METRON

VIMAL JYOTHI ENGINEERING COLLEGE, KANNUR

ELECTRONICS & INSTRUMENTATION DEPARTMENT

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ROBOTS IN COMBAT

The fact is, weaponized robots—missile– launching unmanned combat air vehicles, rifles– totting unmanned combat ground vehicles, and mine—deploying unmanned combat underwater vehicles– are already a reality. At present the decision of wether these robots attack is still left to humans. But as robots gain more autonomy, will we or won't allow them to desired to fire weapons on their own.

The US defence department continues to mull the issue. John canning of the naval surface war fare center Dahlgren division, in Virginia, has pointed out that deploying weaponised robots while maintaining a human operator to do the actual firing is costly. He has put forth several concepts of operation that might allow autonomous armed robots to co-exist on the battle field with other manned and unmanned systems.

One of Canning's key concepts is to "**LET MACHINES TARGET OTHER MACHINES".** That is, design armed unmanned systems so that they can automatically identify, target, and neutralize or destroy the weapons used by advisories, but not the people using the weapons.

In those instances when it becomes necessary to target humans, Canning proposes that an armed unmanned system not be allowed to act autonomously but rather

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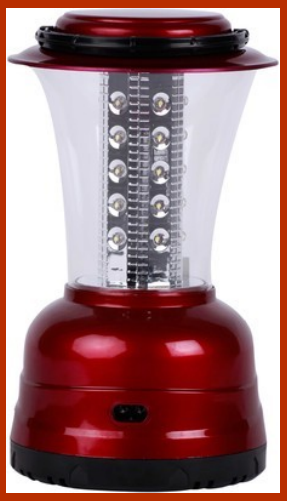
Newly Joined Staffs of our department

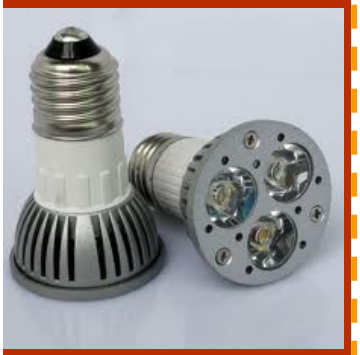
Mr. Dileep
M.Tech in Instrumentation & Control sys

Miss. Anna Joseph
M.Tech in Control & Instrumentation

Mr. Shinu
M.Tech in Process Control

History of LED Lamps





A full 90 percent of the energy you put into an incandescent bulb goes into making heat, not light. A standard 60W bulb generates approximately 850 lumens of light, which comes out to about 14 lumens per watt. Halogen lamps can provide about 20 lumens per watt.

CFLs are more considerably more efficient, producing around 60lm/W, but they have other problems. One common complaint is that you cant dim them. They are slow to light up, because their bulbs contain mercury vapour, which present an environmental hazard. Even with recycling oppurtunities available, million of these bulbs ends up in landfills every year.

LED based lights have none of these drawbacks, & they are far more efficient, some offering more than 100lm/W. These nominally white lights, contain blue LEDs, along with a phosphor coating that converts the narrow wavelength light they emit into something which the human eye perceives as white.

With the appropriate mixture of phosphor materials, designers can set the tone of the light from cool to warm, depending on the application.

Next to their high energy efficiency, the most attractive quality of LED lights is their longevity. Exactly how long one will last depends on how its designed & operated, but most will work for 25,000 hours or more.. So if you use an LED lamp for 10 hours a day, you could expect it to last form 7 to almost 10 years.. That's a far cry from a standard incandescent bulb, which on average goes dark only after about 10,000 hours of use. It also beats CFLs, which typically last from 6,000 to 10,000 hours.

Such long lifetimes reduce one of the hidden costs of lighting, especially for commercial & industrial users. The energy savings that accrue, explains why large scale users have been the early adopters.

One drawback of the LED is that unlike an incandescent bulb, it cant just run straight off the electric mains. The operating voltage of a standard white light LED is usually in the range of 3 to 3.6 volts, about the same voltage as the lithium-ion battery in your cellphone. Although this makes LEDs easy to use in mobile devices, most lighting fixtures get power from the grid. So conversion circuitry is required to transform the AC line voltage into a form that can drive individual LEDs.

The necessary circuitry is similar to that in a cellphone charger or laptop adaptor, with some key differences.

First, because LEDs can operate for many years, the power electronics that drive them must either last just as long or be configured so that any failure prone circuits can easily be replaced.

Lastly, the driver circuitry must be able to withstand relatively high operating temperatures.

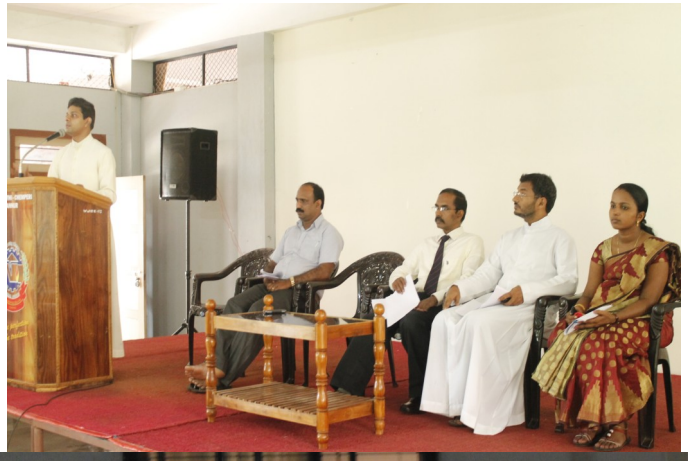
Incandescent bulbs radiate their waste heat into the space around them as infrared waves, whereas LEDs radiate only visible light.

In most instances, the individual LEDs in each group are wired in series. Connecting them this way ensures that the same amount of current flows through each one, even if there are minor differences in their electrical characteristics.

On one hand, many people will shift to LEDs bit by bit. On the other hand, LEDs present designers with ways to create much more innovative forms of lighting.

The adoption of LEDs for general lighting will no doubt be both evolutionary & revolutionary.

PTA Meeting of S3 & S5 AEI



S3 AEI Parents attended - 38 out of 40

S5 AEI Parents attended - 29 out of 36

Result Analysis

S3 AEI Results (First Series)

1st Rank—Jeenu Jose

2nd Rank—Shalima

3rd Rank—Sanisha

Total No: of students—40

No: of students appeared—40

No: of students passed—11

No: of students failed—29

Pass Percentage—35%

S5AEI Results (First Series)

1st Rank—Swetha N E

2nd Rank— Aparna Suresh

3rd Rank—Sajitha, Sreethu

Total No: of students—36

No: of students appeared—36

No: of students passed—25

No: of students failed—11

Pass Percentage—69.44%

S7 AEI Results (First Series)

1st Rank— Sangeetha

2nd Rank— Sreeragi

3rd Rank— Vishal Sunny

Total No: of students—31

No: of students appeared—31

No: of students passed—25

No: of students failed—6

Pass Percentage—80.65%

Upcoming events

1. **5 Days workshop on PLCs & SCADA by YOKOGAWA Industries Ltd from 9th September 2013 till 13 September 2013.**
2. **5 Days workshop on PLCs & SCADA by SMEC Labs from 23rd September 2013 till 27 September 2013.**

M.Tech in Control & Instrumentation

M.tech in Control & instrumentation under the department of Electronics & Instrumentation was started on 12/08/2013. The orientation Classes have been conducted till 20/08/2013. The classes have been handled by expert resource persons.

The staff crew includes:

- Miss. Anna Jacob
- Miss. Mary Mol Paul
- Mr. Akhil Jose
- Mr. Shinu
- Mr. Dileep

The students are:

1. Vineed T Govind
2. E P Libin Jijoe
3. Muhammed Sabah
4. Merin Mathews
5. Jefin Thomas
6. Elizabeth Rajan
7. Chinju Joseph
8. Simna Surendran
9. Ashlin George
10. Nitha Thomas
11. Sudarshana Vijayan
12. Jithina P K

JYOTHIRGAMAYA 2013

Project For U

AUTOMATION OF NITROGEN PLANT USING PLC & SCADA

Today, most of the industrial processes are controlled by the use of PLC. They are used in industries like petroleum, gas, chemicals etc. The air, flow, temperature etc in these industries can be controlled using PLC. This project deals with Nitrogen plant Automation using PLC. A PROGRAMMABLE Logic Controller is a digital computer used for automation of electromechanical processes, such as control of machinery on factory assembly lines etc. PLC is designed for multiple inputs & output arrangements, extended temperature ranges, immunity to electrical noise & resistance to vibration & impact. Programs to control machine operation are typically starred in battery backed up or non volatile memory.

The entire process of extracting nitrogen gas from atmosphere by a system that consists of following devices like solenoid valves, air compressor, air filter regulators, rotameters, bourdon tube, pressure switches etc. Atmospheric air with various impurities admitted & compressed through air compressor & send to an air receiver, then to the system. Plant has two tanks of similar capacity constituting with different solenoid valves & other associated paraphernalia. When the pressure in the compressor is in between 6 to 8 Kg/cm square, it admits to the first tank through appropriate valves. Now oxygen & other impurities are absorbed by the CMS & then nitrogen is separated. When first tank works for 36 seconds, the second tank regenerates, then within another four seconds both tanks equalize the pressure. Nitrogen fgenerated in first tank pas to the storage tank, through appropriate solenoid valves & surge vessel by releasing the impurities. Then the operation is repeated in the second tank. Both tanks operate simultaneously one after the other with an interval of 36 seconds, so that the process is continued.