Better Spoken English

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Lecture No. # 35

Student Presentations IV

Good evening friends, my name is Arun Kumar Reddy, my roll number is BT10B054.

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Today, I am here to talk about a technique which is widely used to distinguish two major classes of bacteria; Crystal Violet, a dye which irreversibly stains one class of bacteria, but not the other and which forms the basis of this technique. Bacterial cell wall have mainly made up of two bio-molecules namely, peptidoglycan and libopolysaccharide.

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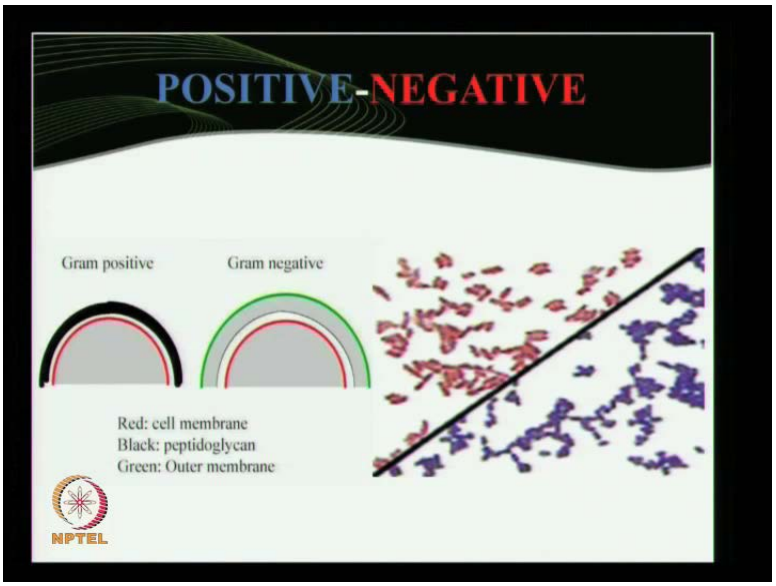

Based on the amounts of these molecules present in the cell valve, they are distinguished into Gram positive and Gram negative. The gram staining method procedure is as follows; first the bacteria (( )) is fixed on to a glass slide, followed by which the treatment of crystal violet stains the bacterial cell walls with purple color.

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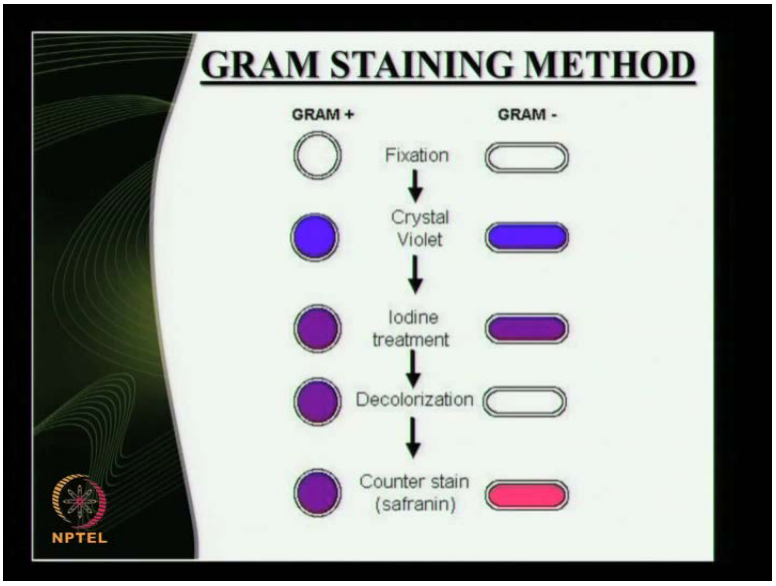

In the next step, the treatment with iodine solution ensures that the crystal violet dye is bound to the cell walls of bacteria. In the decolorization step, only one class of bacteria

loses the primary dye which is crystal violet, and the other class is stain by safranin of secondary die in the next step, rather final step.

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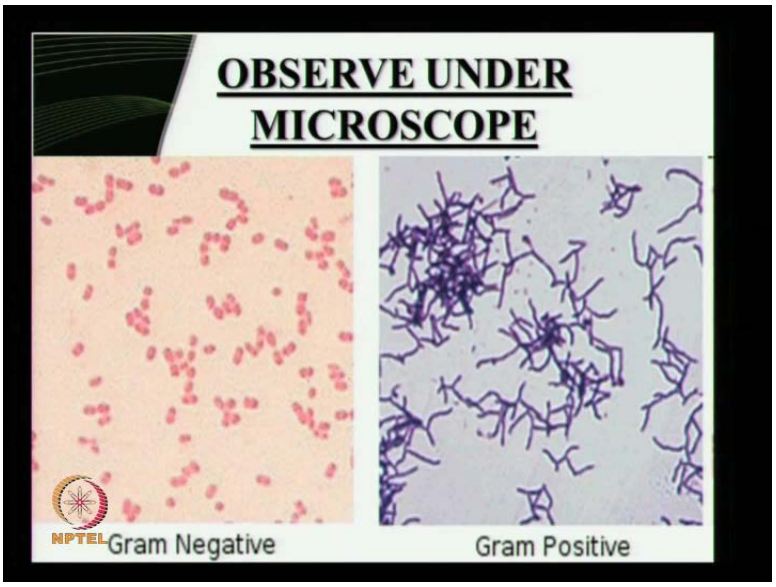

And these are the pictures of gram negative and gram positive bacteria as seen under simple microscope, as it seems strange the bacteria with two different cell wall type react differently with gram staining, gram stain. Thanks for…

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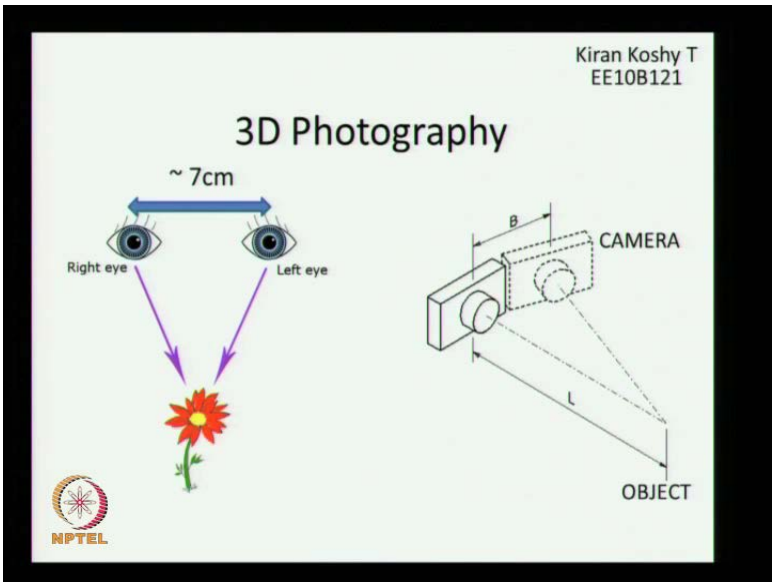

Respected sir, and my dear friends, a very good evening to one and all, I am Kiran Koshy, and my roll number is EE10B121. Today, I am going to talk about 3D photography, we pursue in three dimensions using images captured by our eyes, which are separated by about 7 centimeters, we use this same principle for taking 3D photos.

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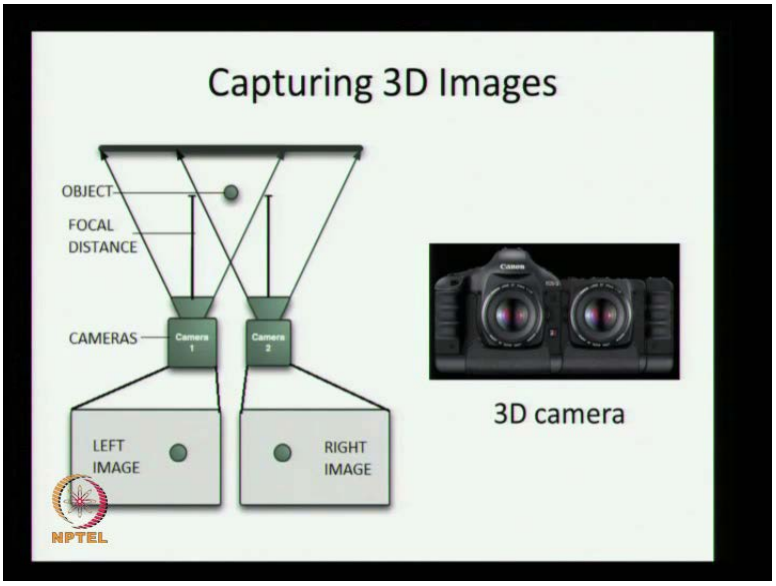

We take photos of the object from two separate points, which are separated by a distance that is equal to the distance between our eyes.

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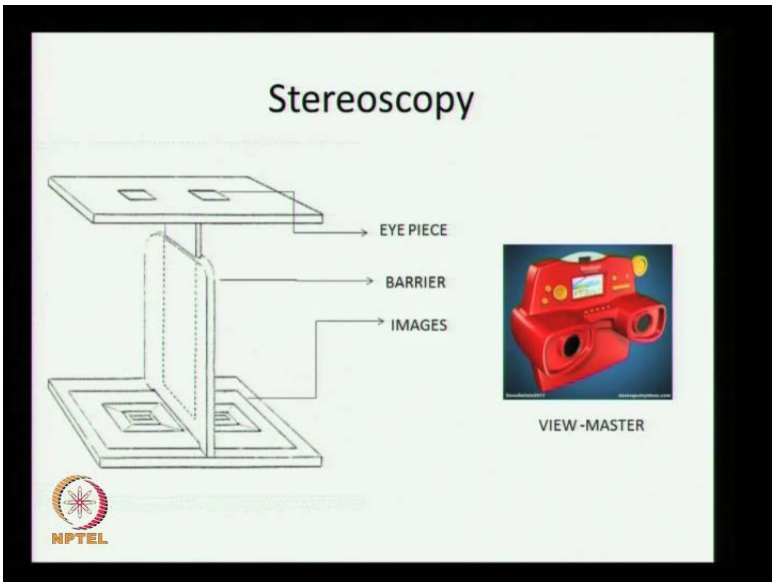

Then, these images are directed into the in different separately directed in to our two eyes using a technique called stereoscopy. The basic set of base in eye piece barrier, and then image stand, an excellent example of this is the view master.

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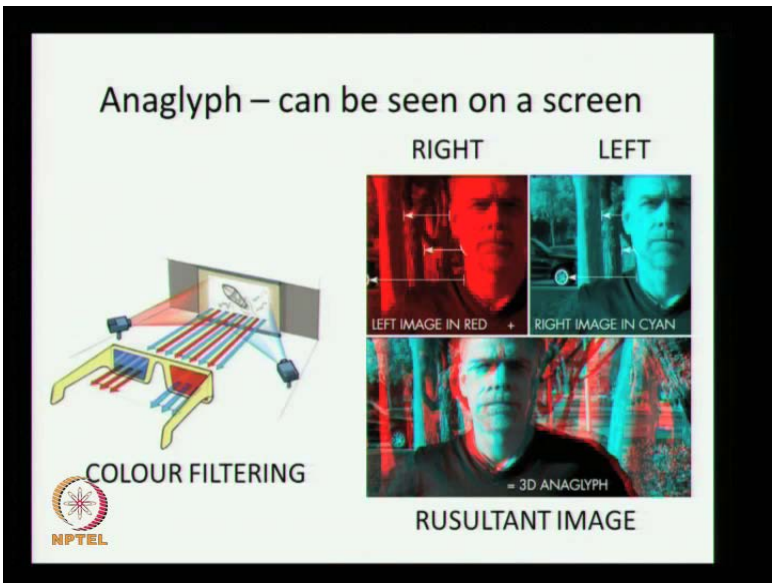

An improved version of stereoscope is anaglyph, in which two images are captured by two different colors, one red, another cyan, then these are directed into the eyes by a filter.

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Another improvement I would like to talk about is the increasing the depth perceived by increasing the distance between the two cameras, or the objectives is a widely used technique in military binoculars, I hope you enjoyed it. Thank you, have a nice day.

I wish one and all present here, a very fine evening, I am Gokul, and my roll number is CH10B017. Today, I am here to talk about the lathe machine, which are very familiar to us in a first year.

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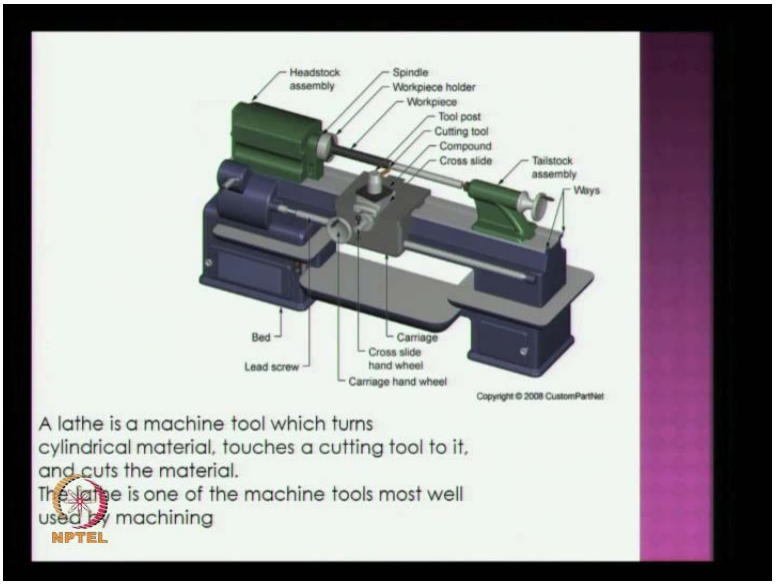

A lathe machine is a machine tool which turns cylindrical material, touches a cutting tool to it, and cuts the material. The lathe is one of the machine tools most well used by machining.

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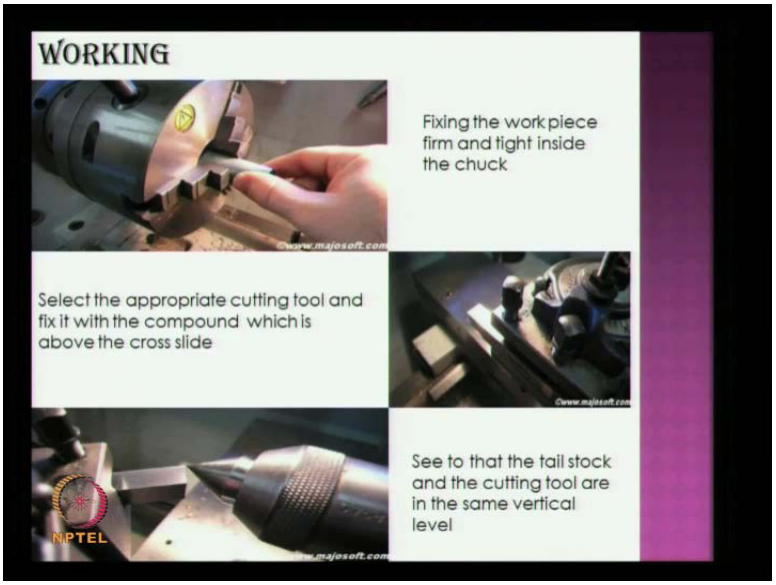

Now, let me tell you the working of the lathe machine, in a sequence. Firstly, fix the workpiece firm and tight inside the chuck. Select appropriate cutting tool, and fix it with compound which is above the cross slide, then see to that the tail stock and the cutting tool are in the same vertical level.

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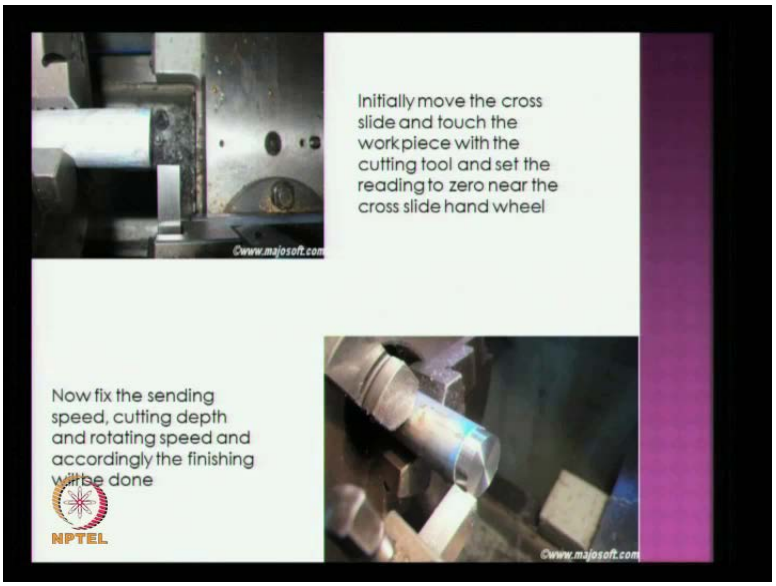

And then, initially move the cross slide and touch the workpiece with the cutting tool and set the reading to zero near the cross slide hand wheel. Now, fix the sending speed, cutting depth, and the rotating speed accordingly the finishing will be done.

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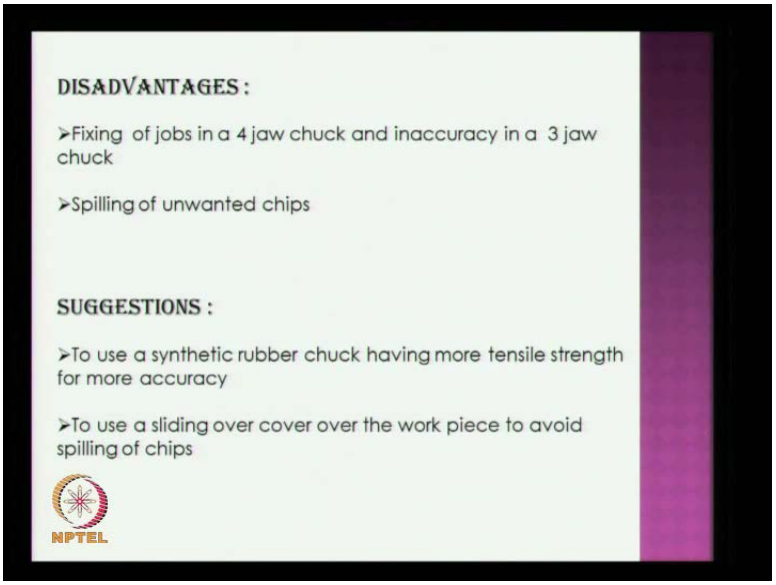

Now, these are some of the disadvantages and suggestions, which I have in my first year. Firstly, fixing of jobs in a four jaw chuck and inaccuracy in a three jaw chuck, and then spilling of unwanted chips. The suggestion which have come up with are to use a synthetic rubber chuck having more tensile strength for more accuracy, and then we use a slide over cover over the workpiece to avoid the spilling of chips. Thank you friends, for giving me a wonderful opportunity.

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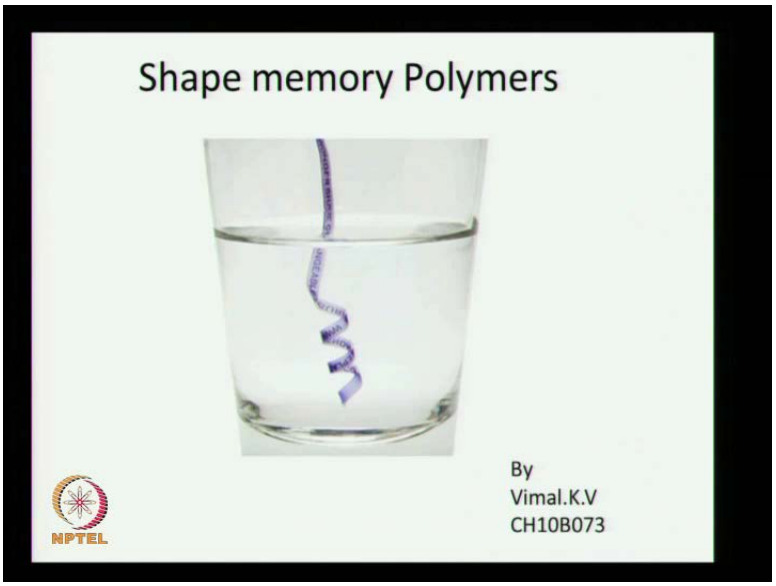

Good evening, respected sir, and my dear friends, my name is Vimal, and my roll number is CH10B073. Today, I am going to talk about, shape memory polymers, which are regularly encountered during the course of my research project.

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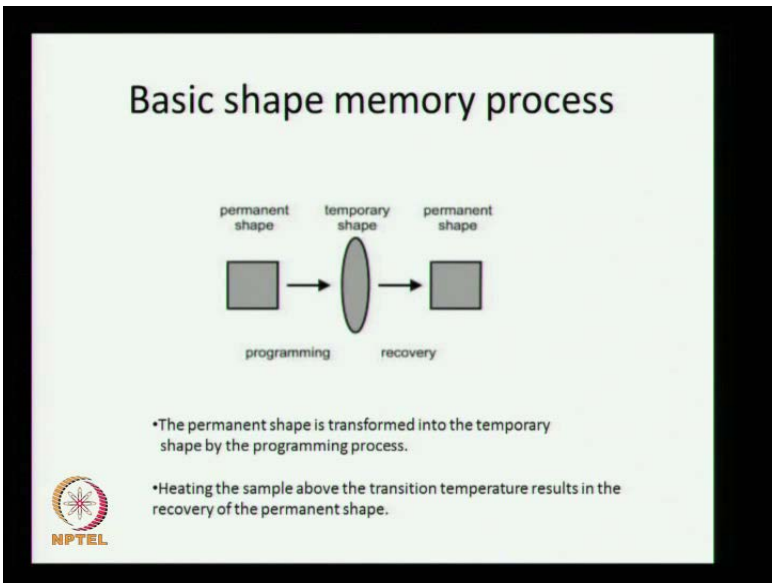

The given slide shows and gives us a basic idea of the shape memory process, in this case the sample is transformed, into the temporary shape by the programming process, and this later recover, by heating the sample above the transition temperature.

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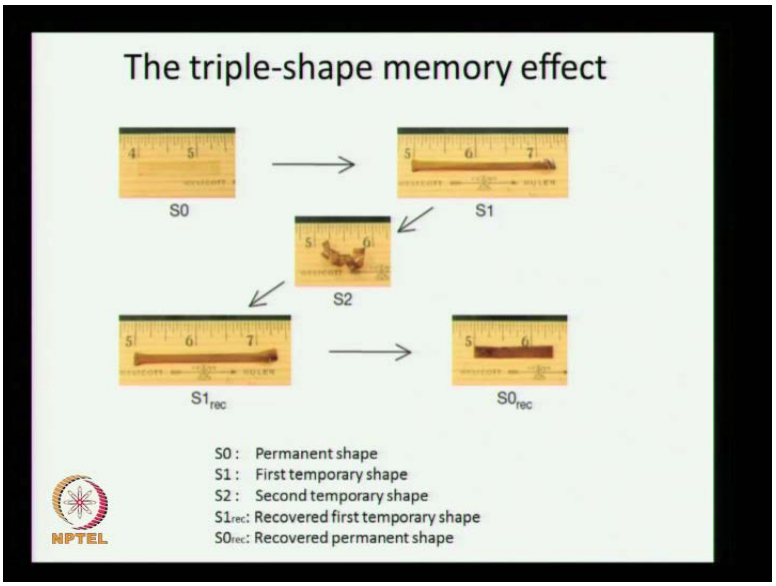

The triple-shape memory effect, as shown in this slide, is shown by those polymer systems which process two separate phase transitions, and the temporary shapes S1, and S2 exist above, and between these transition temperatures.

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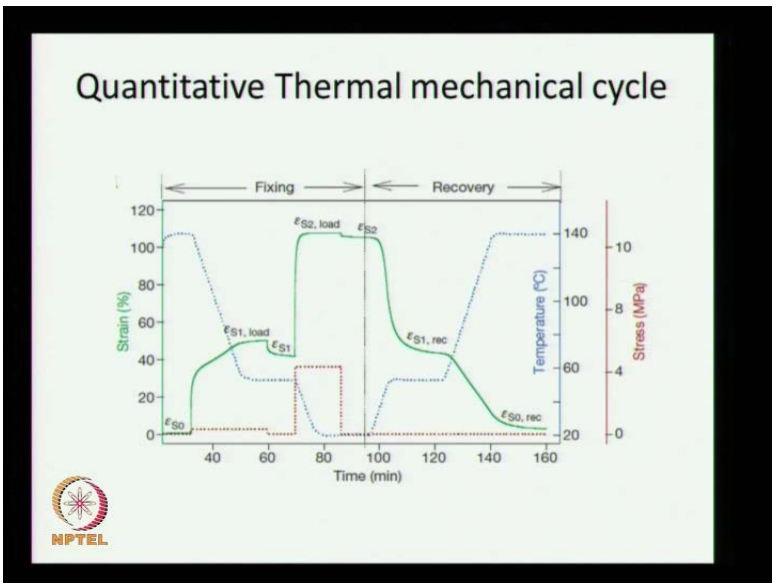

Quantification of the shape memory process is done by calculating the values of strain fixity rate, and this strain recovery rate from the given graph. When I calculated these values they turned out to be 84.5 percent, and 96 percent respectively.

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This slide, gives us an idea of the future application of this process. This car is designed to be implemented by the year 2050. The front end of the car is designed by shape memory process, and a given platform slides down, so that elderly citizens can walk up the platform. Thanks a lot for attention.

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Good evening friends, I am Rohan Bendre, roll number BT10B036. My topic for the cycle is Bicycle, everyone of us here has once own the Bicycle, it is very robust, and can be truly called universal vehicle.

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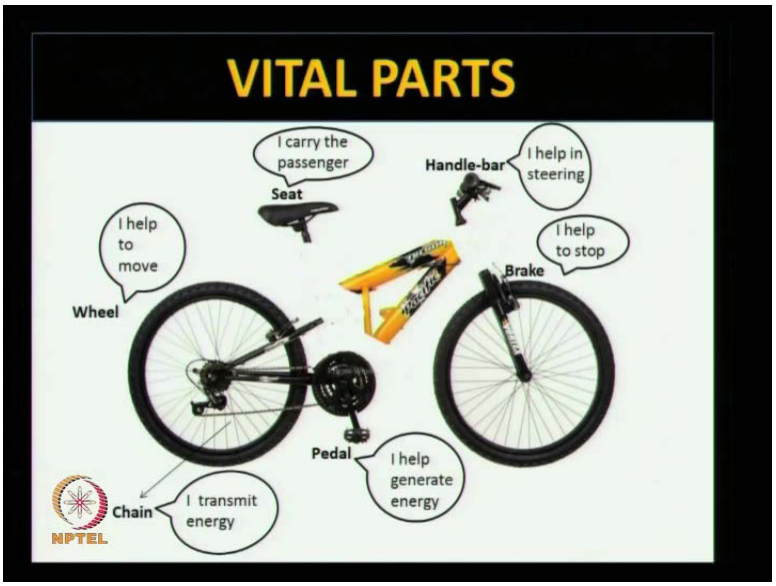

The Bicycle skeleton has several important parts, the seat carries the passenger, the handle bar controls the direction, the brake reduces the speed, the pedal is where the foot rests and generates energy by rotation. The chain transmits this energy to the wheel which manifest itself in forward motion.

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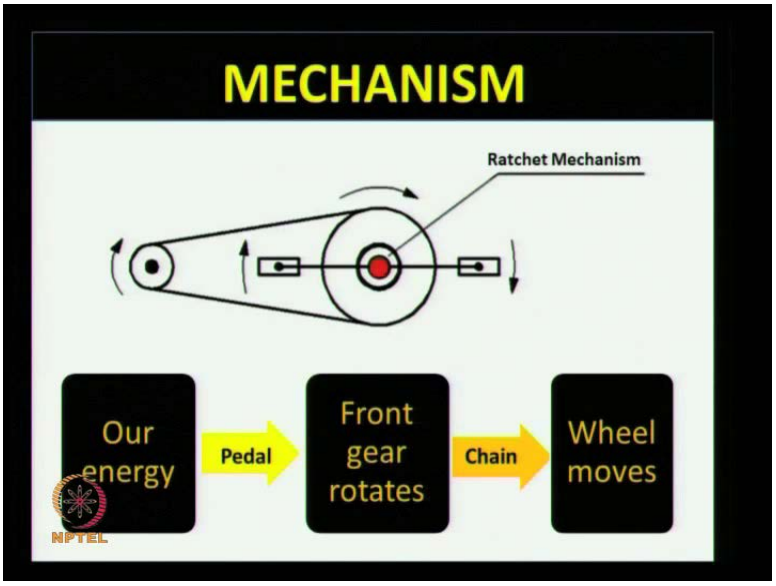

A Bicycle works on the ratchet mechanism, the pedal converts our energy into rotary motion of the front gear, the chain transmits this energy into the back gear, which induces motion of the wheels.

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A group of students from our very own institute, had improved upon the existing design of the Bicycle, by building, a self balancing cycle, this prototype could self balanced using inclinometers, and also self steer using image processing, and self balancing tool. Bicycle is a very useful and highly efficient engineering product. Hence, it is no one that, so many bicycle thefts a reported in the our institute. Thank you.

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Good evening to all, my name is Aparna, my roll number is CS10B003. Today, I am going to talk about vacuum cleaner.

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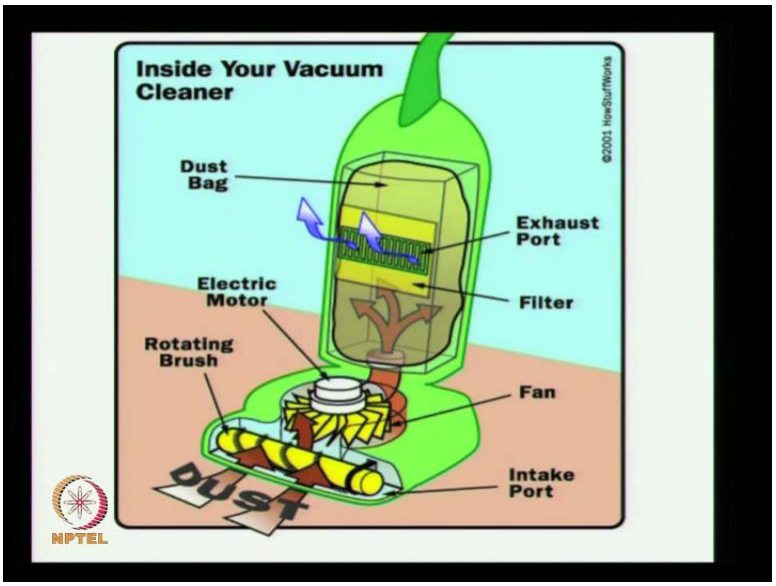

The vacuum cleaner consists of the following parts; Intake Port, Fan, Rotating Brush, Electric Motor, Dust Bag, Filter, and then Exhaust Port.

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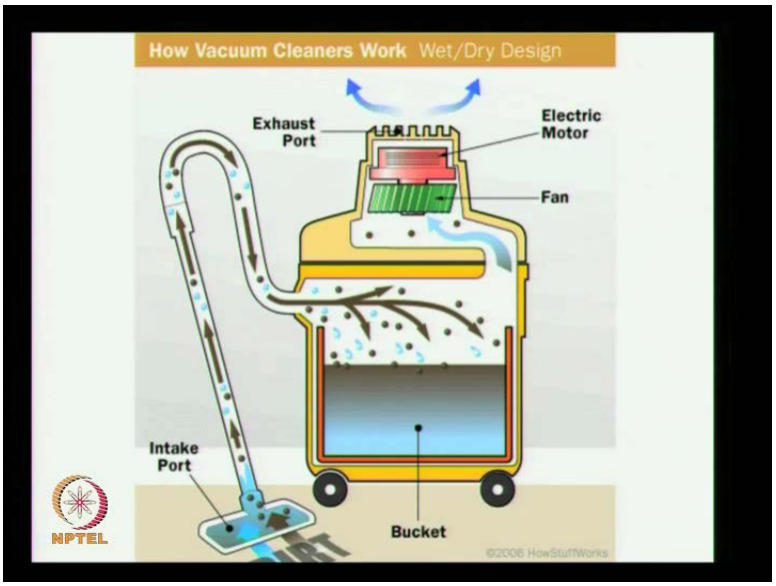

It works based on the suction principle, the dust is drawn into the intake port passed through the pipe, and gets dissipated into the bucket. The rotating fan would then drive it to the ambient atmosphere through the exhaust port, and the filters.

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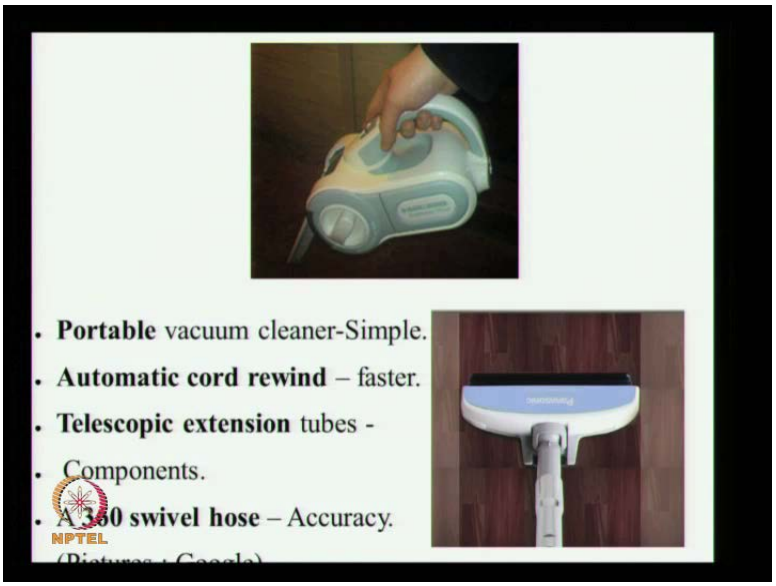

Some improvements that I would like to suggest are the following. A portable vacuum cleaner is much simpler and handy to use. Automatic cord rewind makes it faster to use, as the pipe can be wound quickly. Telescopic extension tubes can be used to make the vertical chamber longer or shorter as desired. A 360 degree rotatable hose can make it more accurate to clean, into the smaller parts as the shelves, and dusts. Thank you and have a great day.

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Hi friends, I am Aswini, my roll number is EE09B065. I am going to say a few words regarding artificial limb, as you can see in the image, her name is Claudia Mitchelle, she was one of the world-s first woman, to undergo this nerve rerooting surgery.

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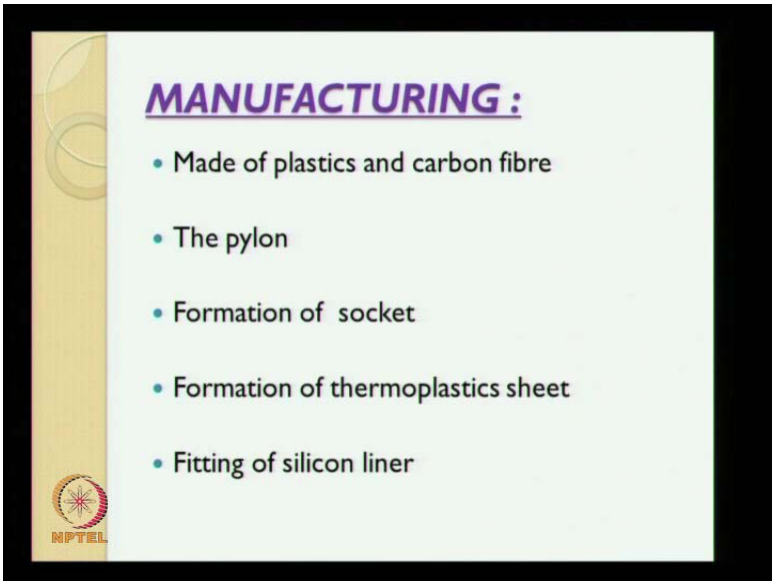

These instruments are basically made by plastics and carbon fiber, so that the material gets stronger. The pylon acts as an inter frame or skeleton and provide structural support, and this is made by metal rods. Socket acts as the interface with the limb, that gets attached the limb directly, wherever the injurious. Inside the socket there is a thermoplastic sheet that strengthens the structure. This silicon liner, are basically made for the fingers, since the cross section area is circular in shape.

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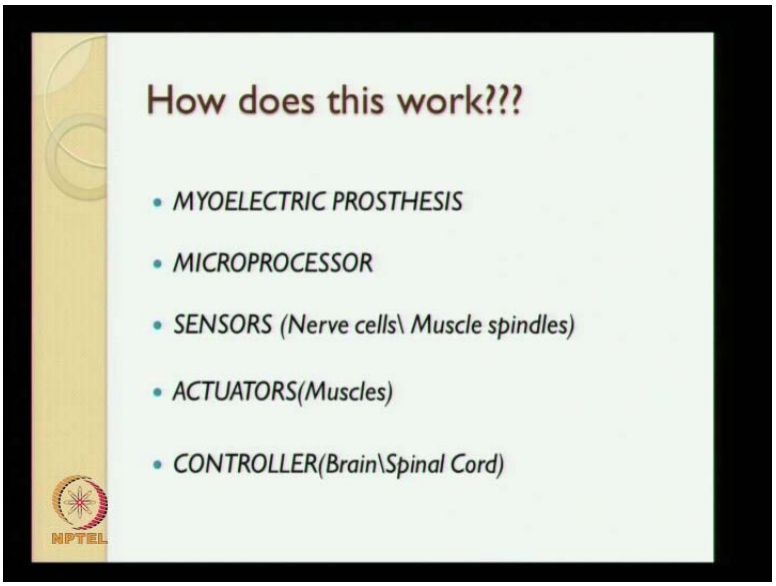

The muscle signals are red by small electrical antennas called electrodes, so that the biceps and triceps can be made much easier to open as well as to close the finger.

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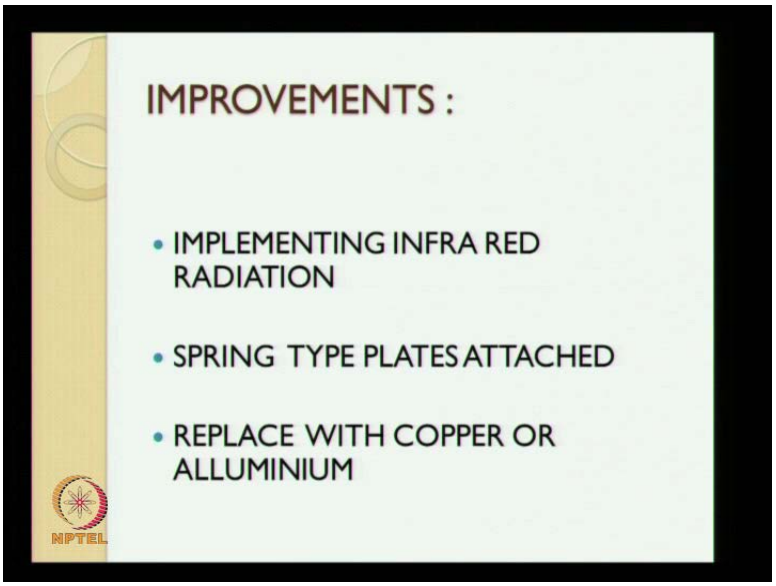

Some improvements are by implementing infra red radiation, so that the reflex action gets faster. In the diagram you can see that the joints are made. Thank you.

Good evening ladies and gentleman, I am Siddharth, CE10B073. The 21‾st century has seen the advent of the global positioning system, the answer to questions like, where ever

or how do a get a place, have become just few things away, so how exactly does this system work.

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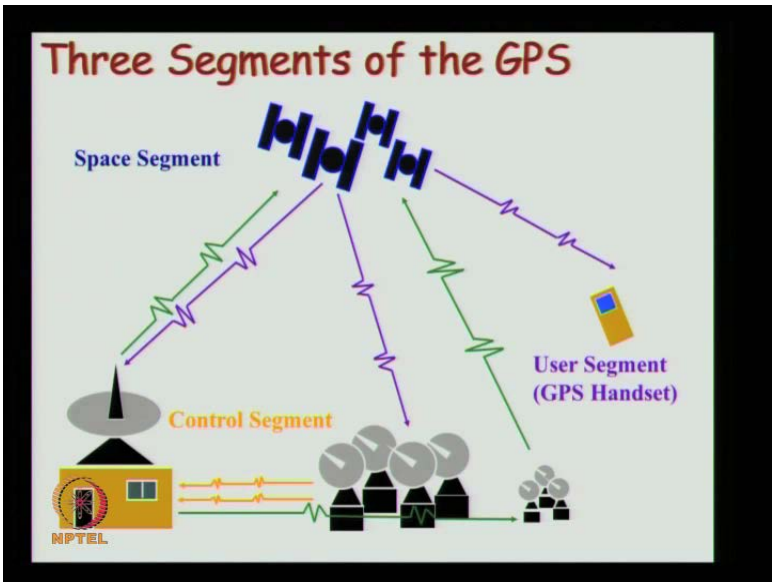

The GPS technology consists mainly of the following three segments; the user segment, the space segment, and the control segment. The GPS handset emits a code, synchronize with the space station code. The phase difference between these two codes, I use to measure the distance between them.

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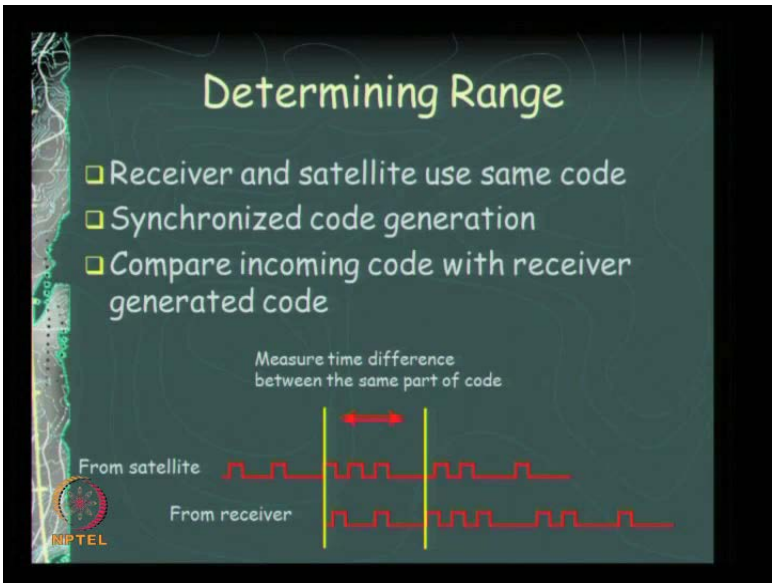

Now, sphere are drawnt with the satellite vehicles at this center, and radial equal to the distance between the handset and the space station.

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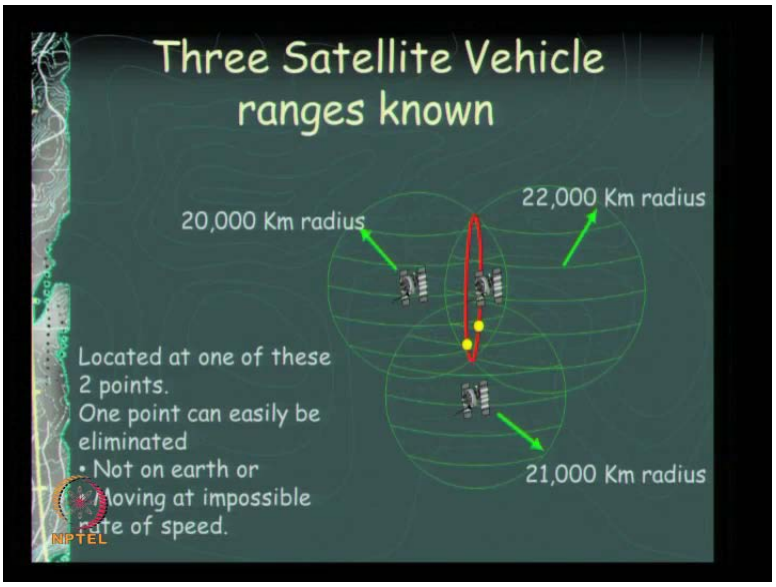

Any point at any time, on the surface of the Earth, is within the radius of t of the Satellite. The intersection of the these spheres from two Satellite, I used to confine the position of the point to a circle on the Earth, and with the third sphere it is confined to just two points, one of the points is eliminated based on physical feasibility. Hence, we can uniquely indentify the location of the point on Earth.

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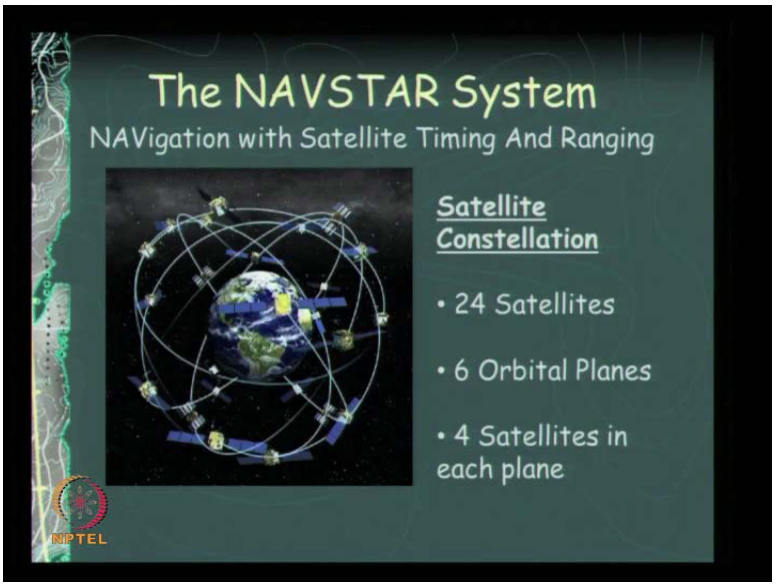

The present GPS satellite constellation is called Navstar, and is owned by the U S. Hence all the part and control gets to them, a challenge for India is to set up its own constellation and hence become a ecologically independent. Thank you.

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Good evening sir, and friends, I am Chinmay Bapat, CS10B059. I am going to speak about Satellite Phones. Satellite Phones are useful for communication in remote areas, they are the only means of voice communication on chips.

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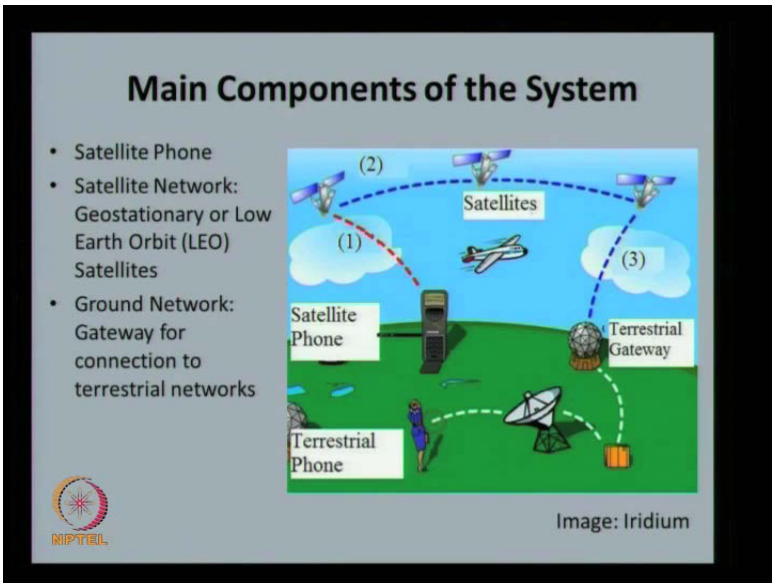

The main components of this systems are the Satellite Phones. The Satellites which can be either Geostationary or Low Earth Orbit Satellites, and a terrestrial gateway for communication with terrestrials cellular and landlines.

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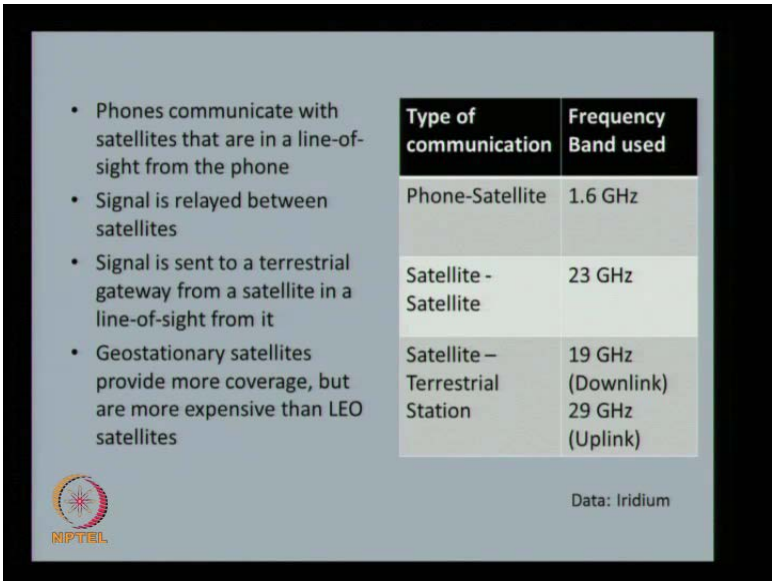

When a call is placed from Satellite Phone to a land line, the phone communicates with the Satellite that is, in direct line-of-sight from the phone. This Satellite passes on the data to other Satellites until it reaches one, which is in the direct line-of-sight, from the terrestrial gateway from Earth the call is handled like a normal telephone call.

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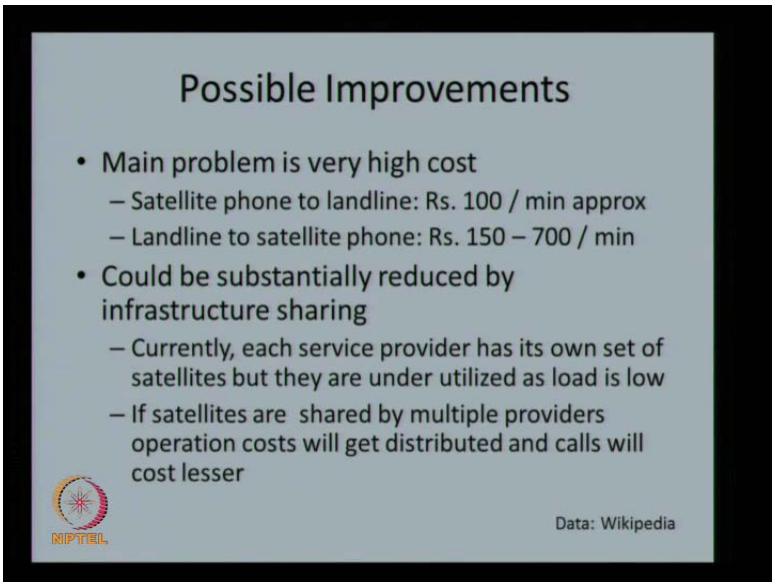

A major problem with Satellite Phones, is there very expensive to use, outgoing calls can cost as much as 100 Rupees a minute, if a share network of satellite was used instead of the current individuals network each service provider, it would lead to a great reduction operational cost, and would reduce the cost of each call. Thank you.

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Very good evening to all of you, I am Aman Kumar, my roll number is BT10B003, and today, I am here to discuss the effect of nano packaging on bread spoilage. For preparing nano package, we use a technique called Electro spinning.

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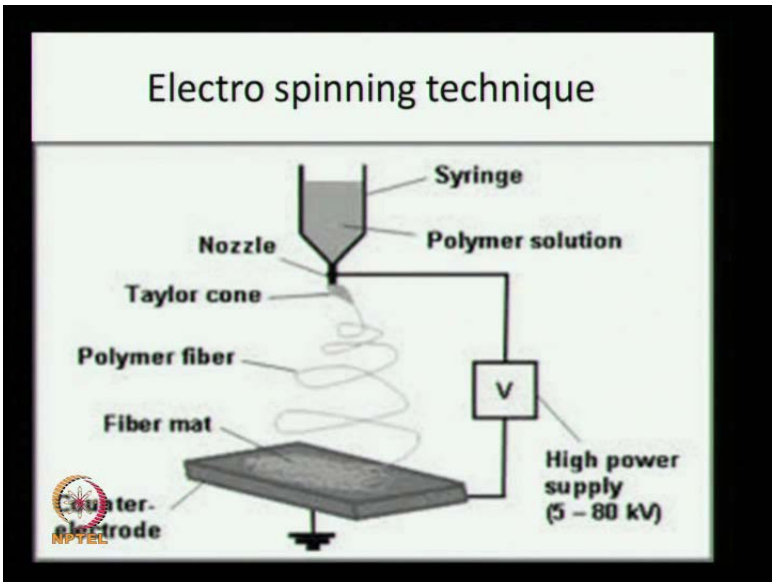

In electro spinning we supply a high power voltage, and the polymer solution in the syringe gets charge down, and when it comes through the nozzle it gets elongated, and forms the fiber. The fibers are then collected over the collector, and this is how we get the nano package.

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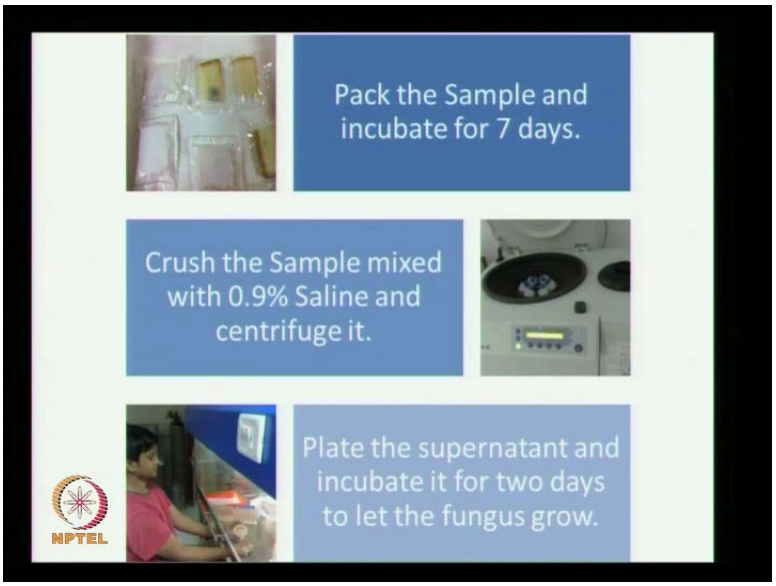

After preparing the nano package, we took the sample and packed it in the packages, then we incubated it for seven days, after seven days we crushed it, and added 0.9 percent of Saline into it. We went for centrifugation and after centrifuging it, we took the supernatant out of it, and then plated on the nutrient agar medium.

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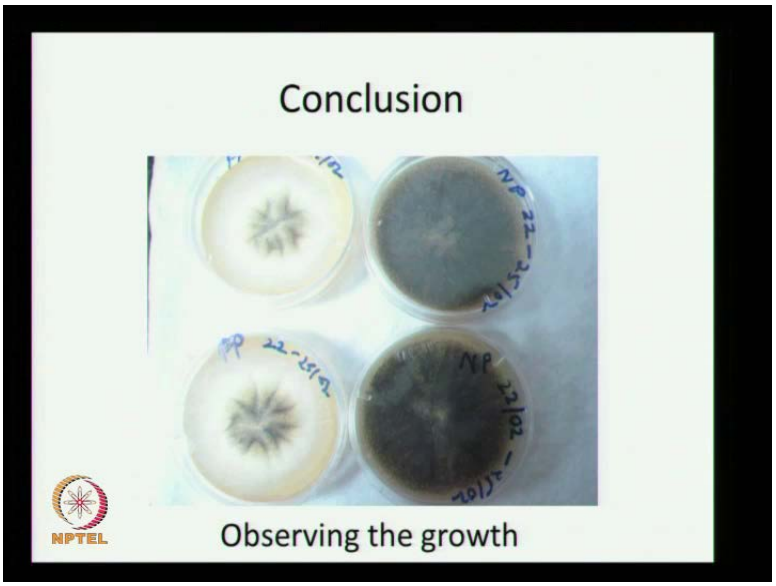

And, after two days it was observed that in the case of nano package, the correlation was seen which is represented by N P, and in case of polymer propylene fungus growth was observed and no correlation was found, thus it was preferred to use nano package over polypropylene package. Thank you, and have a nice day.

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Good evening ladies and gentleman, I am Siddhesh, my roll number is CE10B079. This screen shot from the movie Harry Potter, tells you about the overall picture about the idea of levitation. Well, the principle of levitation exists, and is named Meissner Effect

after the Scientist Walther Meissner discovered it, in the year 1933, will look at the experimental setup of the Meissner effect.

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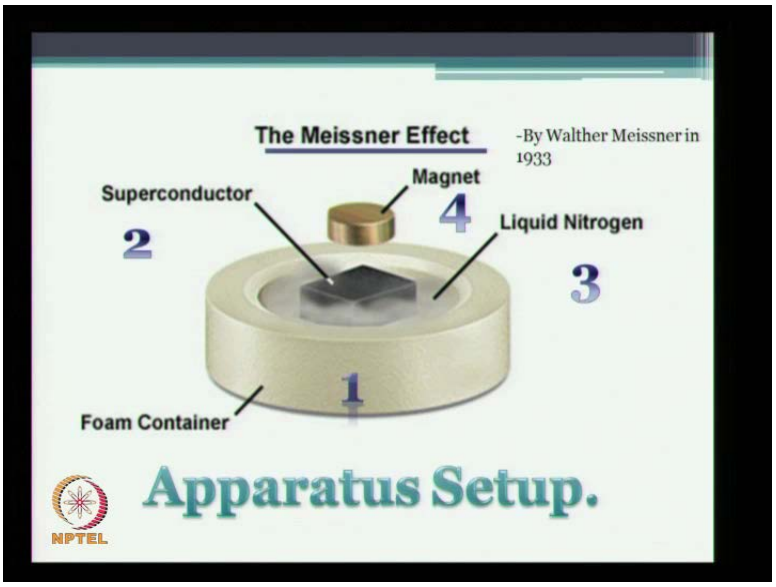

And we require a foam container a superconductor some amount of liquid nitrogen, and magnet. First, we take a foam container, and then we place a superconductor at the center of it, and then very slowly and very carefully, we pour the liquid nitrogen in the container, and by wearing proper glasses and gloves, then we try to place the magnet over the superconductor using tongs, and we see, that the magnet gets levitated in the air, and that is the magnetic levitation.

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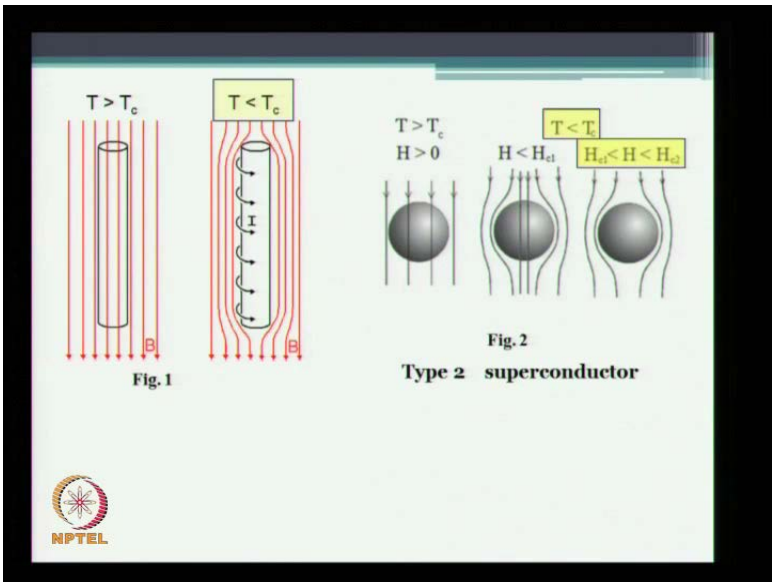

The principle behind this is that, when the superconductor is cooled below its critical temperature, then in the presence of external magnetic field, it develops the magnetic domains, which repulse the source of the magnetic field, that is the magnet, so it gets lifted. This phenomenon found in many applications, and one of it is the magnet train being built in Japan, the magnet transform magnetic levitation. Thank you all.

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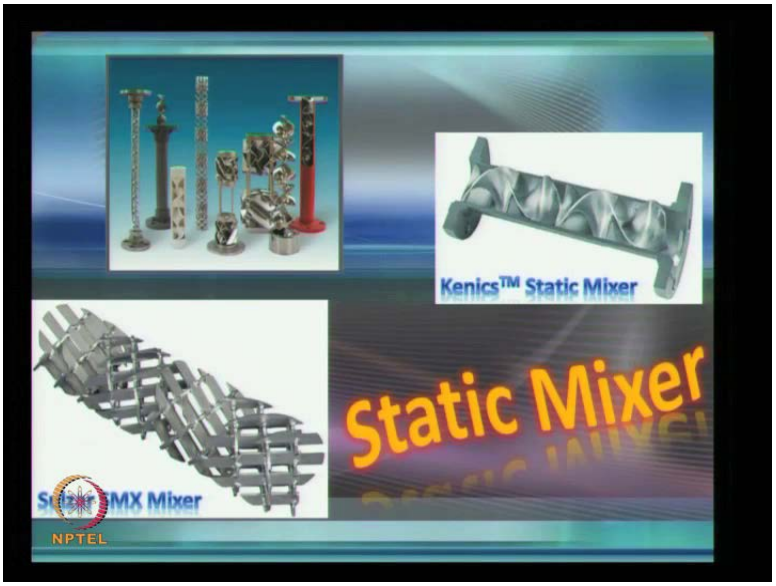

Respected sir, my dear friends, good evening, I am Kalpesh, my roll number is CH10B008. Today, I will talk about static mixer. Static mixer is a device, which mixes

of fluid flow in homogeneous. As it is a name suggest this device mix this device work statically therefore, it does not it does not a require energy except for passing the fluid through the to the static element.

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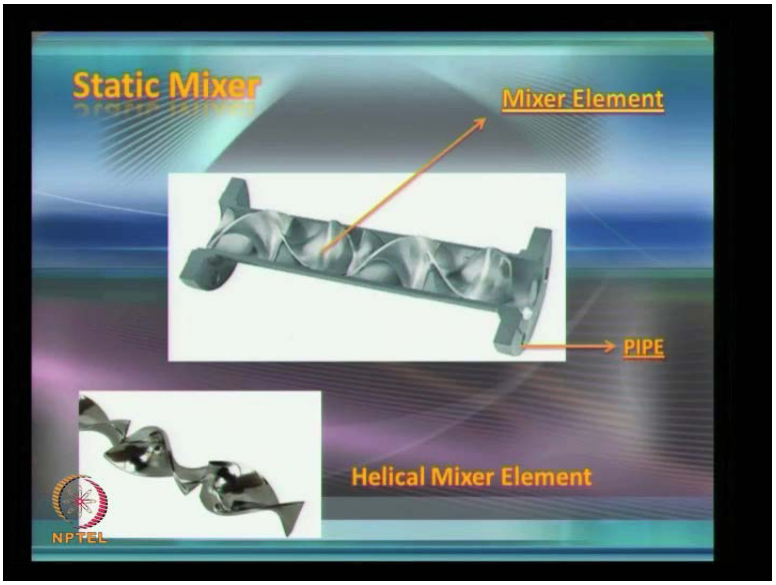

As you can see, in this figure static mixer is a fix in a pipe. Next is mechanism, fluid static is a element divides the fluid flow in two path, and because of a helical structure of the mixer element.

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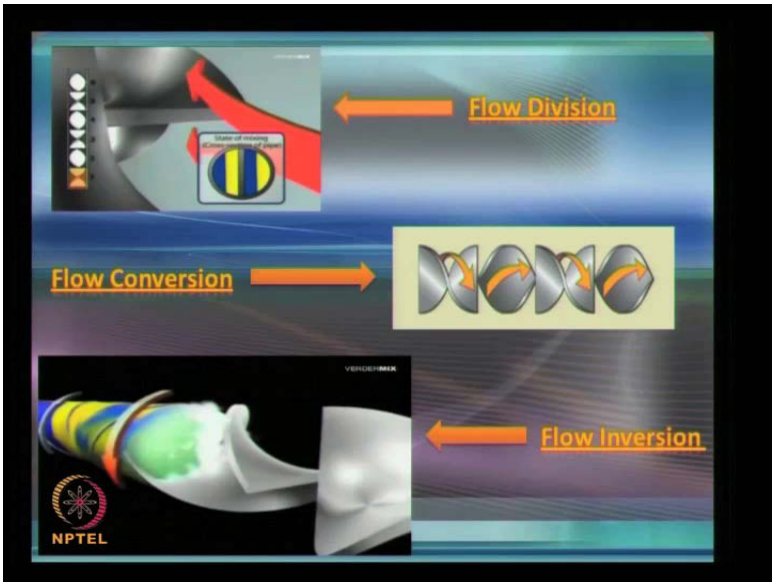

This fluid, a fluid converges as a fluid passes through the mixer. These processes creates a turbulence inside the mixer, and as a result it fluid get homogeneously mixed.

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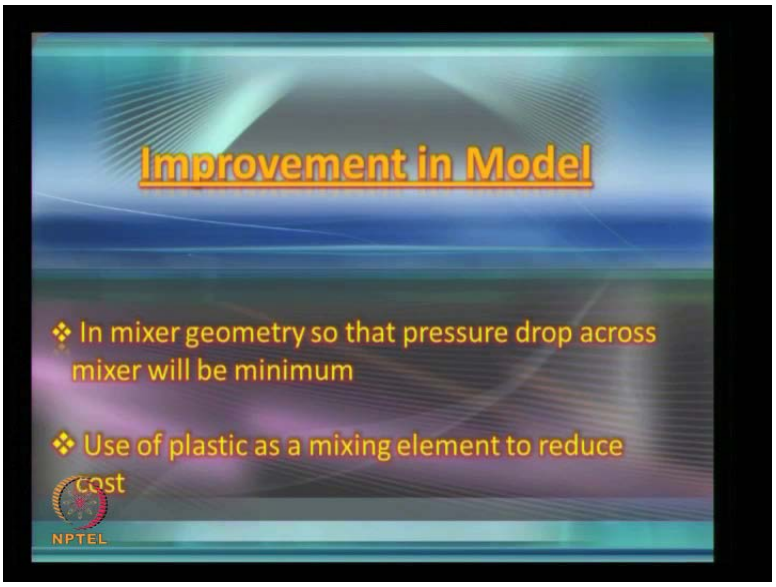

Next is, improvement in the model, mixer geometry should be improve, so that the pressure drop across the mixer will be minimum, we can use a plastic as a mixing element to reduce a cost of model. Thank you.

Good evening ladies and gentleman, I am Dinesh Soundappa, and my roll number is CE10B017. Today I am going to speak to you about, GFRC panels, glass fiber reinforced concrete panels.

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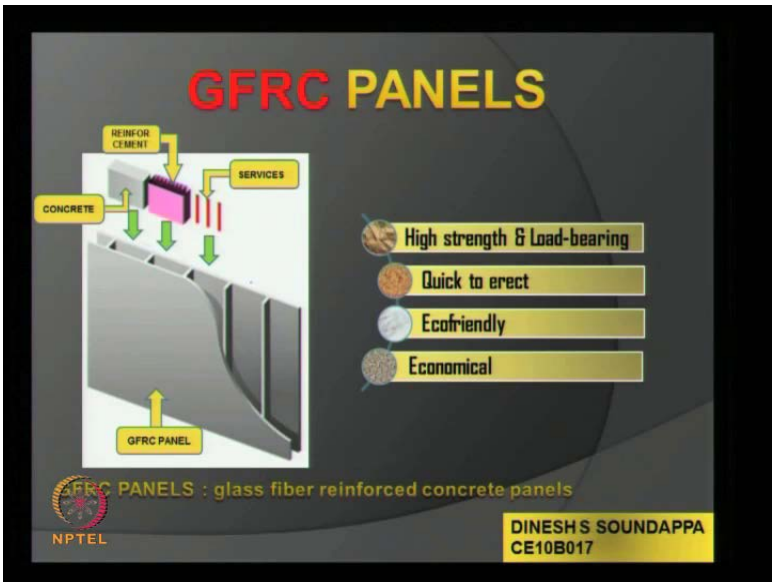

This introduction of this panels is a major breakthrough in the field of construction. This panels are high strength, load-bearing, quick to erect, economical, and also ecofriendly. These panels are generally of 124 mm thick, and in the hollow section reinforcement, plumbing, electrical services are placed, and later for additional strength concrete is poured into it.

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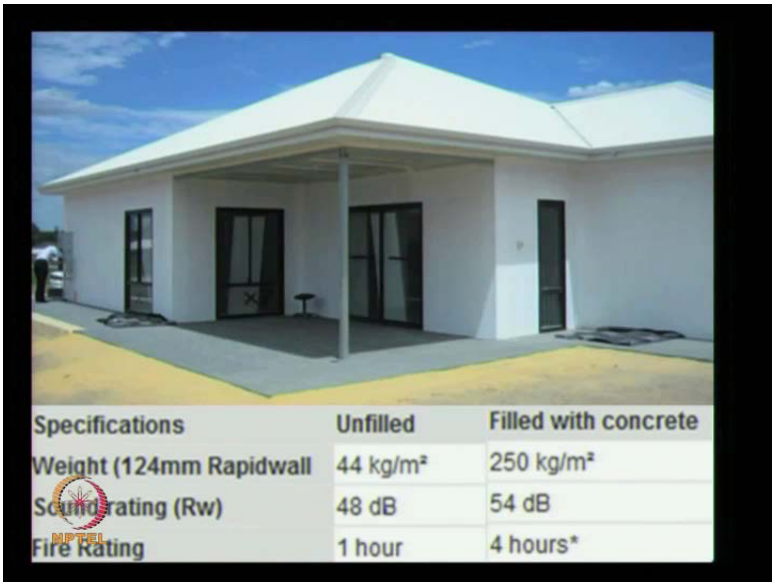

Now in this slide, you can see a house built with the help of GFRC panel, and builds specification of the house is shown. Now, moving on to the process of erecting this

panels. First, the location of these panels is suppose to be marked, with respect to the grid lines, then started on suppose to be place on top of the foundations. Third, panels suppose to be put in place with the help of the crane. Fourth, the panels are suppose to be propped and connected to each other. Fifth, reinforcement is placed inside the hollow section. Sixth, concrete is poured and its ready to use, in such a manner construction can be made easier, faster, and more economic.

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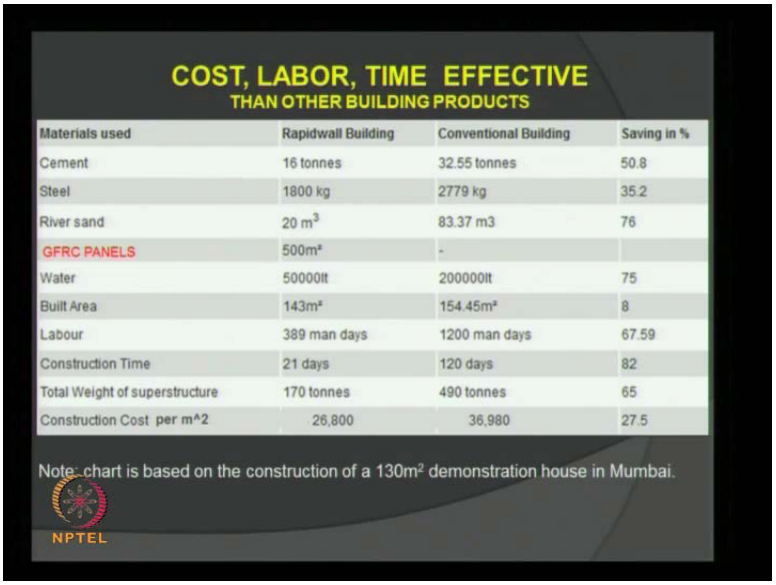

In this slide, you can see that GFRC panels is more effective in terms of cost, labor, time, compared to other construction materials, its very well indicated and you can see, in terms of labor it is a just almost triple the amount. Thank you.

Good evening friends, I Ragavendra, CS10B018, I am here to talk about the engineering of the Cryptex. This word is the neologism, which is originates from the combination of the words Cryptology, and codex. It denotes a portable walt use to hide secret messages.

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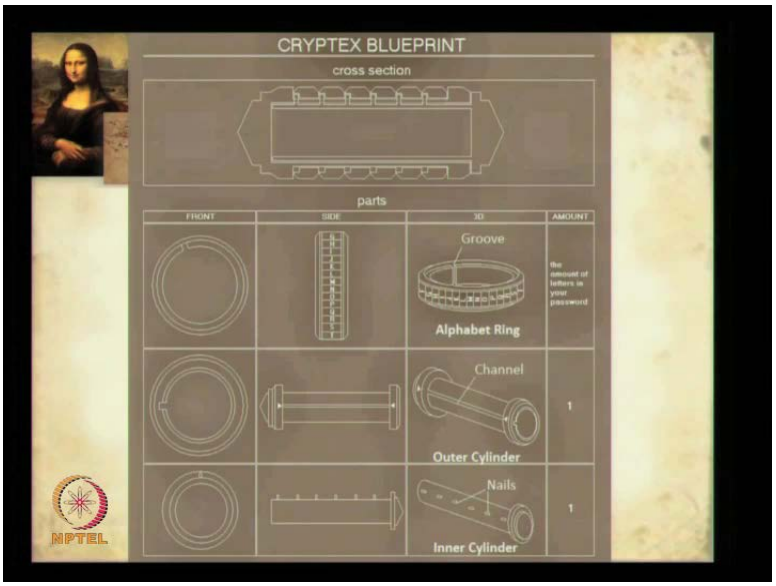

Let see how a Cryptex works, it mainly has two concentric cylinders. The secret message is hidden inside the inner cylinder. The inner cylinder has a set of nails protruding out of it in a straight line. The outer cylinder has a channel through which the inner cylinder can pass through, pass in, or out. The only thing that the blocks this motion is presents of alphabet range around the outer cylinder between the nails. The only way the nails can have a free path to move in, or out is when the rings are set such that, all the groves are aliened perfectly with channel. This is when the password is set to be set, and the secret is revealed.

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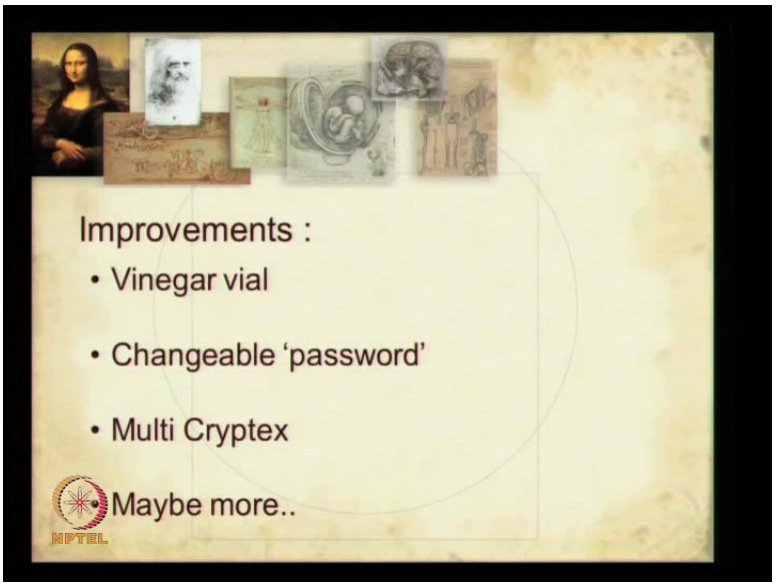

The possible improvements to the to this device can be the use of Vinegar vial, around the message, which can break and destroy the message, if someone tries to force open the device, it can also have changeable passwords are also it can be a Multi Cryptex which opens on having multiple passwords. They can be more, but I will like stop at here. Thank you.

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Respected sir, and my dear friends, a very good evening to one and all, I am Surya Teja, and my roll number is CS10B004. Today, I would like to explain briefly, the working of a coffee maker.

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These are some of important parts of a coffee maker. Now coming to the process, initially the brown coffee beans are placed in the shower head, and water is poured in the reservoir.

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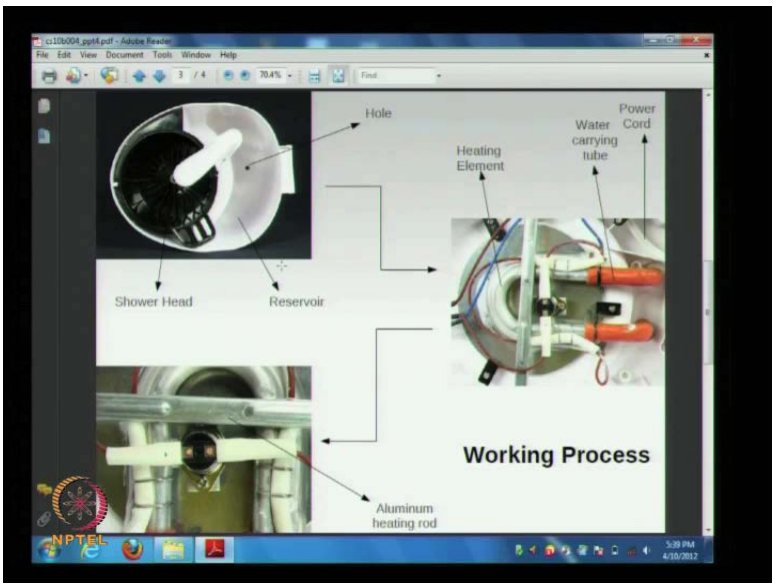

This water slowly sweeps through the hole into the orange tube, from there the water passes through a valve, which is the natural gravity, and gets into the aluminum heating element, this aluminum rod heats up the water and it gets boiled. This boiled water slowly seeps up through the white tubing due to capillary action, and it disperse to trip

evenly distributed beans in the shower head, from there it flows down capturing the essence oil in the beans, which is known as coffeian, and it is collected (( )). Finally, it is mixed with boiled milk to obtain pure filter coffee.

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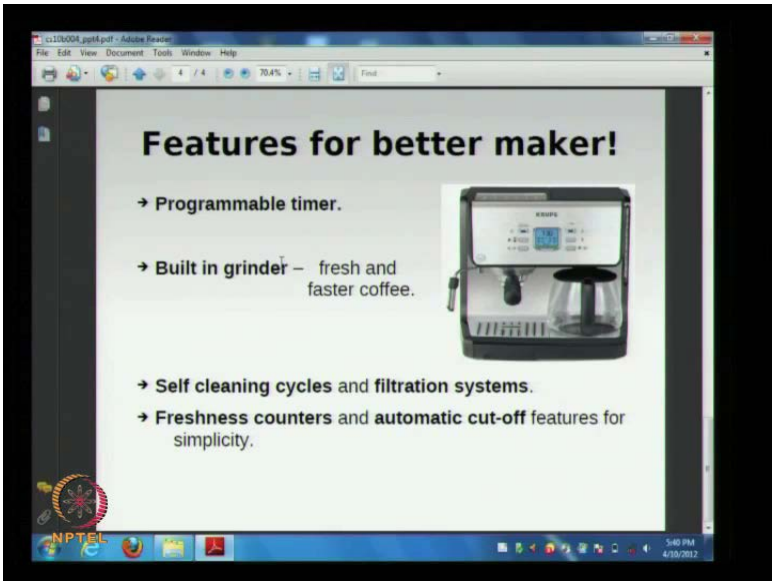

Some improvements could be the inclusion of programmable timer, built in grinder, for fresh and fast coffee, self cleaning cycles and filtration systems also improve its functionality. Thank you, and have a nice day.

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Good evening ladies and gentleman, my name is Raja Sekhar, and my roll number is CS10B012. Today, I would like to discuss about the construction and working of solar panels. Solar panels use light energy from sun, to generate electricity through photo voltaic effect. Since the single solar panel only generates a limited amount of power, most installations contain multiple panels.

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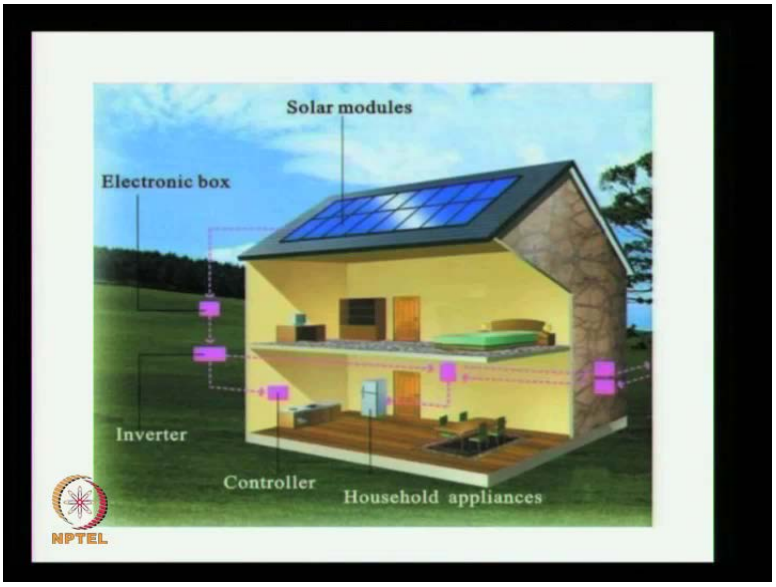

A typical photo voltaic system includes an array of solar panels, an inverter, controller, and then electronic box.

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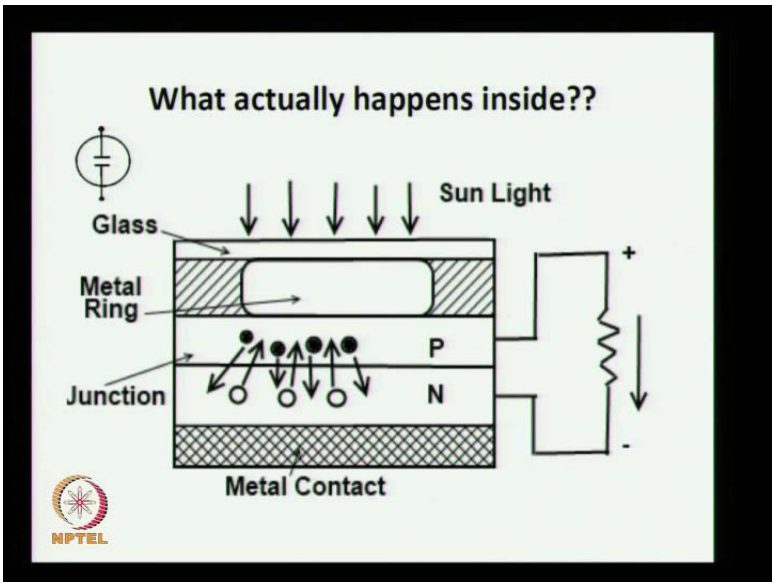

How do the solar panel works? Solar panel essentially consists of a P N junction diode. The glass chamber on the top of the P type material, is made as thin as possible so the incident light photons, may easily reach the junction. These photon collide valance electron such that such that they will be imparted the sufficient energy, to leave them out of the parent atoms. So, both holes and electrons are generated on both sides of the junction, due to which current is produced. The amount of current produced is directly proportional to the illumination, and also to the size of the surface area being illuminated.

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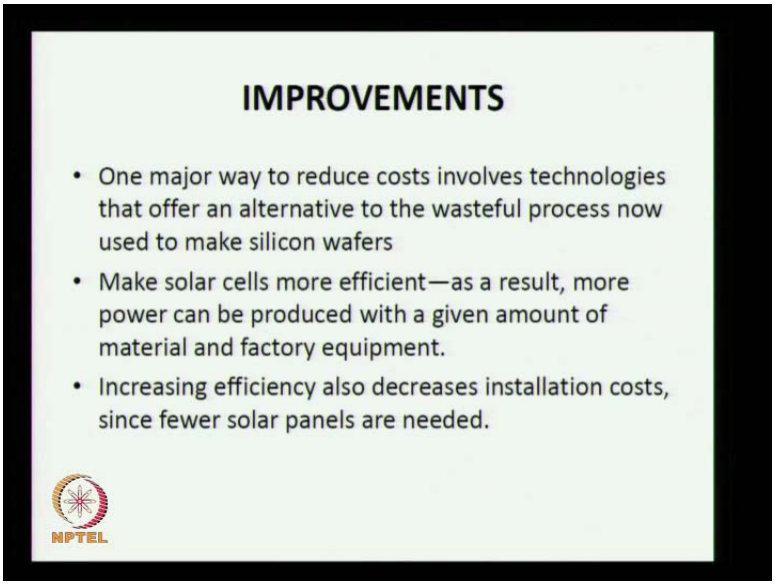

One major way to reduce cost involving solar panel is to make silicon wafers more effective, solar cells could also be made more efficient, such that the more power can be produced with a given amount of material and also it decreases installation costs. Thank you.

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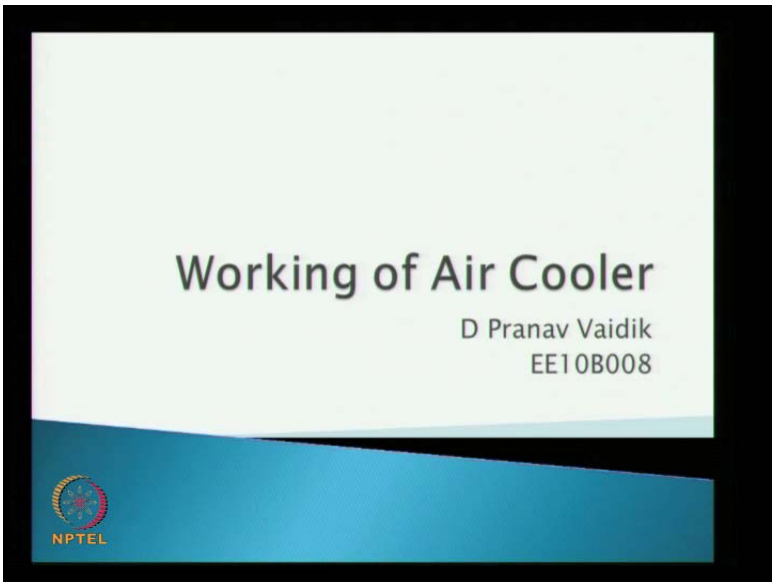

Good evening everyone, I am Pranav, my roll number is EE10B008. Today, I am going to describe, the working of an air cooler a common household appliance.

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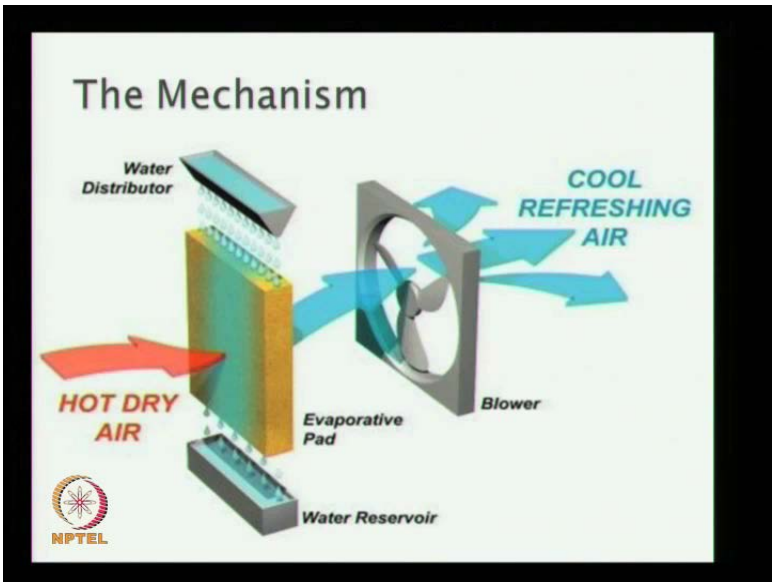

These are the main parts of an air cooler. The air cooler works by drawing in outside air through moist filter pads, the air cools down when the water in the filter pads evaporates. The filter pads also filter the impurities such as dust and pollen from the from the air drawn into them. The filter pads are kept moist by a running water, from water

distributor to water reservoir this is done by a pump. The air the cool air inside is blown outside through the bowl blower.

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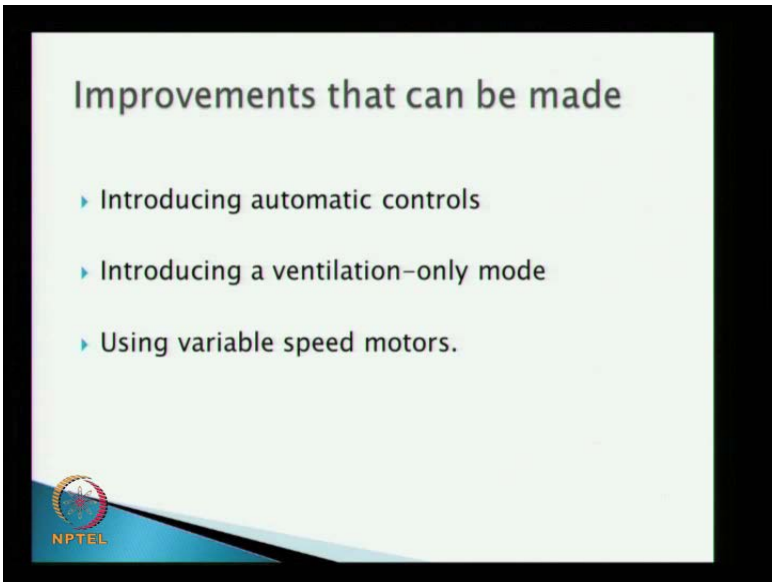

These are some of the suggestions to improve the water, and power efficiency of an air cooler. By introducing automatic controls like, temperature programmable temperature control, the air cooler can be switched off when the temperature reaches to a minimum speed. Thank you.

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Respected sir, and dear friends, good evening to one and all, I am Deepak, my roll number is NA10B008.

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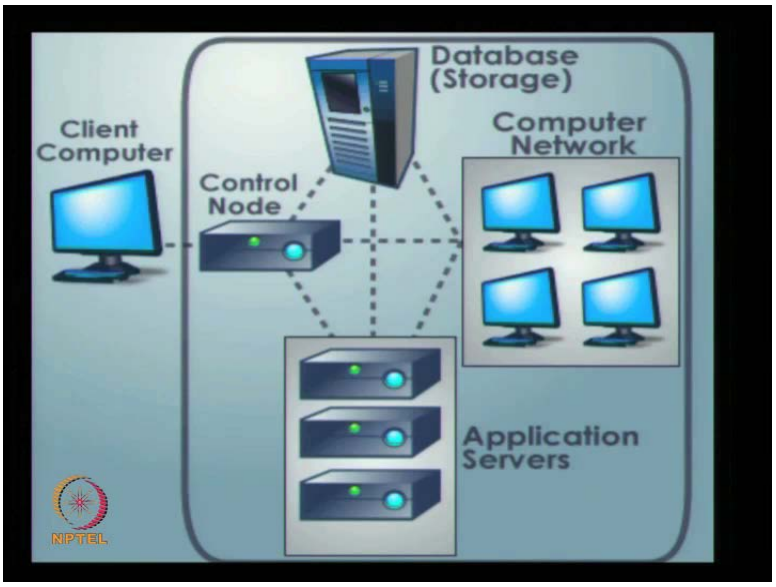

The topic I have chosen is, cloud computing, which is said to be the future of computer industry. Cloud computing is the delivery of computing as a service, rather than a product, where by the sources are provided as a utility like, electricity. Consider a corporation, buying computers for all employees is not enough, softwares and it is licenses are also required to provide all the employees with the required tool, this is where cloud computing comes in, instead of having softwares for all computers you just have to load one application, which allows the worker to login to the web based service, that host the required program. Web based E-mail services like Gmail, Yahoo extra are forms of cloud computing.

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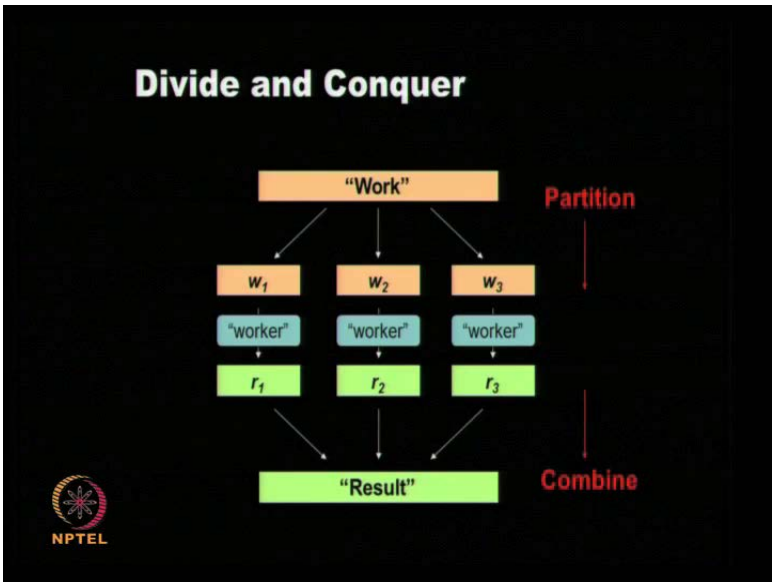

Cloud computing can be divided into two; front, and back end. Front end is the clients computer, and the back end consists of a systems like, huge data storage systems, and servers which make the cloud of cloud computing. The biggest concerns about the cloud computing is that they lack privacy, and security. This can be solved by, authentication techniques like, username and password. The main advantage of cloud computing is that, it reduces the software and hardware demands on user side. Thank you.

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Good evening, my name is M. Sai Vijayendra, and my roll number is EE10B111. Today, I am going to speak about, bread toaster. Bread toaster basically, is a small kitchen appliance, and it takes about 1 to 3 minutes for a toast a bread slice, and its temperature can be controlled, and it can be toast from 2 to 12 pieces at a time.

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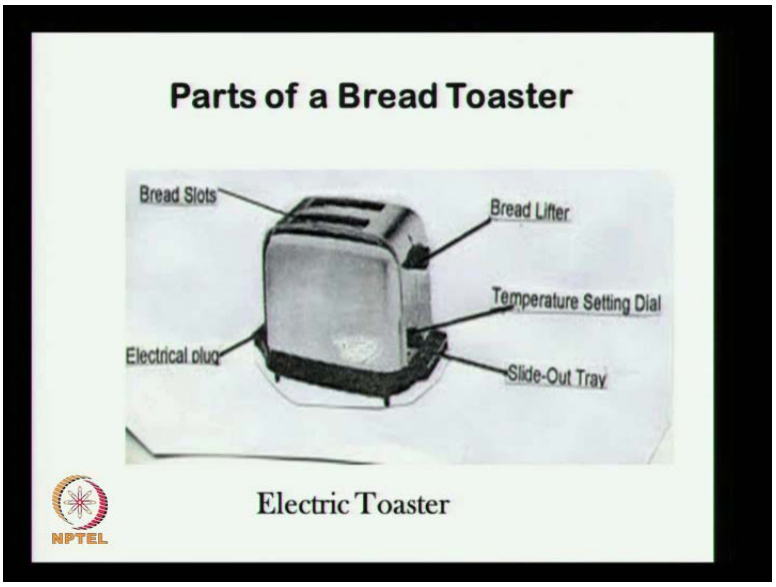

The parts of the bread toaster are as shown in the slide; it has bread slots, electric plug, a bread lifter, temperature setting dial, and a side-out tray.

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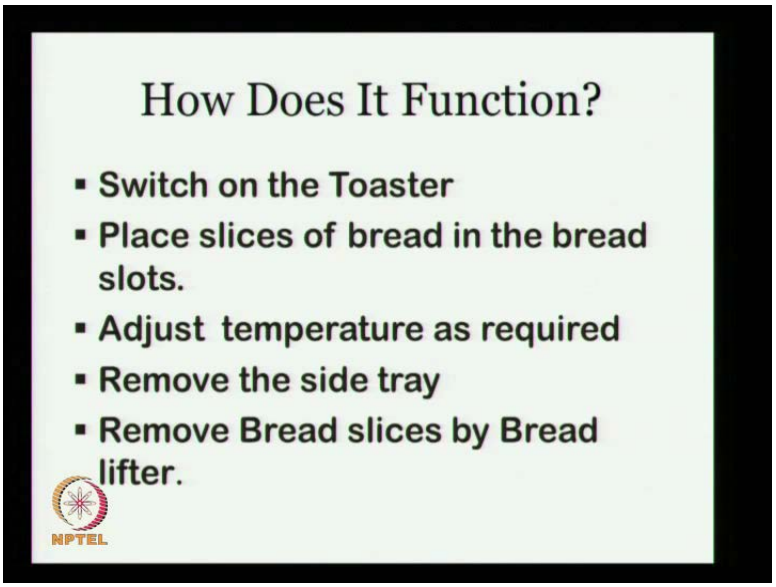

Moving to the functionality, just switch on the toaster, and places slices of the bread in the bread slots, and you can adjust the temperature as required, just remove the side tray, and you can remove the bread slices by using bread lifter.

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But, it has many disadvantages for example, in our mess not every student is capable, or do not have sufficient time, to toast their bread slices, so instead of both using the same thing, you can move to pops up toaster, which is a new variety it is quick, and it is very easy to use, it is versatile, and its works well with different kinds of breads. It automatically pops up the bread buns, the toasting is finished, and it consumes less power than the previous one, and the bottom one is as shown in the slide, and it is open up toaster and we can toast the breads and bread breads and barbecue items in this. Thank you, have a nice day.

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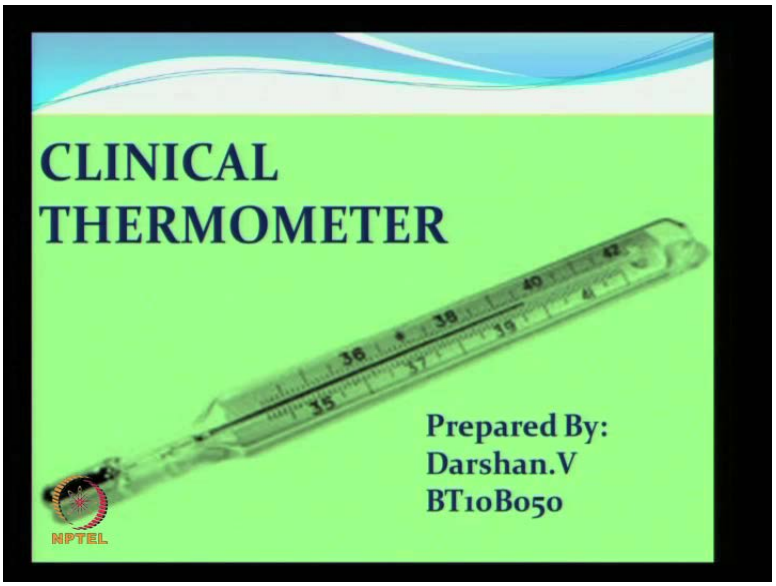

Respected sir, and dear friends, good evening, I am Darshan. V, roll number BT10B050. It is my pleasure to speak to you today, on Clinical Thermometer. A Clinical Thermometer is used to measure body temperature.

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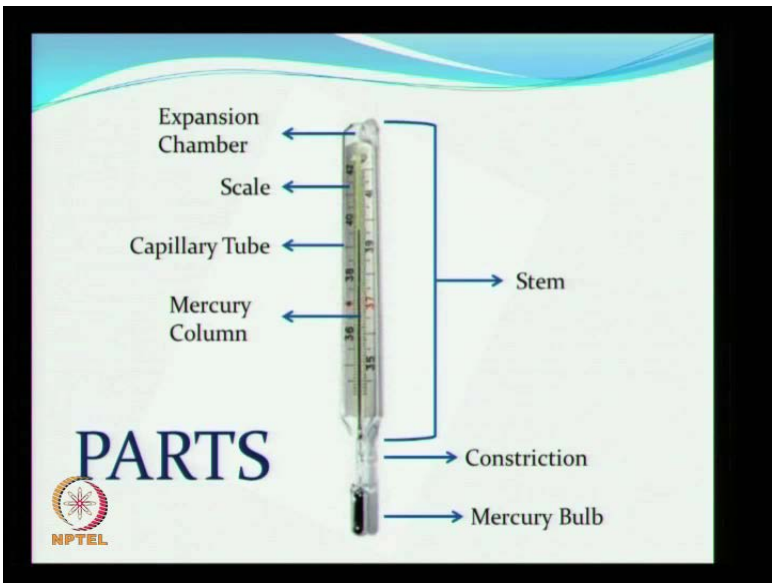

It consists of a Mercury Bulb, and a Stem, which contains the Capillary Tube. There is a construction above the Mercury Bulb.

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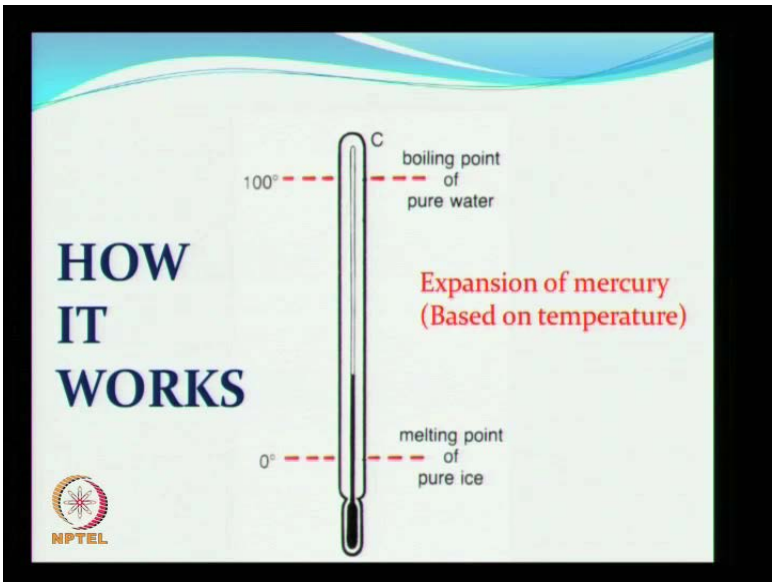

It works on the expansion of fluids, it works in the principle of expansion of fluids. The mercury rises, and falls in the Capillary Tube, based on changes in temperature. The construction makes sure that the mercury does not fall suddenly, thereby enabling us to take the reading correctly.

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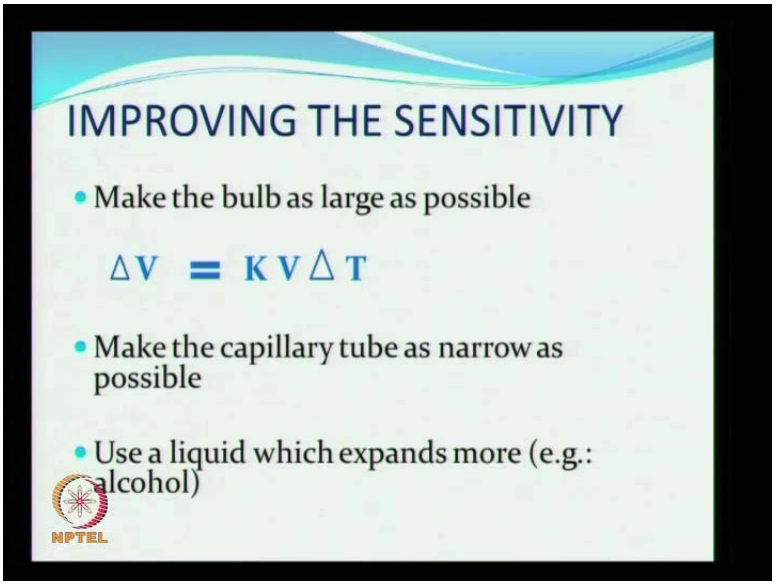

The sensitivity of clinical thermometers can be improved, by making the bulb as large as possible. When the total volume increases, the change in volume for a given change in temperature also increases, as per the equation delta V equal to K V delta T, where delta

T is a change in temperature, K is the thermal co-efficient, and V is a total volume. The sensitivity can further be improved, by making the capillary tube as narrow as possible. The use of a liquid with higher thermal co-efficient, can also lead to a better sensitivity. Thank you, and have a nice evening.