FLOOR STAND LIGHT

USE LED INSTEAD OF HALOGEN BULB

MODIFY FOR ENERGY SAVING

FLOOR STAND LIGHT

HALOGEN BULB

THE HALOGEN LIGHT BULB IS A TYPE OF INCANDESCENT BULBS WHICH ARE FILLED WITH HALOGEN GAS IN ORDER TO INCREASE BOTH LIGHT OUTPUT AND RATED LIFE. THEY ARE MODERATELY HIGH EFFICIENCY, QUALITY OF LIGHT, AND HIGH RATED LIFE COMPARED TO REGULAR INCANDESCENT LAMPS.

LED, COB

LED IS IN SHORT OF “LIGHT EMITTING DIODE” AND WHERE COB IS IN SHORT OF “CHIP ON BOARD.” MEANS MULTIPLE LED ARE BONDED ON SAME CIRCUIT BOARD TO PROVIDE HIGHER LIGHT INTENSITY IN SMALLER BOARD AREA.

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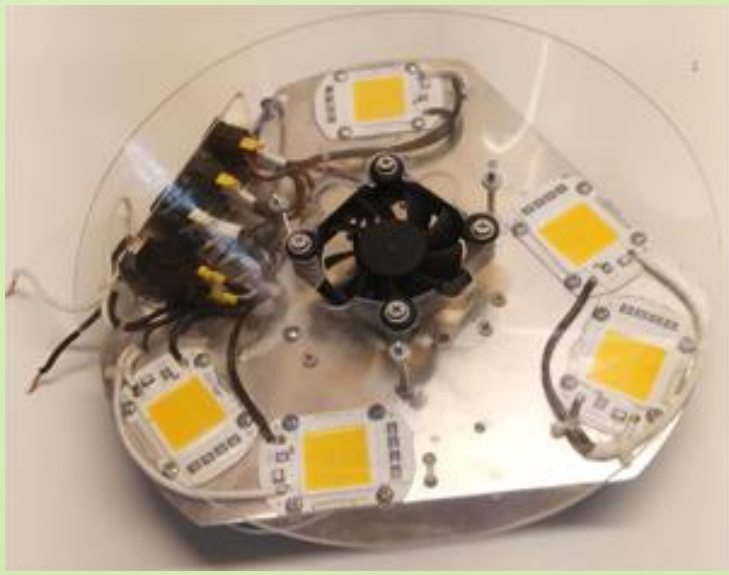
HISTORY OF MODIFICATION

THE FIRST MODIFICATION WAS DONE ABOUT 1-1/2 YEAR AGO. THE LED START FAILED AFTER ABOUT 8000 HOURS OPERATION WHICH IS SHORTER THAN I EXPECTED. NORMALLY, IT SHOULD BE 15000 TO 20000 HOURS. HOWEVER, VARIES FACTORS AFFECT THE LIFE. FOR EXAMPLE: TEMPERATURE, QUALITY ETC. HERE ARE THE PICTURES OF THE FIRST MODIFICATION.

PLEASE NOTE ONLY THREE LEDs LIGHT UP AT ONE TIME, OTHERS ARE SPARE.



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2nd MODIFICATION

THE 2nd MODIFICATION WAS DONE RECENTLY. THE KEY DIFFERENCE AGAINST 1ST VERSION IS TO USE LARGER HEATSINK INSTEAD OF ALUMINUM SHEET. ALSO FANs ARE USED TO COOL DOWN HEATSINK TEMPERATURE. SWITCHES ARE USED FOR LED POWER ON/OFF AS 1ST VERSION

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PARTS USED - HEATSINK

A HEATSINK WITH SIZE OF ABOUT 6X4 INCHES IS USED FOR LED MOUNTING AS SHOWN.

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PARTS USED - FAN

A DC 12 VOLTS FAN IS USED WITH 4 SLIDE SWITCHES TO SUPPORT SPEED CONTROL. SPEED CONTROL IS NOT MANDATORY AND IS UP TO YOUR PREFERENCE. I USE A FEW ZENER DIODES IN SERIES WITH THE FAN, WHICH CAN BE SHORTED CIRCUIT BY THE SLIDE SWITCHES TO ADJUST THE DC VOLTAGE TO THE FAN TO ACHIEVE SPEED CONTROL. THE REASON IS TO CONTROL FAN NOISE WHEN USE.

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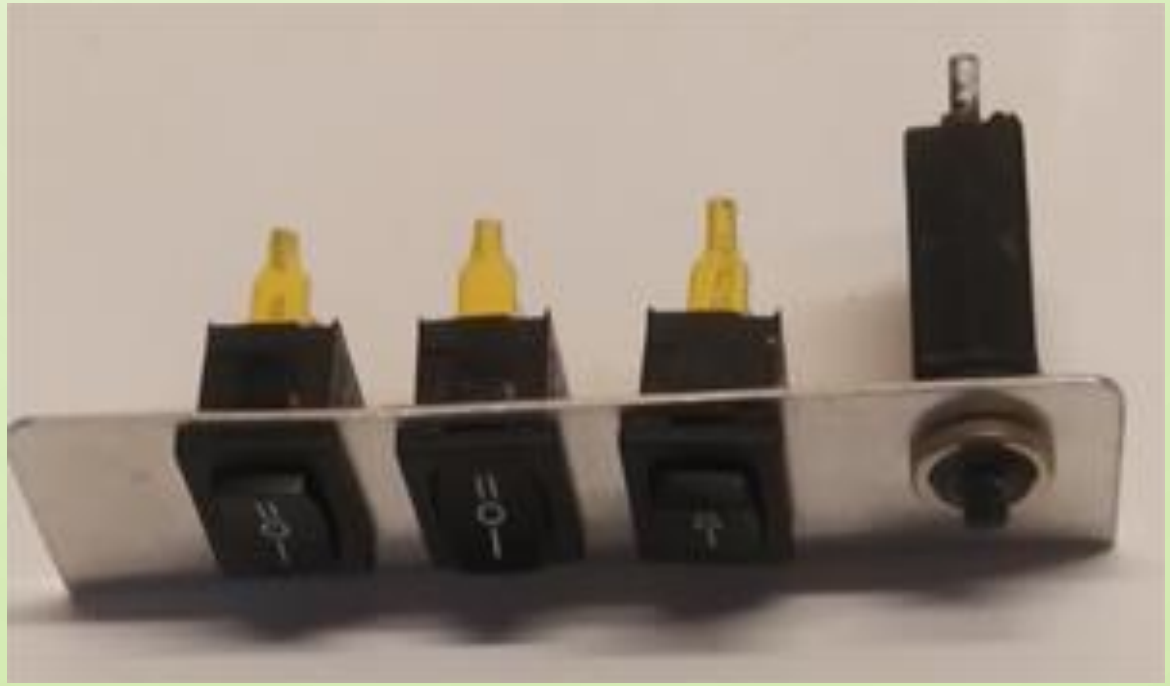
PARTS USED – LED ON/OFF SWITCHES

THREE POWER ON/OFF SWITCHES ARE USED TO CONTROL THREE OUT OF FOUR LEDs. ONE LED IS CONNECTED TO AC WITH NO ON/OFF CONTROL, WHICH WILL BE ON WHENEVER LIGHT SWITCH IS ON. OTHER THREE LEDS ARE CONTROLLED BY ON/OFF SWITCHES TO ACHIEVE MODES OF 1, 2, 3, AND 4 LIGHT ON.

A RESETTABLE CIRCUIT BREAKER IS USED AS OVERLOAD PROTECTION. I USE A 3 AMP CIRCUIT BREAKER AS SHOWN.



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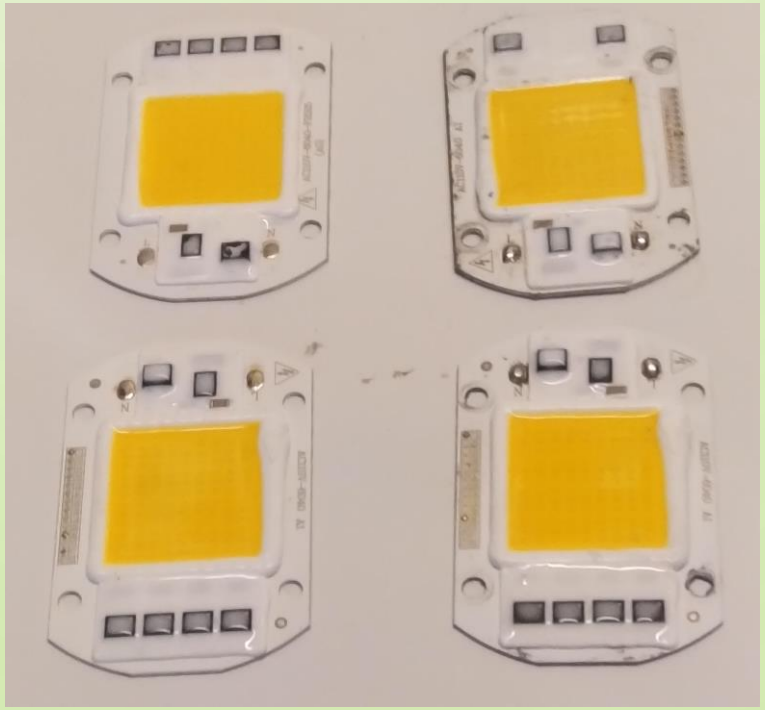
PARTS USED – LED, COB

THERE ARE COB LEDs USED. EACH ONE IS 30 WATTS AND GENERATE LIGHT SIMILAR TO 100 WATTS INCANDESCENT LIGHT. THREE LEDS WILL GENERATE LIGHT SIMILAR TO 300 WATTS HALOGEN LIGHT BULB. THE LED IS 110 VOLTS AC DIRECT CONNECTION TYPE AND WITH SIZE OF 40X60MM. LED WILL BE MOUNTED TO THE HEATSINK BY FOUR SCREWS.



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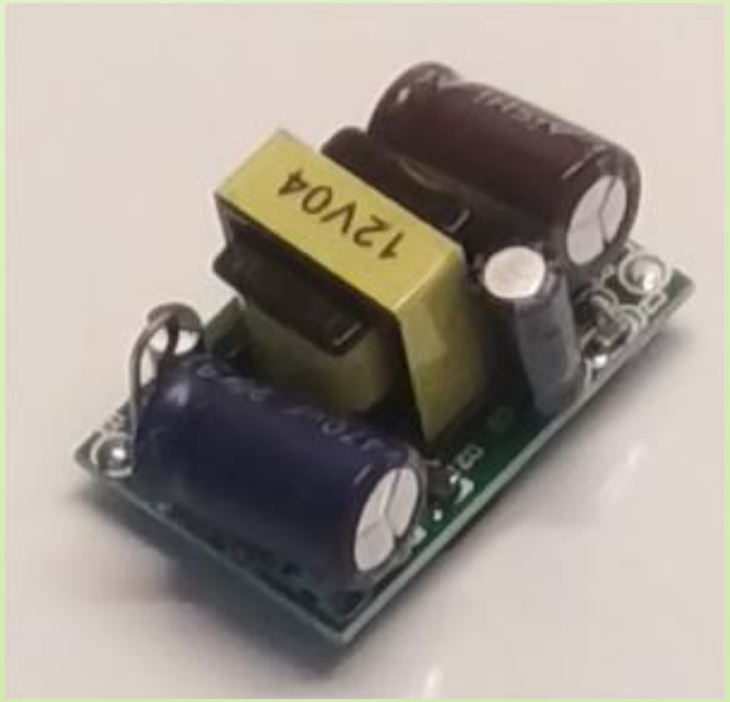
PARTS USED – AC TO 12V DC POWER SUPPLY

AC TO 12V DC 400 MA POWER SUPPLY IS USED TO POWER THE FAN FOR COOLING PURPOSE. THIS IS AN OFF SHELF PRODUCT FROM CHINA AND WORKED PRETTY GOOD AND IS SWITCHING POWER SUPPLY WITH NO HEAT ISSUE. I USE HEAT SINKABLE TUBE TO WRAP IT AND TIE TO THE SIZE OF HEATSINK WITH CABLE TIE. SIZE IS SMALL AS ABOUT 1/2 X 1/2 X 1 INCH ONLY..



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LED UNIT ASSEMBLY

THE PICTURE SHOWED THE UNIT ASSEMBLY WITH EVERY THING MOUNTED ON THE HEATSINK. LEDs ARE CONNECTED BY 105°C 300V WIRE.

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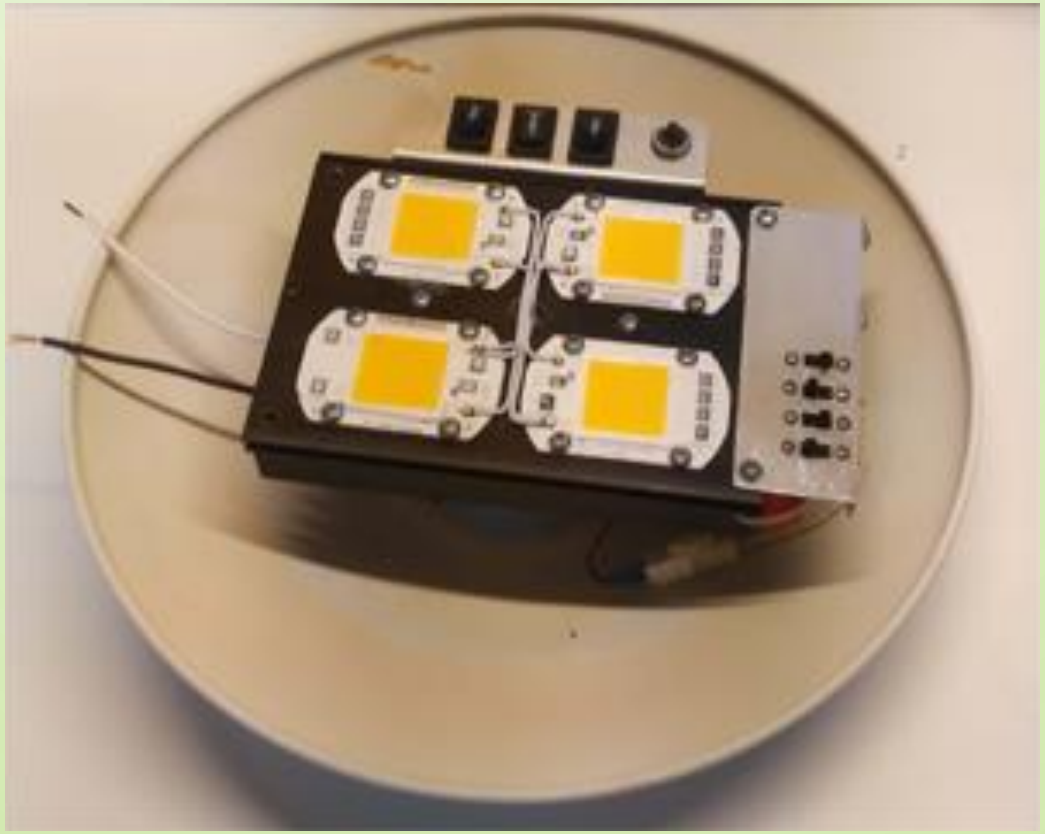
LIGHT UNIT ASSEMBLY

THE HEATSINK UNIT IS MOUNTED TO THE LIGHT AS SHOWN BY TWO SCREWS.



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LIGHT UNIT

THE PICTURE SHOWED THE LIGHT IS IN OPERATION WITH LEDs ON.
TEMPERATURE WITH ALL FOUR LEDs ON IS ABOUT 80 TO 90°C, ABOUT 70 TO 80°C WITH THREE LEDs ON AT MEDIUM FAN SPEED. I WILL MONITOR HOW LONG WILL THESE LEDS LAST BUT TAKES TIME. IT STARTED USE FROM DECEMBER OF 2021 WILL UPDATE WHEN AVAILABLE

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