

# EFFICIENT LIGHTING WITH LED

a presentation by

**Er Ch Venkateswara Rao B.E.,M.B.A**

**Energy Conservation Mission**

**GLOBAL TELELINKS**

**[www.prakruthipower.com](http://www.prakruthipower.com)**

**prakruthipower@gmail.com**

**Hyderabad A.P. India**



# THE SCIENCE AND DEVELOPMENT OF LED

## LED: Light Emitting Diode

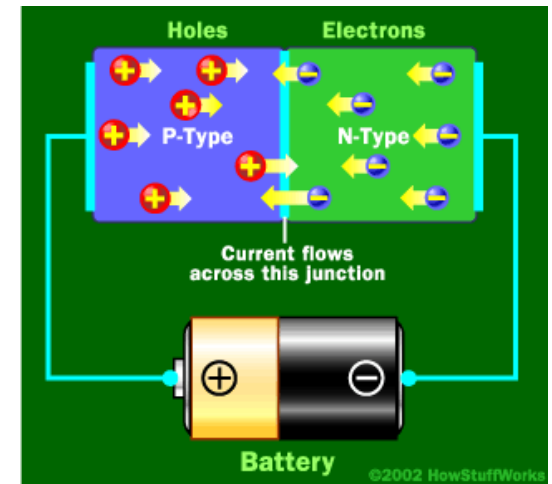


### History

- ❑ 1907 Henry Joseph Round Discovers Electro Luminescence
- ❑ **1962 First Red Luminescence diode launched**
- ❑ 1971 Other colors also available & improvement continues
- ❑ 1995 First LED with white light created & launched
- ❑ **LED used by industry in applications like - measuring instruments, in HiFi- equipment, telephones, personal computers, traffic signals for road and railway, indoor and outdoor automotive lighting**
- ❑ **Presently LEDS in variety of colors with 80 to 100 Lm/W are common & improvements in effectiveness & output continuing**
- ❑ **Shortly ( 2 Yrs) LED's with 120 – 150 Lm/W will be common**

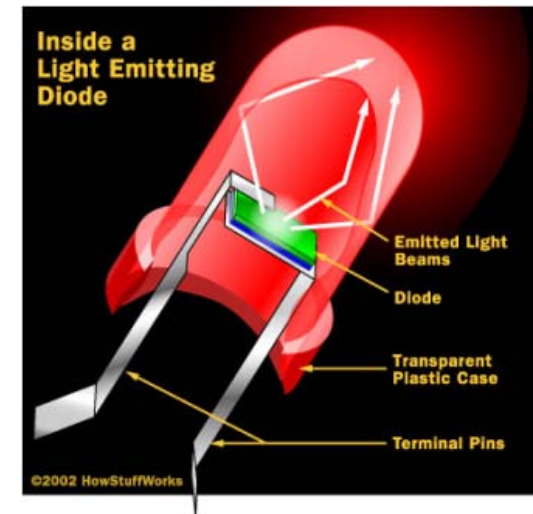
## LED - Principles of Working:

- LED consists of several layers of semiconducting material
- When DC Voltage is applied light is generated in active layer



- The generated light is radiated directly or by reflections - In contrast to lamps, which emit a continuous spectrum

- LED emits light in a certain color – depends on material used.



# W H Y      L E D' s

| FEATURES  | ADVANTAGES  |
|---|---|
| <b>More Light per Watt</b>  | <b>Highly Efficient with extremely long life</b>                        |
| <b>Small in Size</b>  | <b>Low energy consumption</b>   |
| <b>High Reliability</b>   | <b>Lights Instantly &amp; Operates Silently</b>                         |
| <b>Switched on &amp; off easily</b>   | <b>No ultra-violet or infrared radiation &amp; heat</b>                 |
| <b>Resistant to shocks &amp; Vibrations</b>                                     | <b>Directed light - with beam angle 120° with High color saturation</b> |
| Developing Technology Lm/W<br>present 100 will become 150 in the next 2/3 years | Highly Flexible & can be designed as desired                            |

# LED LIGHTING SOLUTIONS

## HOMES

Past



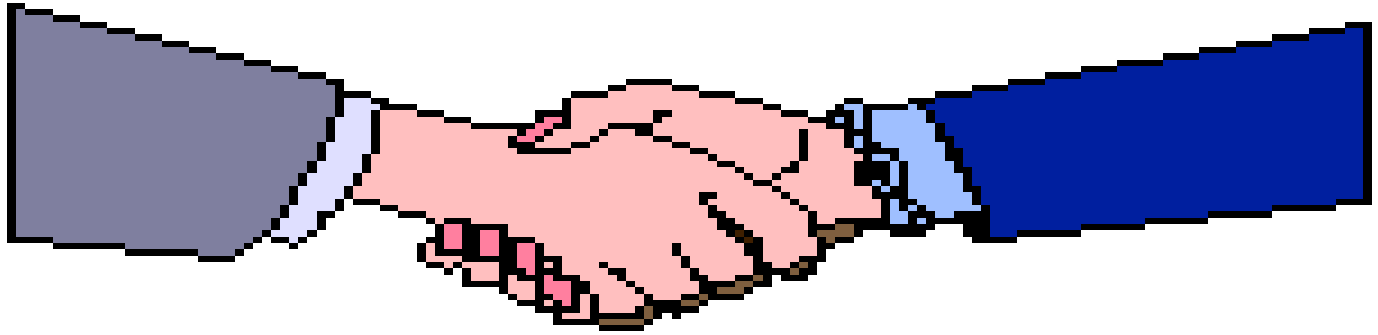
Present



Future



- ❖ Excellent replacement for Incandescent (90% saving) and CFLs (50% saving)
- ❖ A 20W CFL can be changed with a 10W LED or lower without sacrificing light output but reducing energy consumption by 50%. A Green product. CFL's have mercury, hence environmentally harmful, if not disposed carefully
- ❖ Ideal for use in areas where
  - There is no power
  - Rural/Remote/Hilly/Inaccessible Areas
  - To Improve energy efficiency
  - Power Shortage Areas



**REMEMBER**

**SAVE ENERGY**

**SAVE WATER**

**THANK YOU**

# ENERGY SAVING TIPS

- You have the Power to Save Power.
- Switch off a little, Save a lot. When it is bright switch off lights.
- Use Solar – Cookers, Water Heaters & Solar based LED Lamps.
- Maximize Daylight, Minimize Electric Light.
- No Water no Life, One planet one Life

# LED - Applications:

- General lighting indoor & outdoor
- Emergency lighting
- Decorative lighting
- Illuminated advertising
- Ideal when combined with Solar



# PrakruthiPower

(Sustainable Energy Solutions)



Home Light



Multipurpose Head Lamp

## ALL PURPOSE LED PRODUCTS



Flash Light Dynamo



Study Lamp



Pedal Generator



Solar Power Generator



UV Currency Detector



High Power Flash Light



Pedal - Power Pack

**EXCELLENT BACKUP PRODUCTS for**  
Rural & Urban Areas, Un-electrified Villages, Disaster  
Management, Camps, Field Visits, Tribal Areas, Farmers,  
Vendors/Small Shops, Mobile Cart Vendors and Travel etc.

# LED LIGHTING SOLUTIONS

## Street Lighting

- Excellent replacement for Sodium Vapor Lamps
- A 250 W Sodium Vapor Lamp gives 15,000 L, which can be achieved by a 100W LED saving 60% energy. In future it can be done with 80W or lower LED
- Highly Energy Saving, Lower energy consumption reduces Solar Panel Costs and makes it affordable.

LED's are also an ideal replacement for all kinds of lights used for long hours like corridor lighting, parking lighting, boundary lighting etc.



5-3-456/ A/ 20, 201, II Floor, Maruthi Grandeaur, Dwarakapuri Road, Punjagutta, Hyderabad - 500 082  
A.P, India. Phone: +91- 40- 2335 0291 Fax: 040 - 2335 0292, Cell: +91- 99490 11955



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