-2, May-2019, PP.05-07
www.ijdcse.org

A Study on Electronic Circuit Breaker in Telecommunication Network System

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Abstract

The Electronic electrical switch are intended to remove the power supply at whatever point over-burden or short out happen. Conventional electrical switch like MCB put together is with respect to warm bimetal switch trip system. MCB is exceptionally moderate and the excursion time shifts as indicated by the Level of over-burden.

The idea of electronic electrical switch came into center when the conventional circuit breakers, for example, MCBs set aside longer opportunity to trip. This undertaking is showing quick stumbling instrument as against the moderate one like MCB.

In this task current is detected by current transformer and after that contrasted and a preset esteem present in microcontroller to create a yield for opto-coupler that drives a triac to trip the heap inside microsecond. Stumbling is incredibly quick and beats the confinement of the warm sort in over-burden condition

***Key Words*:** Microcontroller, Current Transformer (CT), opto-coupler, triac and so forth.

INTRODUCTION

The present going to the heap is detected by current transformer and yield of CT will be in simple structure is given o the ADC stick of microcontroller for changing over the simple yield to computerized information. The current detected is contrasted and the inbuilt comparator of microcontroller which as pre-set reference esteem. On the off chance that the current detected is not exactly the pre-set esteem, at that point opto-coupler will be in OFF state and the hand-off won't opto-coupler the supply to stack. As we increment the heap current drawn is more so if the current is increment than pre-set an incentive than opto-coupler will turn ON and trigger the triac.

In this task opto-coupler is utilized to shield the microcontroller from air conditioning supply. In the event that the air conditioner current reverse in the circuit opto-coupler disengage microcontroller structure the air conditioner supply. The Drove utilized as a marker is legitimately one-sided and it gleams. The Air conditioner supply to the heap is cut off from the heap and the heap is trip. When the circuit is stumbled it must be reset for further use utilizing reset catch.

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1. Presentation

It is the turn which naturally kills when current coursing through it passes as far as possible. This is principally configuration to secure against over present and over temperature. At whatever point the over current is drawn by the heap the circuit will be stumbled. To trip the circuit we are utilizing one transfer which will be controlled through microcontroller. For the security from over current condition first we need to estimating the all out burden current. In this CT for estimating the absolute burden current and the yield of CT is ADC for changing over simple yield of CT into computerized information.

At the point when current increments behind as far as possible then we are going to trip the heap by utilizing triac.

2. Explaination:

The primary power supply is offered specifically to stack through CT (current transformer) and the progression down transformer. Supply voltage 230v is venture down to12v and provided to direct supply unit which comprise of scaffold rectifier to change over air conditioning to dc and went through 7805 Controller to get 5v supply for working microcontroller.

2.1 Microcontrollers:

The ATiny85 is a low power CMOS8-bit microcontroller dependent on the AVR improved RISC engineering executing incredible guidance in a solitary clock. The ATiny85 accomplishes throughputs 1MIPS per MHZ permitting power utilization as opposed to preparing speed.

- High Execution, Low Power AVR 8-Bit Microcontroller
- 8K Bytes of In-Framework Programmable Program Memory Streak
- 512 Bytes In-Framework Programmable EEPROM
- 512 Bytes Interior SRAM
- On-chip Simple Comparator
- Industrial Temperature Range

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2. 3 MOC3041:

The MOC3041 gadgets comprise of gallium arsenide Infrared radiating diodes optically coupled to a solid silicon finder playing out the capacity of a Zero Voltage Intersection reciprocal triac driver as

2.4 MOC3041-800C:

Planar passivated high substitution three quadrant triac plastic bundle planned for use in circuits where high static and dynamic dV/dt and high dI/dt can happen.

- Simplifies Rationale Control of 115 Vac Power
- Zero Voltage Intersection
- dv/dt of 2000 V/ms Normal, 1000 V/ms Assurance
- Reverse voltage 6 volts

Table - 1: Stumbling current for rating 1A and 5A

Rating	Non tripping Current(mA)	Tripping current(mA)	Voltage(V)
1A	1.13	1.45	230
5A	5.65	7.25	230

Graph 1: B type stumbling attributes 3. Ends

To dodge the electrical disappointment quick reacting circuit with various rating .Exactness in blame identification and cut off time and furthermore smooth the activity contrasted with ordinary sort.

REFERENCES

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Flood flows in residential establishments are commonly low, so that a Sort B gadget is sufficient. For instance Inrush