YASHWANTRAO CHAVAN COLLEGE OF SCIENCE,KARAD

DEPARTMENT OF ELECTRONICS

DEPARTMENTAL FACILITIES

CHART LIST

SR.NO	NAME OF CHART	POINTS	QUANTITY
1	Interfacing Pheripherals I	8272 & 8151 Pins	1
2	Interfacing Pheripherals Ii	8279 - 8259a & 8253 Pins	1
3	Instruction Sets	Instruction Sets	1
4	Communication System- Iii	Frequency Modulation	1
5	Communication System- I	Singal Side-Band Modulation (S.S.B.M)	1
6	Satellite Communication	Information - Electrical Signal-Decoder-Electromagnetic Signals-Reflected Electromagnetic Signals-Coder-Electrical Signals-Monitor.	1
7	Radio Detection And Ranging (Radar)	Radars	1
8	Industrial Electronics I Wave Shapping Integrating Circuit	Wave Shapping Integrating Circuit	1
9	Rectifiers – Half Wave Rectifier	Half Wave Rectifier, Full Wave, Rectifire Voltage Wave.	1
10	Development Of Light Intensity Monitoring System		1
11	Department Quality Policy And Objective		1

HOD

HEAD
Department of Electronics
Yashwantrao Chavan College of Science,
Karad

Principal

Principal
Yashwantrao Chavan College of Science, Karad

Yashwantrao Chavan College of Science ELECTRONICS Karad

YASHWANTRAO CHAVAN COLLEGE OF SCIENCE,KARAD

DEPARTMENT OF ELECTRONICS

DEPARTMENTAL FACILITIES

SCIENTIST CHART LIST

SR.NO	NAME OF CHART	QUANTITY
1	National Conference On Innovative Trends In Electronicsand Allied Technology (Iteat-2017)	1
2	National Conference On Innovative Trends In Electronicsand Allied Technology (Iteat-2017)	1
3	Kalpanachawala (1961-2001)	1
4	Jhon Von Neumann (1903-1957)	1
5	Edison, Thomas Alva (1847-1931)	1
6	Andre Marie Ampere (1775-1836)	1
7	Thomas Johann Seebeck (1770-1831)	1
8	Coulomb Charles Augustin De (1736-1806)	1
9	Euler, Leonhard (1707-1783)	1

HOD

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Department of Electronics
Yashwantrao Chavan College of Science,
Karad

PRINCIPAL

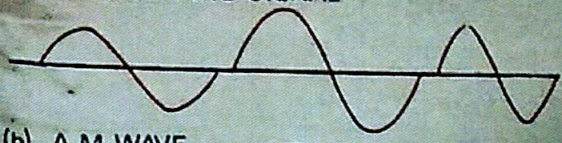
Principal
Yashwantrao Chavan College of Science, Karad

COMMUNICATION SYSTEMS-I

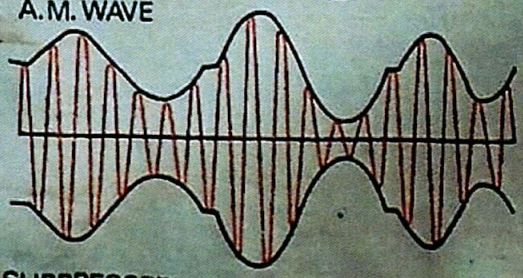
SINGLE SIDE-BAND MODULATION (S.S.B.M)

WAVE FORMS

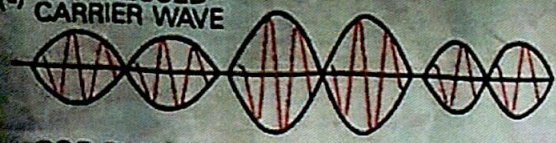
(a) MODULATING SIGNAL



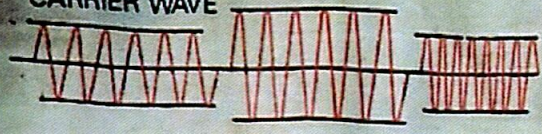
(b) A.M. WAVE



(c) SUPPRESSED CARRIER WAVE

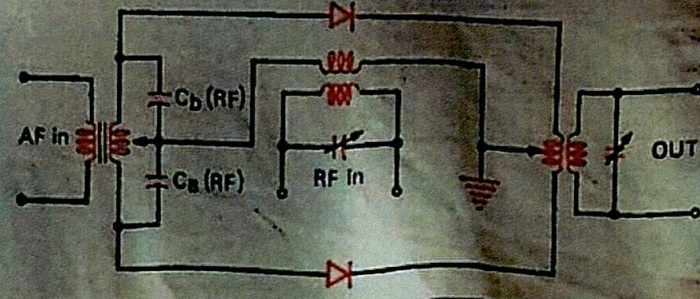


(d) S.S.B. SUPPRESSED CARRIER WAVE

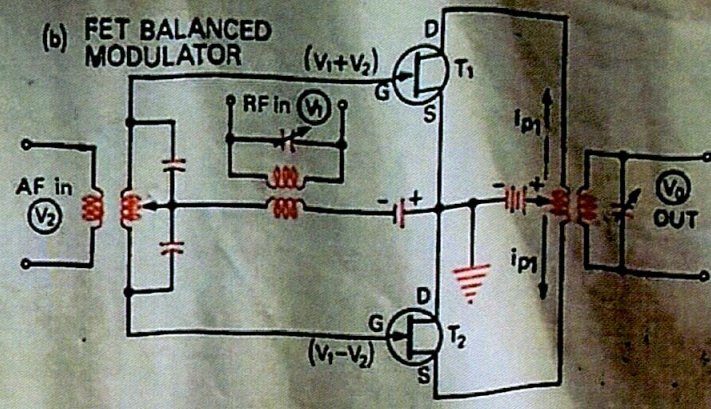


BALANCED MODULATORS

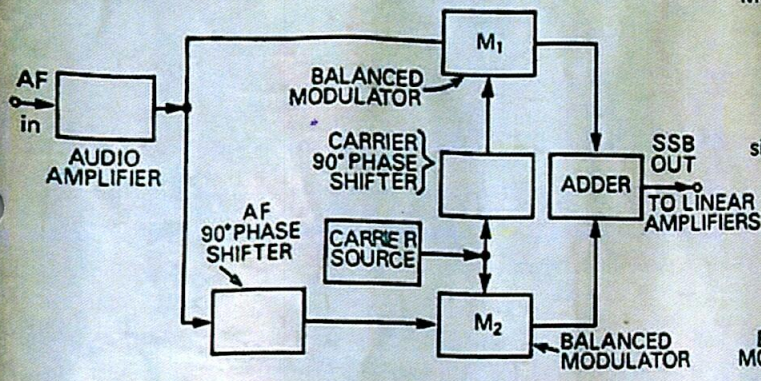
(a) DIODE BALANCED MODULATOR



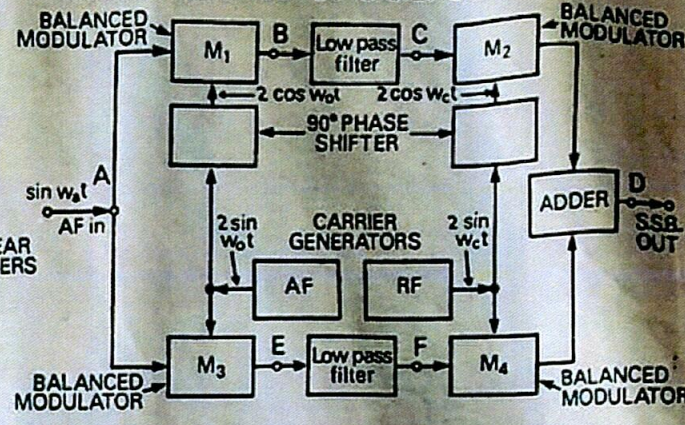
(b) FET BALANCED MODULATOR



SINGLE SIDE-BAND BY PHASE SHIFT

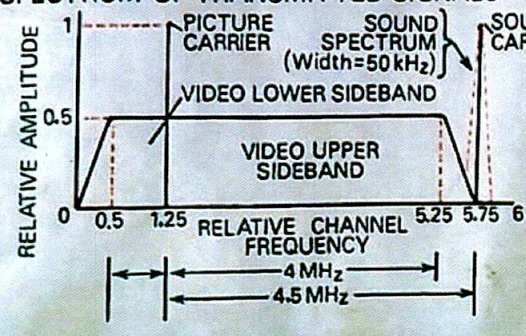


THIRD METHOD OF S.S.B. GENERATION

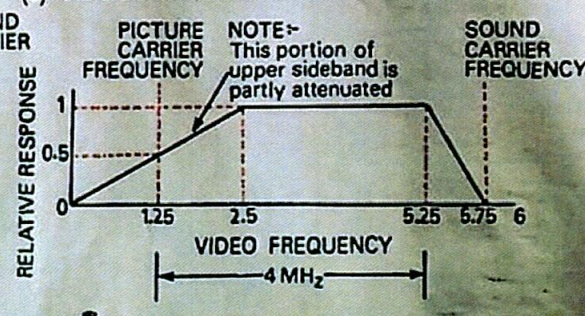


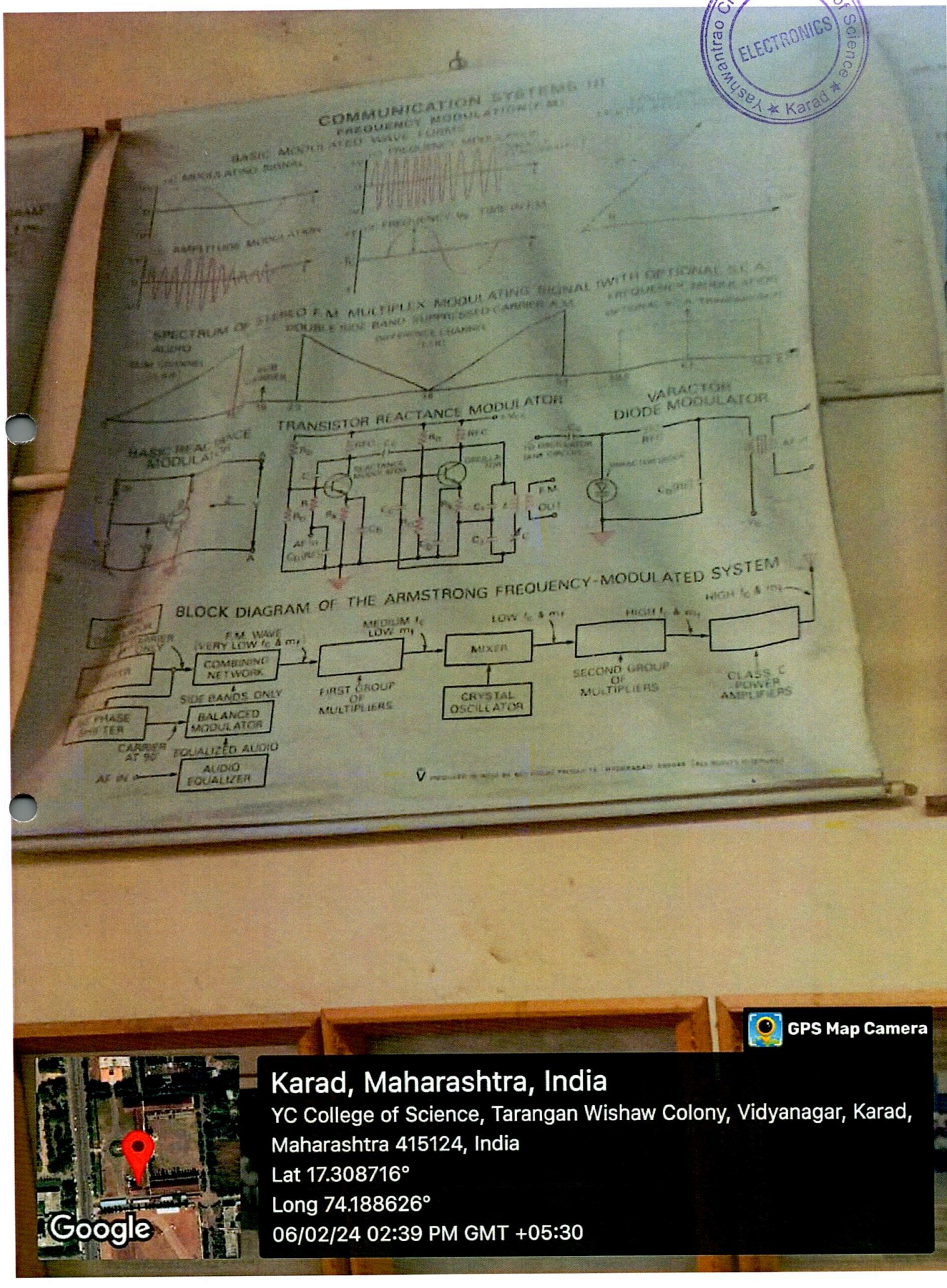
VESTIGIAL SIDE-BAND TRANSMISSION

(a) SPECTRUM OF TRANSMITTED SIGNALS



(b) VIDEO AMPLIFIER FREQUENCY RESPONSE





NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ELECTRONICS AND ALLIED TECHNOLOGY
(ITEAT-2017)

Development of Light Intensity Monitoring System

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(Corresponding Author: mail id-[illegible])

Abstract

The light sensing instrument has been developed for light intensity monitoring. The present milestone, real time system is developed around an Arduino UNO board ATMEGA32 microcontroller. A low cost CdS LDR serves as a light sensor. A 10KΩ resistor connected in series with it. The output is digitized using [illegible] ADC of microcontroller, after processing and calibrating the light intensity is displayed on LCD in [illegible] mode. It is [illegible] for measurement daylight intensity and automatic street light control. The results of [illegible] measurements are in good agreement. The system is useful for [illegible]

Keywords: LDR, Arduino UNO, daylight monitor, street light control

Introduction

The light intensity monitoring and control system has many applications like solar tracking, street light control, light control of the offices, classrooms, Traffic lighting system, Poultry industry, Gardening, Museum lighting system, etc. For safety and efficiency purpose Light measurement and analysis is an important. One such application automatic street light control system has been developed. Reducing energy consumption is one of the advantage of it [1-3].

The system is developed around LDR, Arduino UNO, LCD, SL100 and Relay .

Block Diagram

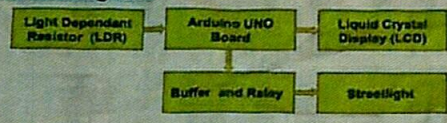

Fig. 1 Block Diagram of Light Intensity Monitoring System

a. Light Dependant Resistor (LDR):- The Sunrom Technology CdS LDR is used as a light sensor. Its resistor is depends on light intensity. As the light intensity increases resistor decreases. Using data sheet [3] the system is calibrated [5].

b. Arduino Uno Board:- It is an open-source physical platform based on ATmega32 series. It has IDE (Integrated Development Environment) for writing and uploading codes into the microcontroller. It consists mainly: i) Six Analog input pins, ii) fourteen digital input/output pins , iii) Six PWM outputs), iv)a USB connection v) Everything needed to support the microcontroller based development system. The analog port A0 is used for the reading LDR output and digital pin no 2 to 7 are used for the LCD. For making street light ON/OFF the digital pin number 8 is used [4].

c. Liquid Crystal Display:-The LCD model HD44780 is used to display measured light intensity. It has three control lines (RS, RW and E). The 4-bit LCD mode chosen allows less number of pins to display data/command. Therefore, only four lines D4 to D7 are used E is grounded. Compared to 8-bit mode, the display speed of this mode is lower.

d. Buffer and Relay :- The buffer is a circuit used for boosting the received Current to drive a Relay. In this Circuit a transistor SL100 is as a current booster. Relay is used for the controlling higher current from small current.

e. Street Light:- For the testing purpose a 60W bulb is used as street light.

Fig. 2 System Photograph

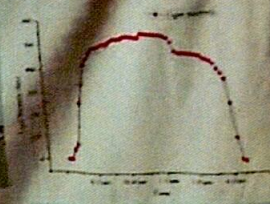

Fig. 3 Daylight Intensity Monitoring

System Program

The system program is written in the open source Arduino IDE. Developed hex file by IDE is downloaded into the microcontroller. The steps involved in it are: initialization of LCD, initialization of analog and digital pin, read sensor data with ADC, Calibration, display result on LCD in °C and if light intensity less than 10 lux make streetlight ON, otherwise make OFF.

Conclusion

- ✓ Fig. 3 shows the graph of the monitored light intensity vs day time
- ✓ It is tested for automatic street light control.
- ✓ The results of experimental measurements are in good agreement.
- ✓ The system is useful for light control as well as solar tracking.
- ✓ For the this system performance improvement accurate calibration must be needed.
- ✓ It is low cost, user friendly and portable system.

References

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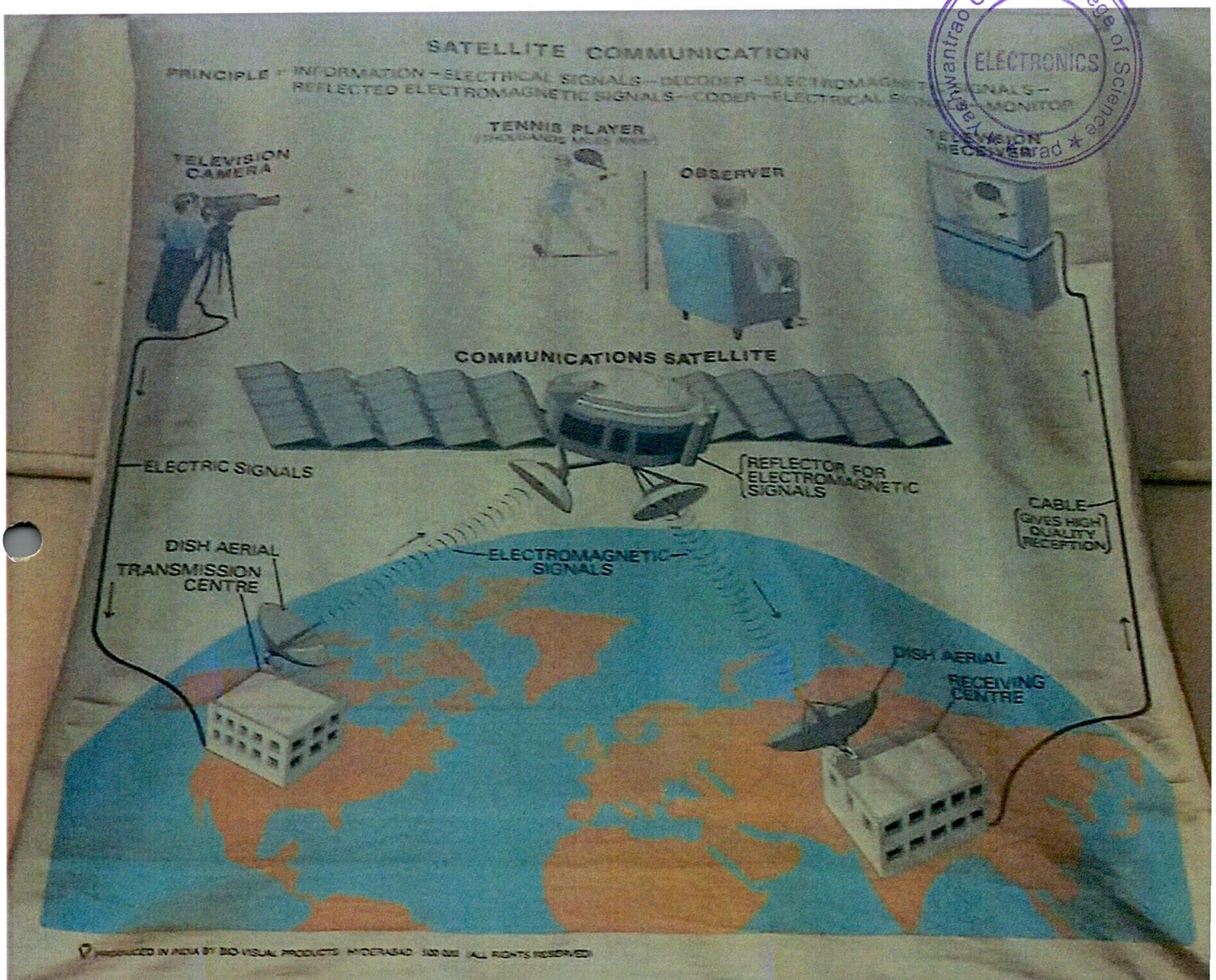
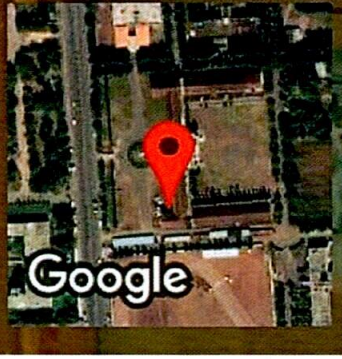
[2] Syed Fasi Uddin, Sudha Arvind, "Wireless Detection And Development Of Cloud Based Light Intensity Monitoring System Using Raspberry PI" IJITR, vol. 04 (04), pp.3325-3330, 2016.
[3] Vijay S. Kale, "Remote Light Intensity Monitoring System Using BPW21r, ARM, Arduino and ZigBee" JARCCE, vol. 5, pp. 467-472
[4] www.sunrom.com
[5] www.arduino.cc





EULER, LEONHARD (1707-1783)

A Swiss Mathematician, became famous for his great output of original mathematics, and for the wide range of subjects he covered. He did much of his work after he became blind by one eye in 1735 and totally blind in 1766. Euler contributed new ideas in Calculus, Geometry, Algebra, Number Theory and Probability. He also worked in many areas of Applied Mathematics, such as Acoustics, Optics, Mechanics, Astronomy, Artillery, Navigation, Statistics and Finance. Euler was born in Basel, Switzerla

THOMAS JOHANN SEEBECK (1770-1831)

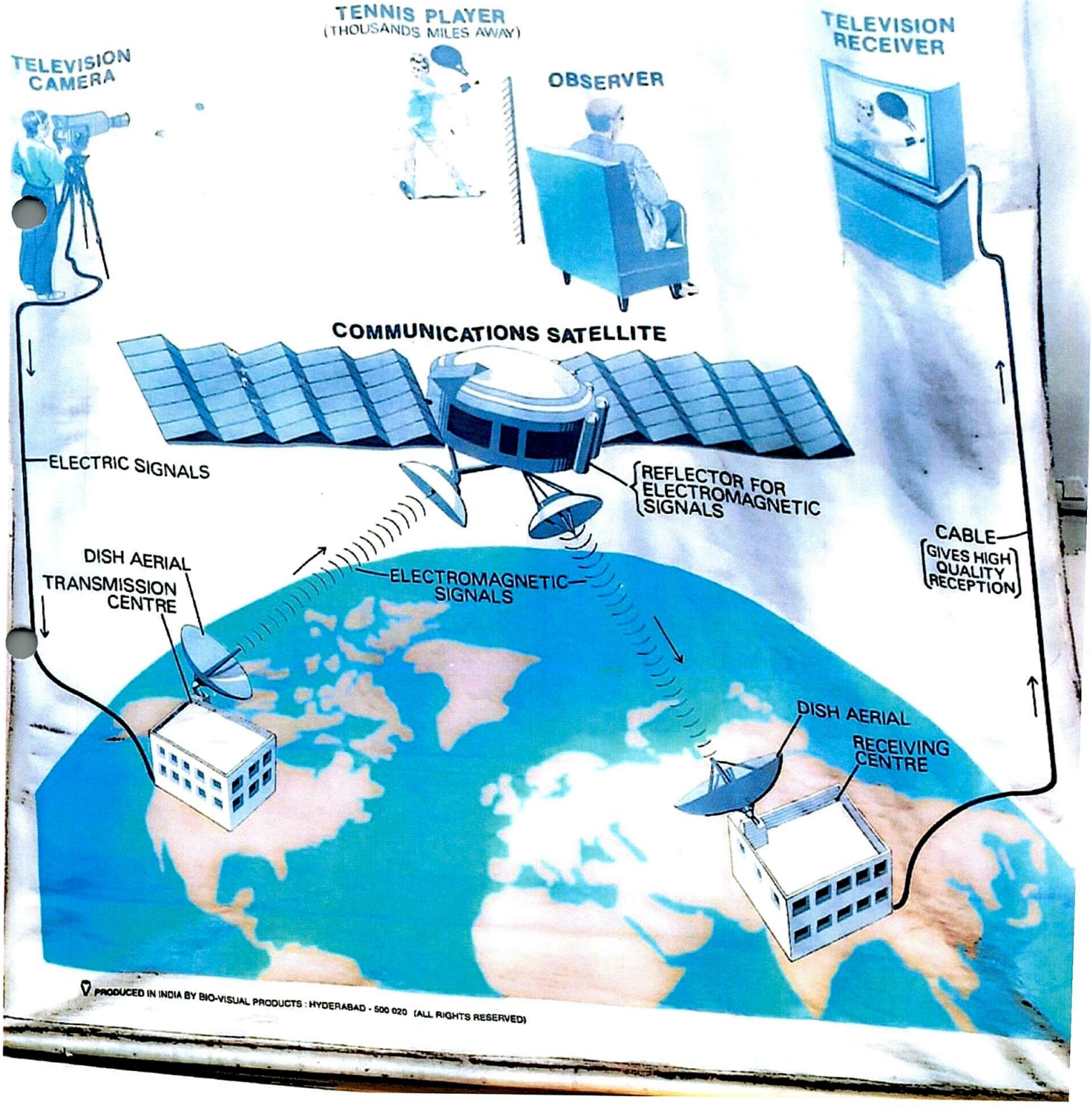
A well known physicist, discovered thermomagnetism. He study medicine in Germany, received his medical degree in 1802, but he preferred research in physics. He worked with Goethe on the theory of colour and the effect of coloured light. He uncovered the effects of heating and chemicals on different colours of the solar spectrum in 1806. In 1808, he obtained the first chemical combination of ammonia with mercuric oxide. In 1818, he worked on the magnetization of iron and steel, when electrical currents were passed through conductors. Which eventually resulted in the formation of phenomenon now known as 'hysteresis'. Seebeck made investigations into photoluminescence. He then accidentally discovered the "Seebeck Effect". It is the basis of the thermocouple and is considered the most accurate measurement of temperature.

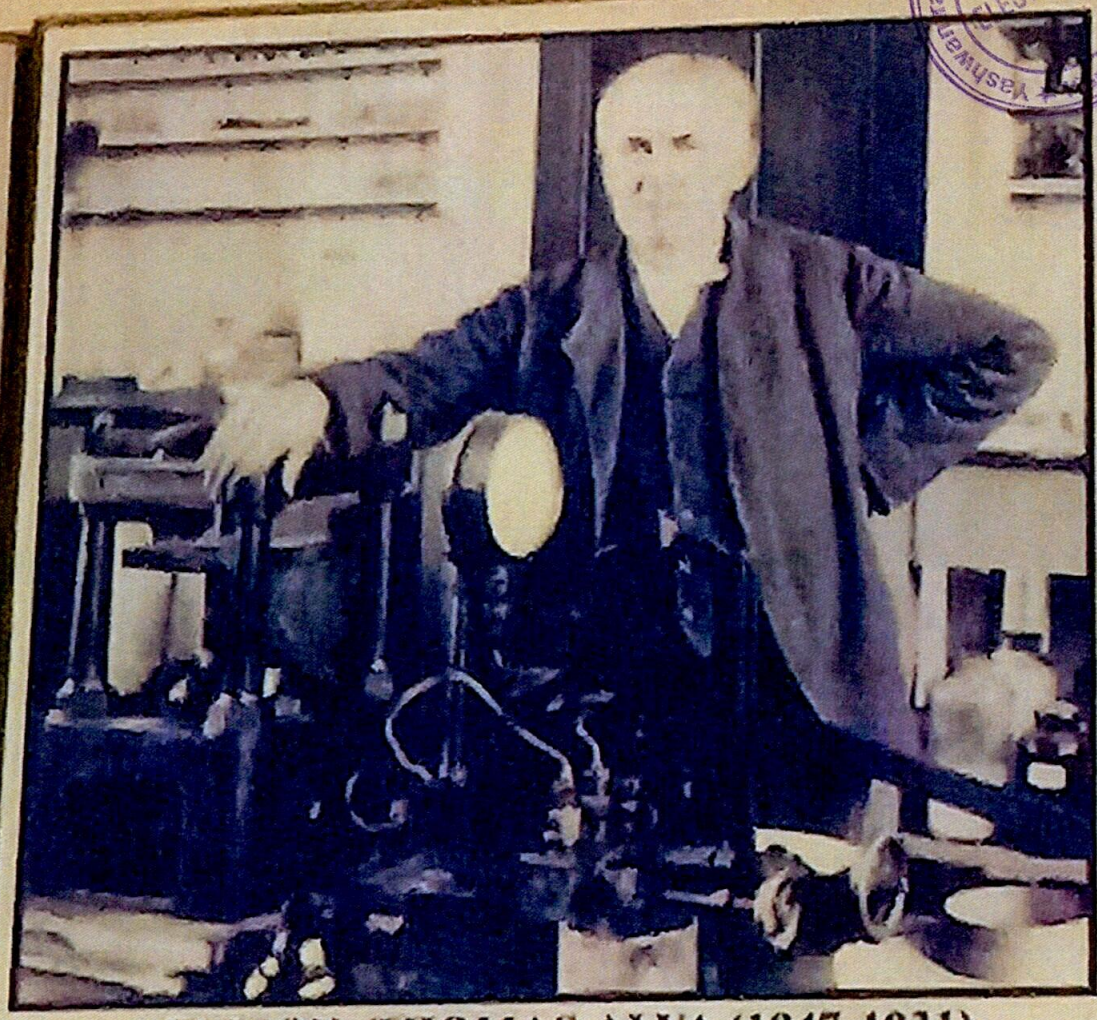
ANDRE MARIE AMPERE (1775-1836)

A French Physicist and mathematician, known for his important contribution to the study of electrodynamics. Ampere was born at Lyon. He mastered the entire known field of mathematics by age 12 and was a professor of physics, chemistry, and mathematics. He formulated a law of electromagnetism, called Ampere's law, that describes the magnetic force between two electric currents. Ampere invented the astatic needle, which made possible the modern astatic galvanometer. He prooved that the deflection of a compass relative to an electrical current obeyed the right hand rule. Ampere argued that magnetism could be explained by electric currents in molecules and invented the solenoid. He was the first to show that two parallel conductors carrying current travel in same direction attract each other and if in opposite direction, repel each other. He also developed a wave theory of heat. The SI unit of measurement of electric current, the Ampere, is named after him.

SATELLITE COMMUNICATION

INCIPLE :- INFORMATION – ELECTRICAL SIGNALS – DECODER – ELECTROMAGNETIC SIGNALS – REFLECTED ELECTROMAGNETIC SIGNALS – CODER – ELECTRICAL SIGNALS – MONITOR





EDISON, THOMAS ALVA (1847-1931)

One of the greatest inventors and industrial leaders in history. His most famous contributions include practical electric lighting, the phonograph (record player) and improvements to the telegraph, telephone, and films. Edison also created one of the first modern research laboratories. Edison obtained 1,093 United States patents. Altogether, he received thousands of patents from some two dozen nations. Edison was also a good businessman. Edison was born at Milan, Ohio, U.S.A. He received limited formal education. At age 12, he began to sell newspapers, sweets, and sandwiches on passenger trains. When he was 15, he published and sold a newspaper called the 'Weekly Herald'.

KALPANA CHAWLA (1961 - 2003)

First Indian woman astronaut. She was born in Karnal, Haryana. She did her graduation from Tagore School, Karnal. Kalpana did her Bachelor of Science degree in Aeronautical Engineering from Punjab Engineering College. Master of Science degree in Aerospace Engineering from University of Texas, in 1983. PhD in Aerospace Engineering from University of Colorado. Appointed as research scientist in MCAT Institute, San Jose, California, in 1988. Elected as Vice President and Research Scientist on Overset Methods Inc. Los Altos, California. In 1994, she was selected as an astronaut in NASA. From Nov. 19 to Dec. 5, 1997, was her first space flight in STS-87, Columbia. From Jan. 16 to Feb. 1, 2003, was her second and last space flight in STS-107, Columbia. The space shuttle met with a tragic accident while re-entering into the atmosphere and all astronauts lost their lives.

JOHN VON NEUMANN (1903-1957)

A Hungarian American mathematician who made major contributions to a vast range of fields, including set theory, functional analysis, quantum mechanics, ergodic theory, continuous geometry, economics and game theory, computer science, numerical analysis, hydrodynamics (of explosions), and statistics, as well as many other mathematical fields. Von Neumann was born in Budapest, Hungary and in 1937, became an American citizen. He made important contributions to the design of high-speed electronic computers. Several generations of computers have been based on Von Neumann's concepts. He was a principal member of the Manhattan Project. Along with Edward Teller and Stanislaw Ulam, von Neumann worked out key steps in the nuclear physics involved in thermonuclear reactions and the hydrogen bomb.

COULOMB CHARLES AUGUSTIN DE (1736 – 1806)

French physicist, pioneer in electrical theory. At the time of french revolution he continued to research in magnetism, friction and electricity. In 1777, he invented the torsional balance for measuring the force of magnetism or electric attraction. With this invention he formulated the principle, Coulomb's law, governing the interaction between Electrical charges. In 1779 he published , 'Theory of Simple Machines', an analysis of friction in machinary. The unit of quantity that is used to measure electrical charges, the Coulomb, was named for him.