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BASIC ELECTRONICS

ASSIGNMENT NO #01

**TOPICS:**

1. Brief History Of Electronics.
2. Electronics Applications In Modern Age.

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**brief history of electronics:**

this is the history of 20th century about electronics and the three key modules of this history are vacuum tube, transistors and integrated circuits. In 1883, Thomas Alva Edison bring to light in which electrons run from one metal electrode to another metal by way of vacuum. This bring to light transference is called as the Edison effect. In 1904, John Fleming practical the Edison effect to discovering a two components electron tube known as diode. In 1904, Lee De Forest copied the discovering method of two electron tube which was practicaled by John fleming but with the change to add one more electron tube and discovered the triode. The devices which made management of electrical energy possible were vacuum tubes, it could be enlarged and transferred.

First applications in which electron tubes were used radio communications. The progress of wireless telegraph was founded by Guglielmo Marconi in 1896 and also founded the long-distance radio communication in 1901. They both trusted on triode and made quick advances thanks during world war 1 to armed forces communications. To make waves and sounds initial radio transmitters, telegraphs and telephones used high voltage sparks. The strength of vacuum tubes were weak audio signals and permitted these signals overlaid in radio waves. In 1918, Edwin Armstrong developed “super-heterodyne receiver” that can choose between radio stations or signals and also get distant signals. As a direct result in 1920s radio broadcasting progress astronomically. In 1935, Armstrong also developed wide-band frequency modulation, from 1920 to 1935 only amplitude modulation or AM had been used.

more specialized tubes were ready for several applications before world war 2. Radio was the key form of education and entertainment was in a little while tested by television, which was developed in 1920s but not spread more, which is available till 1947. In 1927, bell laboratories widely disclosed the televisions and it was first in electromechanical form. When it proved that electronic system was superior, Bell labs engineers hosted the colour television and cathod ray picture tube. Then Vladimir Zworykin, was an engineer with RCA (Radio Corporation of America) is said to be “father of television” the reason is his invention that is the picture tube and iconoscope camera tube.

During world war 2, the development of television which is an electronic device, it is benefited because of many improvments which was made on the way to radar. Radar the reflection of radio waves, which was the invention of studies by many scientists in Britain. An acronym for Radar (Radio Detection And Ranging) which calculates the distance and the direction of an object which uses echoes of radio microwaves. It is use for the detections of aircrafts, ships, also use for the control of weapons firing, navigation and others. Pulse technology, circuitry, video and microwave transmission were improved at the wartime and these were take on by the television industry. In the mid of 1950s, television spreads radio for fun and home use.

After war, electron tubes was used for invent the first computer but it was not proper reason is the size of electronic modules. In 1947, Bell laboratories engineers team was invented transistors. John Bardeen, Walter Brattain and William Shockley got the noble prize because of their inventions. These transistors change the world quickly and dramatically. The transistors roles like vacuum tube, which is look like tiny when compares it, less power, more reliable, weigh less and inexpensive manufactured with the arrangement of metal contact and semi-conductor materials.

In 1952, integrated circuit concept given by Geoffery W.A. Dummer, British electronics engineers with Royal Radar Establishment. In 1950s, on single wafers and cut apart transistor were mass produced. The total semi-conductors circuits was a simple step far from this: it joined transistors and diode and capacitor and register on a chip or planar unit. In 1961, integrated circuit were full creation at a number of firm, and design’s tools changed quickly and few directions to adapt to the technology. Bi-polar transistors and digital integrated circuits were made head/first but analog ICs, LSI (Large Scale Integration) , VLSI (Very Large Scale integration) followed by the between of 1970s. VLSI involve thousand of circuits with gate mid of them on a single or with on and off switches. The only models of devices ready possible by integrated circuits are medical equipment, communication satellite, microcomputers, videos and cameras.

**eLECTRONIC APPLICATIONS OF MODERN AGE:**

The world is progressing day by day in every field. According to the electronics, it is also progressing. Before we use individual meters to measure individual quantities but we use multimeter, in one meter we can measure individual quantities.

Power electronics which is like umbrella term that contains the products and the systems, to control and convert the flow of electrical energy. Simply example to charging th laptop we required AC (Alternating Current) voltage from the electricity main to a lower voltage DC (Direct Current).

1. **MOTOR DRIVES:**

The application department in which the power electronic variables speed drives for electrical motors.

The power electronics varying the speed, make more efficient, speeds of motor drives and reduce the amount of energy.

2.**DATA CENTRE:**

Another department where power electronics can deliver energy saving is data centers. By applying variable speed to air condition and pump manage the speed system and speed can br adjust amount cooling needed. The result is energy saving are appear. Fast running and energy is half of its unit.

3. **EFFICIENT ELECTRICITY TRANSMISSION:**

As well as variable drives to control the speed of motors, power electronics makes it possible to transport electricity over huge distances with minimal losses. This is accomplished by power-electronics converters, which transform alternating current (AC) into high-voltage direct current (HVDC) and vice-versa.

4. **RENEWABLES**:

In the case of solar energy, power-electronics inverters make it possible to transform DC energy produced by a solar panel into AC, which can then be fed into a commercial electricity grid. A similar conversion from DC to AC is needed for wind energy, which must also be fed into the grid at a constant frequency, despite fluctuating wind conditions.

5. **THE ELECTRONICS BEHIND THE POWER**:

The core technology behind power electronics is the power semiconductor. One of the world’s most important competence clusters for power electronics is run by ABB in Switzerland, where the company develops and manufactures semiconductors and integrates them into power electronics-based products and systems