

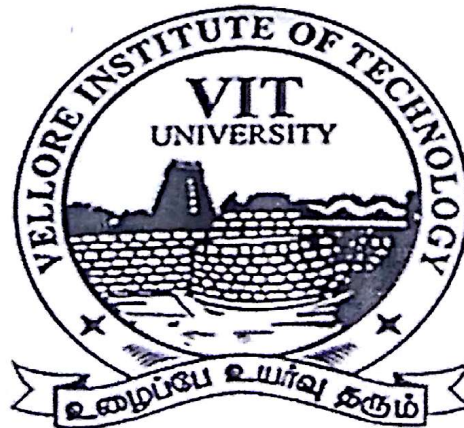
DESKTOP EMERGENCY LIGHT

PROJECT REPORT

**Submitted for the course: Semiconductor Devices
and Circuits (ECE1002)**

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CERTIFICATE

This is to certify that the project work entitled "DESKTOP EMERGENCY LIGHT" that is being submitted by Prakhar Jain, Amogh Dubey, Pramit Bhatia, Gracias Carlton and Shubhendu Singh for Semiconductor Devices and Circuits (ECE1002) is a record of bonafide work done under my supervision. The contents of this Project, in full or in parts, have neither been taken from any other source nor have been submitted for any other CAL course.

Place: Vellore

Date: 2nd May 2017

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3/5/15

ACKNOWLEDGEMENT

I would like to thank VELLORE INSTITUTE OF TECHNOLOGY for giving us a chance to improve our technical skills. I wish to express my deep gratitude and sincere thanks to our faculty Mrs. SUBHA BHARATHI S. VIT for her encouragement and guidance she provided to our team. Her sympathetic and immense motivation which has sustained all efforts at all stages of this project work. In the last we would like to thank our Chancellor for providing us the platform to perform the project work. I would like to thank our parents for their cooperation guidance and support.

ABSTRACT

- To create a desktop emergency LED lighting system which lights up the LEDs when there is a power failure in the main power supply
- The system also takes care whether there is sufficient ambient light in which case the emergency lights would not be required

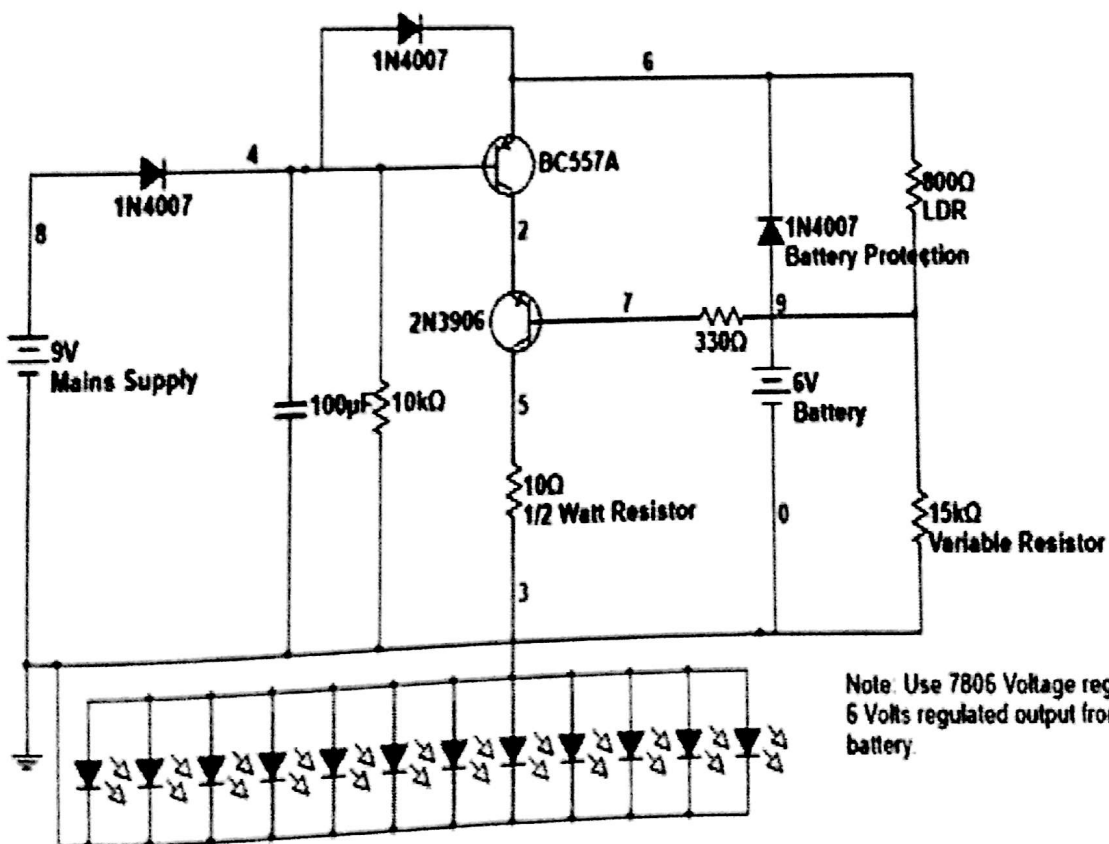
INTRODUCTION

Our project deals with an emergency LED lighting system that provides lighting in the case of a power failure. The system that we have designed takes care of this situation without using a microcontroller. The given system also determines whether during the time of power failure an actual requirement for the emergency light arises or not, depending upon the amount of ambient light present or not.

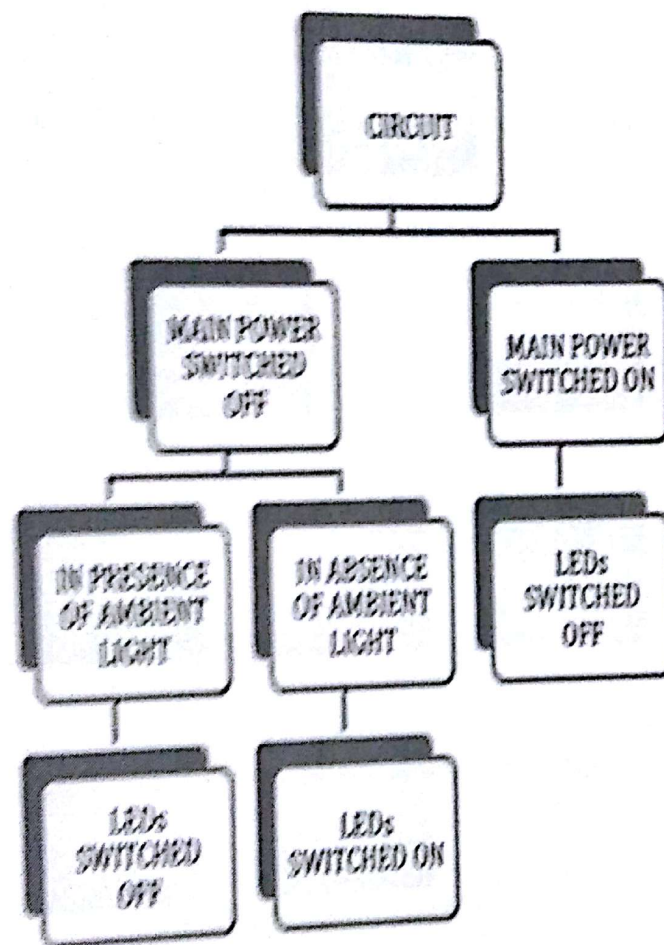
MATERIALS USED

- 12 LEDs
- 9 V BATTERY
- 2 TRANSISTORS- BC557, 2N3906
- 1 DIODE- 1N4007
- LDR
- 4 RESISTORS- 15K, 10K, 330, 10 Ω
- 3 CAPACITORS – 100, 0.1, 0.1 μF
- VOLTAGE REGULATOR

CIRCUIT DIAGRAM



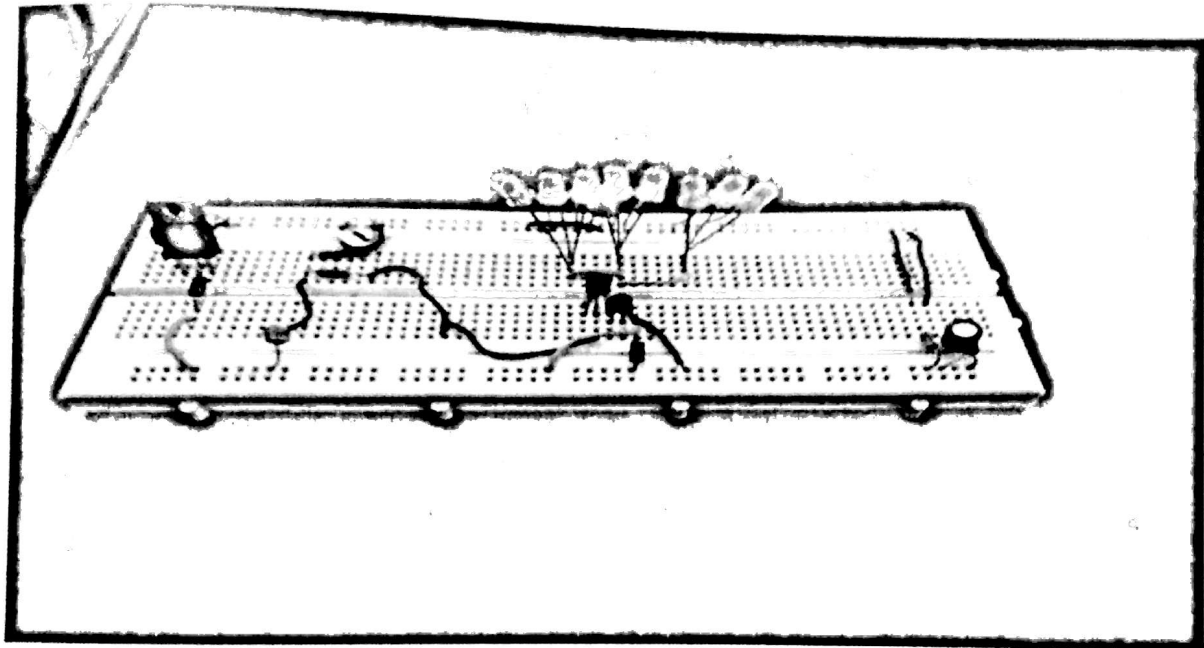
BLOCK DIAGRAM



APPLICATION

- In case of power failure this system could be used for lighting staircases, galleries, streets, etc.
- It is also having an energy conservation failsafe which ensures that the lights are lit up only when required i.e. when there is ambient darkness.

ACTUAL CIRCUIT



SOCIETAL IMPACT

- Such a system could be useful for providing proper lighting in areas which are prone to sexual harassment, rape, etc. because if the areas are lit then there is a better chance for the culprits getting caught.
- Could be useful in conserving energy during daytime by automatically switching off the lights, thus helping in reduction of electricity bill amounts.

FUTURE PROSPECT

SMART LIGHTING- Selective lighting of certain areas using IR sensing

CONCLUSION

We can understand the circuit and draw a conclusion that we are able to understand the parts and working of some semiconductor devices. This type of circuit and invention can be used in future prospect for smart street lighting systems very conveniently. By using LDR we were also able to study the properties of this important sensor. The project is also very cost effective as no part used in the given circuit is costly hence further promoting the concept of sustainable usage of resources.

REFERENCES

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