DR MAHALINGAM MCET COLLEGE OF ENGINEERING AND TECHNOLOGY

Enlightening Technical Minds

Dr.MAHALINGAM COLLEGE OF ENGINEERING AND TECNOLOGY

DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING

TECHFORUM

DESIGN YOUR DESIGNATION

JANUARY 2013

SPOT LINE

Quenching the thirst for knowledge makes education interesting. TECHFORUM newsletter spell bounding technical treasure focuses on educating the readers technically, gives umpteen number of information about the history of leading core industries and careers inside them.

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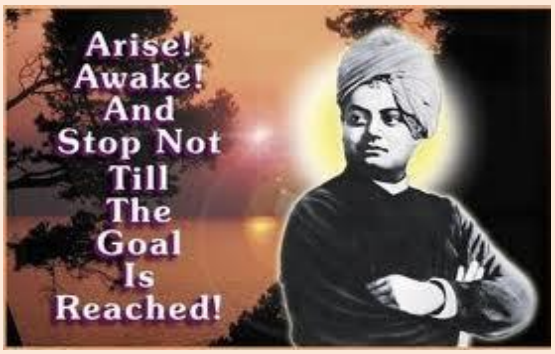
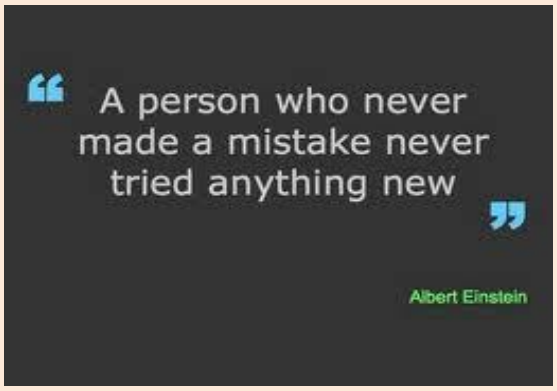
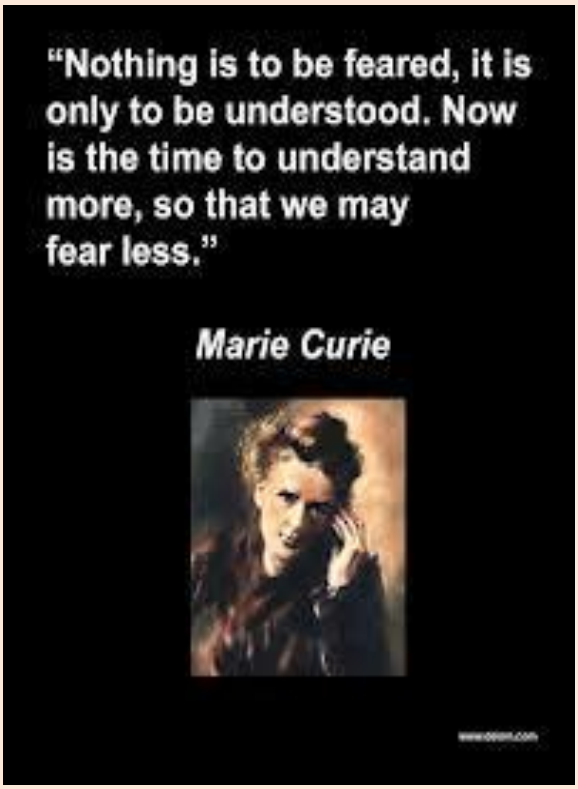
Amazing quotes







WHO WE ARE:

ABB is a global leader in power and automation technologies. Based in Zurich, Switzerland, the company employs 145,000 people and operates in approximately 100 countries. The firm's shares are traded on the stock exchanges of Zurich, Stockholm and New York. ABB's business is comprised of five divisions that are in turn organized in relation to the customers and industries we serve. The company in its current form was created in 1988, but its history spans over 120 years. ABB's success has been driven particularly by a strong focus on research and development. The company maintains seven corporate research centres around the world and has continued to invest in R&D through all market conditions. The result has been a long track record of innovation. Many of the technologies that underlie our modern society, from high-voltage DC power transmission to a revolutionary approach to ship propulsion, were developed or commercialized by ABB. Today, ABB stands as the largest supplier of industrial motors and drives, the largest provider of generators to the wind industry, and the largest supplier of power grids worldwide.

RECRUITMENT STEPS:

- **APTITUDE**
- **GROUP DISSCUSIONS**
- **TECHNICAL INTERVIEW**
- **HR INTERVIEW**

HISTORY OF THE COMPANY

1883

Ludvig Fredholm establishes Elektriska Aktiebolaget in Stockholm as manufacturers of electrical lighting and generators

1933

BBC obtains the patent for turbine rotors constructed from individual steel disks that are welded

CURRENT STATUS:

JOBS AVAILABLE=1336

JOBEMPLOYERS =165K

TECHNOLOGIES=8000

PRODUCTS

1942

ASEA builds the world's first 120 MVA, 220 kV transformer in the Stockholm Elverks Värtanstation

1952

ASEA designs and installs the first 400 kV AC cable – a 70 m low pressure oil-filled (LPOF) cable connecting an underground power station (built to withstand an atomic bomb) to the Swedish grid.

1988

ASEA and BBC merge to form the new company, with headquarters in Zurich, Switzerland. The new group, which started operations on Jan. 5, 1988, had revenues of $17 billion and employed 160,000 people around the world.

2000

ABB delivers world's first commercial high-voltage shore-to-ship electric power, helping reduce greenhouse gas emissions from ships berthed at the Swedish port of Gothenburg

2004

ABB launches its Extended Automation System 800xA providing a process automation system that has since been installed at thousands of medium to large process plants in the Oil & Gas, Chemical, Pulp & Paper, Metals, Mining and Life Sciences industries delivering continuous productivity improvements

2012

ABB successfully designs and develops a hybrid DC breaker suitable for the creation of large inter-regional DC grids. This breakthrough solves a technical challenge that has been left unresolved for over a hundred years and was perhaps one of the main influencers in the 'war of currents'

REGIONAL OFFICES IN TAMILNADU:

PLACE	ADDRESS	PHONE NO.	OFFICE
Chennai	129-140 Greams Road	+91 44 28291550/28291551	Zonal Office
Chennai	Mount Towers	+91 144 6615 6000, +91 144 6615 6017	Global Operations Centre, Chennai
Coimbatore	70 Race Course Road	+91 422 2305 934	Branch Office South – Coimbatore

SUSTAINABILITY NEWS

- 23-12-2012: ABB Hungary on the green path
- 04-12-2012: Solar power to empower South Africa
- 28-11-2012: Helping differently-abled people to live in dignity
- 14-11-2012: ABB's Hungarian manufacturing plant to capture the sun's energy

LATEST GROUP PRESS RELEASES

- ABB signs $260 million service contract with A/S Norske Shell in Norway

  07-03-2012: Integrated service and support solutions from ABB will contribute to efficient operations of the Draugen and Ormen Lange oil and gas fields

- Ethisphere Institute names ABB as one of the world's most ethical companies

  2013-03-06: ABB recognized for demonstrated leadership in ethical business practices

SUSTAINABILITY OF ABB:

For ABB, sustainability is about balancing economic success, environmental stewardship and social progress to benefit all our stakeholders.

Sustainability considerations cover how we design and manufacture products, what we offer customers, how we engage suppliers, how we assess risks and opportunities, and how we behave in the communities where we operate and towards one another, while striving to ensure the health, safety and security of our employees, contractors and others affected by our activities

CURRENT EVENTS

- The ABB annual results 2012 press release was published at 06:00 Central European Time (CET) today

  ABB proposes to raise dividend on the back of solid growth and near-record cash flow

- Annual results 2012 and fourth-quarter results 2012 media telephone conference

  A media phone conference took place today at 10:00 Central European Time (CET). Click on the above link for the playback details.

- ABB annual press conference 2013

  The ABB Group presented its fourth-quarter and full-year results for 2012 at a press conference, Feb. 14, in Zurich-Oerlikon, Switzerland.

- ABB solves 100-year-old electrical puzzle – new technology to enable future DC grid

  Development of a DC breaker for high voltage transmission will help shape the grid of the future

- Capital Markets Day 2012

  The ABB Group Capital Markets Day 2012 was held on Wednesday, September 12, in London, United Kingdom.

OFFICIAL WEBSITE: www.abb.co.in

Honeywell

HONEYWELL INTERNATIONAL,

INC. (NYSE: HON)

Honeywell is a major American conglomerate company that produces a variety of commercial and consumer products, engineering services, and aerospace systems for a wide variety of customers, from private consumers to major corporations and governments.

Honeywell is a Fortune 100 company with a workforce of approximately 130,000, of whom approximately 58,000 are employed in the United States. The company is headquartered in Morristown, New Jersey. Its current chief executive officer is David M. Cote The Company and its corporate predecessors were part of the Dow Jones Industrial Average Index from December 7, 1925, until February 9, 2008.

The current "Honeywell International Inc." is the product of a merger in which Honeywell Inc. was acquired by the much larger AlliedSignal in 1999. The company headquarters were consolidated to AlliedSignal's headquarters in Morristown, New Jersey; however the combined company chose the name "Honeywell" because of its superior brand recognition.

Honeywell has many brands that commercial and retail consumers may recognize. Some of the most recognizable products are its line of home thermostats (particularly the iconic round type) and Garrett turbochargers.

HISTORY

Honeywell came into being through the invention of the *damper flapper*, a thermostat for coal furnaces, by Albert Butz, In 1885 and subsequent innovations in electric motors and process control by **Minneapolis Heat Regulator Company** tracing back to 1886. In 1906, Mark C. Honeywell founded Honeywell Heating Specialty Co., Inc. in Wabash, Indiana. Honeywell's company merged with Minneapolis Heat Regulator Company in 1927. The merged company was called the **Minneapolis - Honeywell Regulator Company**. Honeywell was its first president, W.R. Sweatt its first chairman.

BANGALORE

HYDERABAD

Sweatt leadership legacy

W.R. Sweatt and his son Harold provided 75 years of uninterrupted leadership for the company. W.R. Sweatt survived rough spots and turned an innovative idea – thermostatic heating control – into a thriving business. Harold, who took over in 1934, led Honeywell through a period of growth and global expansion that set the stage for Honeywell to become a global technology leader.

For more than thirty years the company annually presented the "H. W. Sweatt Engineer-Scientist Award" to individuals in recognition of their outstanding technical ability and contribution to technical accomplishment of significance for the company and their profession. The award program was cancelled after the AlliedSignal and Honeywell merger in 1999.

HONEYWELL THERMOSTAST

JAMES H. BINGER

James H. Binger joined Honeywell in 1943, and became its president in 1961 and its chairman in 1965. On becoming Chairman of Honeywell, Binger revamped the company sales approach, placing emphasis on profits rather than on volume. He also stepped up the company's international expansion – it had six plants producing 12% of the company's revenue. He also officially changed the company's corporate name from **Minneapolis-Honeywell Regulator Co.** to Honeywell

From the 1950s until the mid-1970s, Honeywell was the United States' importer of Pentax cameras and photographic equipment. These products were labelled **Honeywell Pentax** in the U.S. Under Binger's stewardship from 1961 to 1978 he expanded the company into such fields as defence, aerospace, and computing.

In 1953, in co-operation with the USAF Wright-Air Development Centre, Honeywell developed an automated control unit that could control an aircraft through various stages of a flight, from taxiing, to take off, to the point where the aircraft neared its destination and the pilot took over for landing. Called the **Automatic Master Sequence Selector**, the on board control operated similarly to a player piano to relay instructions to the aircraft's autopilot at certain way points during the flight, significantly reducing the pilot's work load Technologically, this effort had parallels to contemporary efforts in missile guidance and numerical control.

COMPUTING

Honeywell originally entered the computer business via a joint venture with Raytheon called Datamatic Corp., but soon bought out Raytheon's share and the business became a Honeywell division. The computer itself was called the Honeywell 800, later updated to the Honeywell 1800.

Honeywell also purchased minicomputer pioneer Computer Control Corporation, renaming it as Honeywell's Computer Control Division. Through most of the 1960s, Honeywell was one of the "Snow White and the Seven Dwarfs" of computing. IBM was "Snow White," while the dwarfs were the seven significantly smaller computer companies– Burroughs, Control Data Corporation, General Electric, Honeywell, NCR, RCA, and UNIVAC. Later, when their number had been reduced to five, ("By the 1970s, General Electric and RCA had left the business), they were known as "The Bunch", after their initials: Burroughs, UNIVAC, NCR, Control Data Corporation, and Honeywell.

In 1963, Honeywell introduced a small business computer, the Honeywell 200, to compete with IBM's 1401. That began a product line that continued until the early 1970s.

In 1970, Honeywell bought General Electric's computer division. The company was reorganized into two operating units one of which was Honeywell Information Systems, headed by President Clarence (Clancy) Spangle.

In the 1980s, Honeywell developed the first Digital Process Communications protocol for its smart transmitters used in process measurement. Since then, smart communication protocols have evolved into various standardised types, such as the HART protocol and DE protocol.

In 1991 Honeywell's computer division was sold to Group Bull.

TODAY

The current "Honeywell International Inc." is the product of a merger between Allied Signal and Honeywell Inc. in 1999. Although Allied Signal was twice the size of Honeywell, the combined company chose the name "Honeywell" because of its superior brand recognition. However, the corporate headquarters were consolidated to Allied Signal's headquarters in Morristown, New Jersey rather than Honeywell's former headquarters in Minneapolis, Minnesota. When Honeywell closed its corporate headquarters in Minneapolis, over one thousand employees lost their jobs. A few moved to Morristown or other company locations, but the majority were forced to find new jobs or retire. Soon after the merger, the company's stock fell significantly, and the stock value only regained the pre-merger level in 2007.

In January 2002 Knorr-Bremse – who had been operating in a joint venture with Honeywell International Inc—assumed full ownership of its ventures in Europe, Brazil and the USA. Bendix Commercial Vehicle Systems (www.bendix.com) became a subsidiary of Knorr-Bremse AG. Although declining in influence, Honeywell maintains a presence in emerging industries, such as Northern Alberta's Oil sands. Honeywell's Plant integrator is currently deployed in some of the most important plant-sites in the Oil sands (Syncrude, Suncor and others).

In December 2004, Honeywell made a £1.2bn ($2.3bn) bid for Novar plc. The acquisition was finalized on March 31, 2005.

In October 2008, Honeywell Ltd. was named one of "Canada's Top 100 Employers" by Media corp Canada Inc., and was featured in *Maclean's* newsmagazine. Later that month, Honeywell was also named one of Greater Toronto's Top Employers, which was announced by the Toronto Star newspaper

In January 2013 Honeywell shut it's subsidiary Ex-Or's factory in Haydock, Merseyside, UK.

HONEYWELL HEADQUARTERS ENTRY, MORRISTON

SIX SIGMA PLUS

Honeywell International is known for its aggressive implementation and daily practice of six sigma and lean manufacturing methodologies commonly referred to as *Six Sigma Plus*. *Six Sigma Plus*is focused on reducing errors/failures, improving cycle time, and reducing costs. Recently, Honeywell announced the implementation of a corporate philosophy known as the Honeywell Operating System (HOS), which incorporates practices similar in name only to the Toyota Production System.

RECRUITMENT PROCESS

- APTITUDE
- TECHNICAL INTERVIEW
- HR INTERVIEW

PRODUCTS

OFFICIAL WEBSITE:

www.honeywell.com

THE PARAMOUNT CRITIQUE

ALTIMETER

SOURCE: www.altimetergroups.com

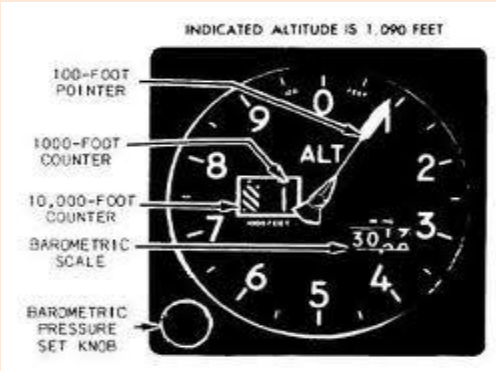
SUBMITTED BY: C. Tamilmathi

ALTIMETER

An altimeter or an altitude meter is an instrument used to measure the altitude of an object above a fixed level. The measurement of altitude is called altimetry, which is related to the term bathymetry, the measurement of depth underwater

PRESSURE ALTIMETER

Altitude can be determined based on the measurement of atmospheric pressure. The greater the altitude the lower the pressure. When a barometer is supplied with a nonlinear calibration so as to indicate altitude, the instrument is called a pressure altimeter or barometric altimeter.



ANALOG PRESSURE ALTIMETER

A pressure altimeter is the altimeter found in most aircraft, and skydivers use wrist-mounted versions for similar purposes. Hikers and mountain climbers use wrist-mounted or hand-held altimeters, in addition to other navigational tools such as a map, magnetic compass, or GPS receiver.The calibration of an altimeter follows the equation

$$z = c\,T\,\log(P_o/P),$$

Where c is a constant, T is the absolute temperature; P is the pressure at altitude z, and P_o is the pressure at sea level. The constant c depends on the acceleration of gravity and the molar mass of the air. However, one must be aware that this type of altimeter relies on "density altitude" and its readings can vary by hundreds of feet owing to a sudden change in air pressure, such as from a cold front, without any actual change in altitude

DIGITAL PRESSURE ALTIMETER

USE IN AIRCRAFT

In aircraft, an aneroid barometer measures the atmospheric pressure from a static port outside the aircraft. Air pressure decreases with an increase of altitude- approximately 100hectopascals per 800 meters or one inch of mercury per 1000 feet near sea level.

The aneroid altimeter is calibrated to show the pressure directly as an altitude above mean sea level, in accordance with a mathematical model defined by the International Standard Atmosphere (ISA). Older aircraft used a simple aneroid barometer where the needle made less than one revolution around the face from zero to full scale. This design evolved to the drum-type altimeter, where each revolution of a single needle accounted for 1,000 feet, with thousand foot increments recorded on a numerical odometer-type drum. To determine altitude, a pilot had first to read the drum to determine the thousands of feet, then look at the needle for the hundreds of feet. Modern aircraft use a "sensitive altimeter," which has a primary needle and one or more secondary needles that show the number of revolutions, similar to a clock face. In other words, each needle points to a different digit of the current altitude measurement. On a sensitive altimeter, the sea-level reference pressure can be adjusted with a setting knob. The reference pressure, in inches of mercury in Canada and the US and hectopascals (previously millibars) elsewhere, is displayed in the small *Kollsmanwindow,*[3] on the face of the aircraft altimeter. This is necessary, since sea level reference atmospheric pressure at a given location varies over time with temperature and the movement of pressure systems in the atmosphere.

In aviation terminology, the regional or local air pressure at mean sea level (MSL) is called the QNH or "altimeter setting", and the pressure that will calibrate the altimeter to show the height above ground at a given airfield is called the QFE of the field. An altimeter cannot, however, be adjusted for variations in air temperature. Differences in temperature from the ISA model will accordingly cause errors in indicated altitude.

SONIC ALTIMETER

In 1931, the US Army Air Corps and General Electric tested a sonic altimeter for aircraft, which was considered more reliable and accurate than one that relied on air pressure, when heavy fog or rain was present. The new altimeter used a series of high-pitched sounds like those made by a bat to

measure the distance from the aircraft to the surface, which on return to the aircraft was converted to feet shown on a gauge inside the aircraft cockpit

RADAR ALTIMETER

A radar altimeter measures altitude more directly, using the time taken for a radio signal to reflect from the surface back to the aircraft. The radar altimeter is used to measure height above ground level during landing in commercial and military aircraft. Radar altimeters are also a component of terrain avoidance warning systems, warning the pilot if the aircraft is flying too low, or if there is rising terrain ahead.

Radar altimeter technology is also used in terrain following radar allowing fighter aircraft to fly at very low altitude

OTHER MODES OF TRANSPORT

The altimeter is an instrument optional in off-road vehicles to aid in navigation. Some high-performance luxury cars that was never intended to leave paved roads, such as the Duesenberg in the 1930s, have also been equipped with altimeters. Hikers and mountaineers use hand-held or wrist-mounted barometric altimeters, as do skydivers. Diesel submarines have barometers installed on them to monitor vacuum being pulled in the event that the snorkles closes while the diesels are running and as the consequence sucking the air out of the boat

Many satellites use advanced dual-band radar altimeters to measure height from a spacecraft. That measurement, coupled with orbital elements (possibly augmented by GPS), enables determination of the terrain. The two different wavelengths of radio waves used permit the altimeter to automatically correct for varying delays in the ionosphere.

Space borne radar altimeters have proven to be superb tools for mapping ocean-surface topography, the hills and valleys of the sea surface. These instruments send a microwave pulse to the ocean's urface and record the time it takes to return. A microwave radiometer corrects any delay that may be caused by water vapor in the atmosphere. Other corrections are also required to account for the influence of electrons in the ionosphere and the dry air mass of the atmosphere. Combining these data with the precise location of the spacecraft makes it possible to determine sea-surface height to within a few centimetres (about one inch). The strength and shape of the returning signal also provides information on wind speed and the height of ocean waves. These data are used in ocean models to calculate the speed and direction of ocean currents and the amount and location of heat stored in the ocean, which in turn reveals global climate variations

THE APTITUDE CORNER

SUBMITTED BY: S. PRAVIN

1. My flight takes off at 2am from a place at 18N 10E and landed 10 Hrs. later at a place with coordinates 36N70W. What is the local time when my plane landed?
   a)6:00 am b) 6:40am c) 7:40 am d) 7:00am e) 8:00am

2. A person had to multiply two numbers. Instead of multiplying by 35, he multiplied by 53 and the product went up by 540. What was the raised product?
   a) 780 b) 1040 c) 1590 d) 1720

3. How many positive integer solutions does the equation 2x+3y = 100 have?
   a) 50 b) 33 c) 16 d) 35

4. The total expenses of a boarding house are partly fixed and partly variable with the number of boarders. The charge is Rs.70 per head when there are 25 boarders and Rs.60 when there are 50 boarders. Find the charge per head when there are 100 boarders.
   a) 65 b) 55 c) 50 d) 45

5. Amar bought 5 pens, 7 pencils and 4 erasers. Raja bought 6 pens, 8 erasers and 14 pencils for an amount which was half more than what Amar had paid. What % of the total amount paid by Amar was paid for pens?
   a) 37.5% b) 62.5% c) 50% d) None of these

6. Anand finishes a work in 7 days, Bittu finishes the same job in 8 days and Chandu in 6 days. They take turns to finish the work. Anand on the first day, Bittu on the second and Chandu on the third day and then Anand again and so on. On which day will the work get over?
   a) 3rd b) 6th c) 9th d) 7th

7. Tea worth Rs.126 per kg and Rs.135 per kg is mixed with a third variety in the ratio 1: 1: 2. If the mixture is worth Rs.153 per kg, the price of the third variety per kg will be:

a)Rs.169.50 b)Rs.170 c)Rs.175.50 d)Rs.180

8. A can contains a mixture of two liquids A and B is the ratio 7: 5. When 9 litres of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7: 9. How many litres of liquid A were contained by the can initially?

a) 10 b) 20 c)21 d)25

9. A milk vendor has 2 cans of milk. The first contains 25% water and the rest milk. The second contains 50% water. How much milk should he mix from each of the containers so as to get 12 litres of milk such that the ratio of water to milk is 3: 5?

a) 4 litres, 8 litres b) 6 litres, 6 litres c) 5 litres, 7 litres d) 7 litres, 5 litres

10. A container contains 40 litres of milk. From this container 4 litres of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container?

a) 26.34 litres b) 27.36 litres c) 28 litres d) 29.l6 litres

TECHNICAL QUIZ

SUBMITTED BY: M. JAGATHEES

1. A silicon diode measures a low value of resistance with the meter leads in both positions. The trouble, if any, is

A. The diode is open.

B. The diode is shorted to ground.

C. The diode is internally shorted.

D. The diode is working correctly.

2. Single-element semiconductors are characterized by atoms with ____ valence electrons.

A. 3

B. 4

C. 5

D. 2

E. none of the above

3. Under normal conditions a diode conducts current when it is

A. Reverse-biased.

B. Forward-biased.

C. Avalanched.

D. Saturated.

4. A diode conducts when it is forward-biased, and the anode is connected to the _____ through a limiting resistor.

A. Positive supply

B. Negative supply

C. Cathode

D. Anode

5. As the forward current through a silicon diode increases, the internal resistance

A. Increases.
B. Decreases.
C. Remains the same.

6. The movement of free electrons in a conductor is called

A. Voltage.

B. Current.

C. Recombination.

D. Equilibrium.

7. For a forward-biased diode, the barrier potential _____ as temperature increases.

A. Decreases

B. Remains constant

C. Increases

8. The wide end arrow on a schematic indicates the _____ of a diode.

A. Ground

B. Direction of electron flow

C. Cathode

D. Anode

9. Effectively, how many valence electrons are there in each atom within a silicon crystal?

A. 2

B. 4

C. 8

D. 16

10. A BJT is a _____-controlled device.

A. Current

B. Voltage

SMART CAMERA

INTRODUCTION:

There are many definitions of smart cameras offered by the media, camera manufacturers and developers, still no binding definition exists. In a field where terms are often defined by their predominant usage, most material in this article is based on the term's most predominant usage. In the book "Smart Cameras", a smart camera is defined as a vision system which, in addition to image capture circuitry, is capable of extracting application-specific information from the captured images, along with generating event descriptions or making decisions that are used in an intelligent and automated system.

A smart camera or "intelligent camera" is a self-contained, standalone vision system with built-in image sensor in the housing of an industrial video camera. It contains all necessary communication interfaces, e.g. Ethernet, as well as industry-proof 24V I/O lines for connection to a PLC, actuators, relays or pneumatic valves. It is not necessarily larger than an industrial or surveillance camera. "Having" a capability in Machine Vision generally means a degree of development such that these capabilities are ready for use on individual applications.

This architecture has the advantage of a more compact volume compared to PC-based vision systems and often achieves lower cost, at the expense of a somewhat simpler (or missing altogether) user interface.

Although often used for simpler applications, modern smart cameras can rival PCs in terms of processing power and functionalities. Smart cameras have been marketed since the mid 80s, but only in recent years have they reached widespread use, once technology allowed their size to be reduced while their processing power has reached several thousand MIPS (devices with 1 GHz processors and up to 8000MIPS are available as of end of 2006).

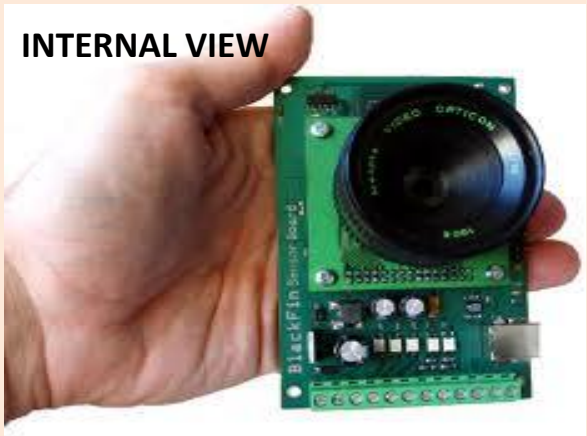
Having a dedicated processor in each unit, smart cameras are especially suited for applications where several cameras must operate independently and often asynchronously, or when distributed vision is required (multiple inspection or surveillance points along a production line or within an assembly machine).

COMPONENTS OF SMART CAMERA

A smart camera usually consists of several (but not necessarily all) of the following components:

- Image sensor (matrix or linear, CCD- or CMOS)
- Image digitization circuitry
- Image memory
- processor (often a DSP or suitably powerful processor)
- program- and data memory (RAM, non-volatile FLASH)
- Communication interface (RS232, Ethernet)
- I/O lines (often optoisolated)
- Lens holder or built in lens (usually C, CS or M-mount)
- Built in illumination device (usually LED)
- Purpose developed real-time operating system (For example VCRT)

A video output (e.g. VGA or SVGA) may be an option for a Smart Camera.



FIELD OF APPLICATION

Smart cameras can in general be used for the same kind of applications where more complex vision systems are used, and can additionally be applied in some applications where volume, pricing or reliability constraints forbid use of bulkier devices and PC's.

Typical fields of application are:

- Automated inspection for quality assurance (detection of defects, flaws, missing parts...)

- Non-contact measurements.

- Part sorting and identification.
- Code reading and verification (barcode, Data Matrix, alphanumeric etc.)

- Web inspection (inspection of continuously flowing materials such as coils, tubes, wires, extruded plastic) for defect detection and dimensional gauging.

- detection of position and rotation of parts for robot guidance and automated picking

- unattended surveillance (detection of intruders, fire or smoke detection)

- biometric recognition and access control (face, fingerprint, iris recognition)

- visual sensor networks
- robot guidance
- nearly any machine vision application

Developers can purchase smart cameras and develop their own programs for special, custom made applications, or they can purchase ready-made application software from the camera manufacturer or from third party sources. Custom programs can be developed by programming in various languages (typically C or C++) or by using more intuitive, albeit somewhat less flexible, development tools where existing functionalities (often called tool or blocks) can be connected in a list (a sequence or a bidimensional flowchart) that describes the desired flow of operations without any need to write program code. The main advantage of the visual approach vs. programming is in a much shorter and somewhat easier development process, available also to non-programmers. Other development tools are available with relatively little but comparatively high level functionality, which can be configured and deployed with very limited effort.

Smart cameras running software tailored for a single specific application are often called "vision sensors".

SUBMITTED BY: M. DINESH KUMAR

SOURCE: en.wikipedia.org/wiki/smart_camera

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